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Peer Vries

# **Escaping poverty**

The origins of modern economic growth

With numerous figures

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To Annelieke, my father, and Patrick O'Brien



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## Introduction

What are the causes of the wealth and poverty of nations? Why are some countries rich while most of them remain poor? To answer this question, this book posits the thesis that the emergence of a new kind of growth must be explained; economists normally characterise this growth as modern economic growth, the essence of which consists in its sustained if not self-sustaining character. Those countries that knew it became rich, while the rest continued to be poor. The book will deal primarily with the question of how this global gap between rich and poor – a gap that continues to confront economists and economic historians with such a huge challenge – actually emerged. That such huge differences exist between poor and rich *in* countries may not be that surprising but what is striking is that wealth is also not evenly or randomly spread over the world and that we see huge differences in wealth *between* countries. Most of the poor in rich countries still live in better circumstances than the bulk of the people in poor countries.<sup>1</sup> That the wealth of the world should be spread so unevenly across nations is anything but obvious. Actually, the fact that there are rich countries *at all* is quite surprising in the sense that it is unusual. Over most of global history, poverty has been the normal state of affairs for societies.

From a *scholarly* perspective the real *intellectual* challenge is to explain how some countries, for a long time, almost exclusively *Western* countries apart from Japan, managed to escape from poverty at all. They did this in the nineteenth and twentieth century in a process that started in Great Britain in the eighteenth century and that often is described as industrialisation but that can be better characterised as a take-off into modern economic growth<sup>2</sup> that created a huge gap between rich countries that had growth and poor countries that lacked it. Countries with this modern growth became much wealthier than countries without it. Ever since the publication of the book by the American economic

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1 See e.g. Milanovic, *The haves and have-nots*, vignette 2.2.

2 See for some comments why it is not correct to simply equate industrialisation with the emergence of modern economic growth, pages 64–66.

historian Kenneth Pomeranz, the coming into being of this gap has been called the Great Divergence.<sup>3</sup> Before that divergence, the average inhabitant of the wealthiest countries of the pre-industrial world, Great Britain and the Dutch Republic in the eighteenth century, had a real per capita income that at best would have been some five times as high as that of inhabitants of the world's poorest countries. When it comes to levels of development, defined as "societies' capabilities to get things done"<sup>4</sup> that are at the basis of their incomes and growth, differences between the most developed societies of the pre industrial world, let us say the Roman Empire, Song China, the Dutch Republic during the seventeenth century or pre-industrial Britain of the eighteenth century were fairly marginal. They in any case did not cause substantial income gaps. Nowadays, as this table for real incomes shows, differences are far greater.

Table 1: Regional purchasing power as a percentage of global purchasing power

Regional purchasing power GDP, % of total, 2011		Regional purchasing power \$ per head, 2011	
World	100.0	World	11,480
Advanced economies	51.1	Advanced economies	39,320
G7	38.5	G7	40,890
Euro area (17)	14.3	Euro area (17)	33,790
Asia*	25.1	Asia*	5,510
Latin America	8.7	Latin America	11,860
Central & Eastern Europe**	7.8	Central & Eastern Europe**	13,280
Middle East & N. Africa	4.9	Middle East & N. Africa	9,900
Sub-Saharan Africa	2.5	Sub-Saharan Africa	2,380

\* excludes Hong Kong, Japan, Singapore, South Korea and Taiwan

\*\* includes Turkey

Source: *The Economist. Pocket World in Figures 2013 Edition* (London 2012) 25.

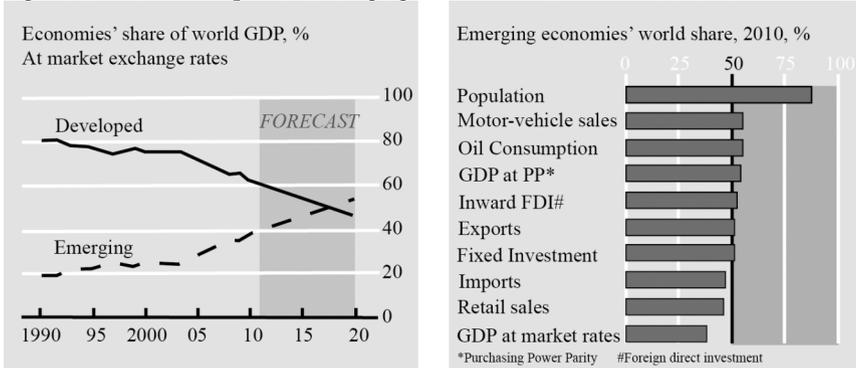
An enormous global gap emerged, as will be illustrated more in detail further on in this book, not just in terms of incomes, but also in terms of accumulated wealth and development, as can be seen, for example, in energy use, in the field of transportation and telecommunication, the level of technology, science and education and in many other respects. This enormous gap between 'the West' and 'the Rest' emerged over the nineteenth and twentieth centuries mainly as a product of the industrial revolution. In many respects, it is still with us. The relative position of the West in the world is clearly changing. Its share of the global population is dwindling. It no longer is a colonial power. Several parts of it

3 See Pomeranz, *Great Divergence*.

4 For this definition, see Morris, *Why the West rules*, 24.

are in a deep and deepening crisis whereas other regions in the world show a striking dynamism and growth. In that sense, the West clearly is past its prime.

Figures 1 and 2: Developed and emerging economies



Source: *The Economist*, August 6<sup>th</sup> 2011, Economic Focus

We should, however, not exaggerate its 'decline'. In terms of per capita income – and that is what really counts for most people – there still is a lot of catching up to do for 'the Rest', even for the famous BRIC countries. When we put the real per capita income of the USA for the year ending with December 31 2010 at 100, that of Brazil would be 23.8; that of Russia 42.2; that of India 7.3 and that of China 16.1. For the United Kingdom, which plays such a prominent role in this book, the figure would be 75.7.<sup>5</sup> And even more importantly: all those emerging economies are emerging because they are beginning to beat the West at its own game, i.e. they become richer by exploiting the mechanisms of modern economic growth like increased investment, innovation, the improvement of their human capital and the expansion of their trade, just as the West did; at the moment, they are making more progress in doing so than the West. This means that the question of what causes such growth to emerge and continue has lost nothing of its relevance. Far from it.

Most economists and economic historians would agree that poverty and stagnation have always been normal in global economic history. This makes the question dealt with in this book why and how certain societies in the West and first and foremost north-western Europe and the United States escaped from that 'normal' state of affairs one of the central questions of their discipline. How, after so many hundreds of years of long-term relative stagnation and stability, did

5 *The Economist*. *Pocket World in Figures 2013 Edition* (London 2012). For the claim that global convergence would be a myth see Sharma, 'Broken BRICs.' *The Economist* of July 27<sup>th</sup>–August 2<sup>nd</sup> does not exclude the possibility of a serious 'Great Deceleration' i.e. an emerging-market slowdown that would mark a turning point for the world economy. See pages 9 and 17–19 of that issue.

certain countries manage to take off into what up until now has been sustained growth? How were they able to break away from the constraints that had always kept growth in check and then turn growth into something systemic? Why did the take-off occur in north-western Europe, first and foremost in Great Britain, a region that for most of history had been something of a backwater as compared to, for example, the great civilizations of the Mediterranean, or the Middle or Far East? How and when was north-western Europe able to slip from the grip of poverty and what was or were the driving force(s) behind its then continuing development and growth?

The debate on the Great Divergence clearly is not a recent fad. It is one of the central questions of history and the social sciences and is as old as those disciplines themselves. Up until quite recently it was usually discussed in terms of 'the rise of the West'.<sup>6</sup> It has become quite vigorous again because a lot of the assumptions it used to take for granted, have become highly contested with the emergence of the so-called 'California School', a group of scholars so called because most of them at one time or another were based in California.<sup>7</sup> Their 'Californian' core consists of Kenneth Pomeranz (now in Chicago), Roy Bin Wong, who recently published a book on the Great Divergence together with Jan-Laurent Rosenthal who is also working in California, Jack Goldstone, Dennis Flynn and Arturo Giráldez, Richard von Glahn, James Lee and Wang Feng, and Robert Marks. Quite similar ideas were defended by scholars whose Californian base is much weaker or simply non-existent, such as Andre Gunder Frank, James Blaut, John Hobson, Jack Goody, Peter Perdue and Li Bozhong, the last one working in Beijing. Over the last fifteen to twenty years, many other scholars with often very different backgrounds in a very lively and innovative way have rekindled what seemed to be an old and somewhat tiring debate. One might think of, in alphabetical order, Robert Allen, Paul Bairoch, Gregory Clark, Jared Diamond, Ricardo Duchesne, Niall Ferguson, Eric Jones, David Landes, Timur Kuran, Alan Macfarlane, Deirdre McCloskey, Ian Morris, Prasannan Parthasarathi, Matt Ridley, Erik Ringmar, Jeffrey Williamson, Robert Wright, Jan Luiten van Zanden and all the members of the Global Economic History Network.<sup>8</sup> The fairly recent but immense popularity of economic divergence and convergence as objects of study and in particular the California School's view on it tie in neatly with the main theme in economic development of our age: the Rise of the East, in particular of China, accompanied by a clear (relative) decline of the West. The Californians, moreover, experiment with a new kind of com-

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6 For that debate see Vries, 'Global economic history: a survey'.

7 For that 'school' and its views see Vries, 'The California School and beyond'.

8 For GEHN see <http://www2.lse.ac.uk/economicHistory/Research/GEHN/Home.aspx>. The network was created by Patrick O'Brien, Kenneth Pomeranz, Kaoru Sugihara and myself.

parative reciprocal history that suits global historians who not only want to juxtapose but also connect. The emphasis on ecology and environment as we see it in the work of, for example, Pomeranz is not only very much *en vogue*, it also allows politically correct historians to be non-judgemental in their claims about what causes wealth and poverty.<sup>9</sup>

The point of departure of our analysis will be the revisionist approach by scholars of the California School who claim that the economically most advanced parts of Asia in the early modern era were just as rich and developed as Western Europe at the eve of industrialisation if not more so. If that indeed were the case, it would severely undermine the basis of most traditional ‘rise-of-the-West-stories’, that almost without exception believed in some kind of European exceptionalism and assumed that Europe during the modern era was in any case quite different and economically more advanced or at least advancing more rapidly. The California revisionist thesis, in a nutshell, can best be described in terms of ‘surprising resemblances’ and ‘Eurasian similarities’. The idea of ‘surprising resemblances’ is presented in Part One of Pomeranz’s trailblazing *The Great Divergence*, in which he describes parts of Western Europe and Eastern Asia in the early modern era as ‘a world of surprising resemblances’.<sup>10</sup> The popularity and immense impact of Pomeranz’s view needs no further comment.<sup>11</sup> Peter Perdue presents basically the same view in his ‘Eurasian-similarity-thesis’ that tries to transcend the insistence on East-West dichotomies.<sup>12</sup> Publications by, e.g. in alphabetical order, John Darwin, Jack Goody, Victor Lieberman or Prasannan Parthasarathi show the increasing popularity of focusing on similarities instead of differences in comparing parts of Eurasia.<sup>13</sup> It has to be added though that the debate on the Great Divergence, which initially focused on Western Europe and Eastern Asia and basically still does, has now begun increasingly to include (Latin) America and Africa in what is becoming a truly global economic history.

A number of scholars have even begun explicitly to describe early modern Europe as ‘backward’. Andre Gunder Frank (1929–2005) in his famous *ReOrient. Global economy in the Asian age* i.e. the period 1400–1800, systematically hammers home one message: Economic historians studying the early modern

9 De Vries, ‘*The Great Divergence* after ten years: justly celebrated yet hard to believe’, 13.

10 Pomeranz, *Great Divergence*.

11 For my views on this book, see Vries, ‘Are coal and colonies really crucial?’

12 Perdue, *China marches West*, 536–542.

13 For Lieberman’s ideas in this respect, see Lieberman, ed., *Beyond binary histories*, 1–18, and 19–102; idem, *Strange parallels*, Volumes I and II. For Jack Goody’s views, see his *Capitalism and modernity; Theft of history; Eurasian Miracle and Renaissances: the one or the many*. For John Darwin’s see his, *After Tamerlane* e.g. pages XI, 12–13, and 104–105. Prasannan Parthasarathi in his *Why Europe grew rich and Asia did not* rejects “simplistic classical dualisms” (page 84) and prefers to think in terms of “parallels in Eurasia”. (page 4).

era must focus on the East, in particular China, the world's most developed economy. To focus on 'rising' Europe is a Eurocentric mistake. Until the second half of the eighteenth century: "... Europe remained a marginal player in the world economy with a perpetual deficit (i. e. in its trade with Asia, PV) despite its relatively easy and cheap access to American money, without which Europe would have been almost entirely excluded from any participation in the world economy."<sup>14</sup> According to Frank "... the Europeans did not do anything – let alone 'modernize' – by themselves".<sup>15</sup> When they in the end rose, they did so by "climbing up on Asian shoulders" with money they had somehow found, stolen or extorted.<sup>16</sup> He thinks "... on the evidence, the European and even Atlantic economies, not to mention their polities, were no more than backwaters in the world economy."<sup>17</sup> Robert Marks writes in a popular textbook that Europe was "... a peripheral, marginal player trying desperately to gain access to the sources of wealth generated in the East".<sup>18</sup> Felipe Fernandez-Armesto, in his *Pathfinders. A global history of exploration*, describes Europeans as "dregs of history".<sup>19</sup> John Hobson, in his *The Eastern origins of Western civilisation*, tells us time and again that the West, apart from the last two-hundred years, has always been backward and only became rich by lots of luck, racism, war and imperialism.<sup>20</sup>

But even Californian revisionists of course have to admit that there was a period in history when the West was by far the richest and most powerful part of the world. In their view, it was the Industrial Revolution that made the difference. That is not exactly a new idea. That revolution, that they without further ado tend to regard as the essence of the Great Divergence, however, in their view needs to be interpreted anew and quite differently. Let me illustrate this by two quotations, the first one by Peter Perdue, the second one by Jack Goldstone, both members of the California School:

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14 Frank, *ReOrient*, 75. This is a quite silly statement. I fully agree with Lieberman and his comment: "One may well ask how a region that conducted an extensive internal commerce, and that in 1750 dominated the trade of West Africa, the entire New World, and much of maritime Southeast Asia and coastal India, could have been marginal to the world economy." See Lieberman, *Strange parallels*. Volume 1, 74, note 109.

15 Frank, *ReOrient*, 259.

16 Frank, *ReOrient*, 277.

17 Frank, *ReOrient*, 333.

18 Marks, *Origins of the modern world*, 43.

19 Fernandez-Armesto, *Pathfinders*, 19.

20 Hobson, *Eastern origins of Western civilisation*. Just one typical quote from page 218: "Moreover, without these Chinese contributions Britain would in all likelihood have remained a small, backward country floating on the periphery of an equally backward continent, that in turn had been floating on the periphery of the Afro-Asian-led global economy ever since 500 CE."

In the light of this recent research, the Industrial Revolution is not a deep, slow evolution out of centuries of particular conditions unique to early modern Europe. It is a late, rapid, unexpected outcome of a fortuitous combination of circumstances in the late eighteenth century. ... acceptable explanations must invoke a global perspective and allow for a great deal of short-term change.<sup>21</sup>

Instead of seeing the rise of the West as a long process of gradual advances in Europe while the rest of the world stood still, they (i. e. members of the California School PV) have turned this story around. They argue that societies in Asia and the Middle East were the world leaders in economics; in science and technology; and in shipping, trade and exploration until about AD 1500. At the time Europe emerged from the Middle Ages and entered its Renaissance, these scholars contend, Europe was well behind many of the advanced societies elsewhere in the world and did not catch up with and surpass the leading Asian societies until about AD 1800. The rise of the West was thus relatively recent and sudden and rested to a large degree on the achievements of other civilizations and not merely on what happened in Europe. Indeed some of these scholars suggest that the rise of the West may have been a relatively short and perhaps temporary phenomenon, as other societies are now catching up to or even surpassing Western societies in their growth.<sup>22</sup>

Not to fight straw-men, I immediately should add that the most important Californian, Kenneth Pomeranz, very recently admitted that he probably overstated the lateness and suddenness of the Great Divergence and that economic parity between the two extremes of Eurasia probably had already disappeared in 1750 if not in 1700. The Great Divergence, so he now writes, may indeed have been somewhat more of a drawn-out process instead of a quite sudden break.<sup>23</sup> But he does not abandon the idea that a long-term parity between the most advanced economies in the world would have existed and that they were characterised by surprising resemblances until quite late in the early modern era.

## 1. The emergence and non-emergence of modern economic growth

As indicated, we are dealing here with one of the central questions in history and the social sciences. The problem at hand is very complicated and multi-faceted. Many debates in which it purportedly is analysed turn out in the end to be quite sterile because the discussants actually are talking about different things. It

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21 Perdue, *China marches West*, 537. This interpretation is strikingly different from that of most economic historians who study Britain's industrialisation in detail.

22 Goldstone, *Why Europe*, VIII.

23 See De Vries, 'The Great Divergence after ten years: justly celebrated yet hard to believe' and Pomeranz, 'Ten years after'.

therefore is essential to indicate exactly what one wants to explain and what assumptions and facts one takes as point of departure. I will dedicate quite a few pages to indicating what exactly in my view the debate on the Great Divergence is about and what that means for the way in which it has to be held.

Let me first provide some empirical data to indicate what phenomena we actually want to explain and begin by emphasizing that only the *economic* side of the Rise of the West will be discussed, i. e. how and why the West became so much wealthier than the Rest, not the politico-military side i. e. not the question of how and why the West came to rule so much of the world, a connected but certainly not identical subject. The focus here will be on wealth, development and growth. The following tables and graph should be quite informative.

Table 2: Population of Europe (without Russia) as a percentage of world population

<i>Year</i>	<i>World (Mil.)</i>	<i>Europe (Mil.)</i>	<i>Europe (%)</i>
1000	267	31	12
1500	438	71	16
1820	1,042	170	16
1913	1,791	341	19
2003	6,279	561	8

Based on: Angus Maddison, *Contours of the world economy, 1 – 2030 AD. Essays in macro-economic history* (Oxford 2007) 376 and 378. The figures are rounded.

Table 3: Europe's (without Russia) share of global GDP

<i>Year</i>	<i>Percentage</i>
1000	11
1500	20
1820	26
1913	38
2003	21

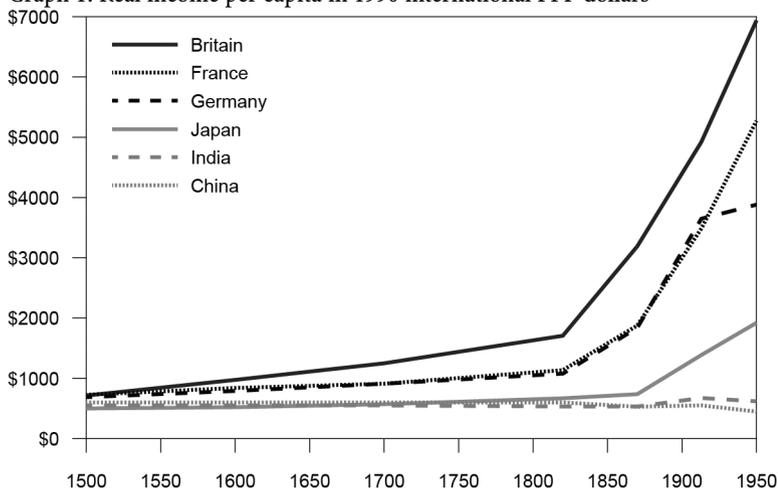
Based on: Angus Maddison, *Contours of the world economy, 1 – 2030 AD. Essays in macro-economic history* (Oxford 2007) 381. The figures are rounded.

Table 4: Average per capita income in US dollars, 1990 international Purchasing-Power Parity (PPP), in 1820 and 1913

	1820	1913
Western Europe	1,232	3,473
Eastern Europe	636	1,527
Western off-shoots	1,201	5,257
Latin America	665	1,511
Asia without Japan	575	640
Japan	669	1,387
Africa	418	585

Source: Angus Maddison, *The world economy. A millennial perspective* (Paris 2001) 264. For an explanation of the concept of purchasing-power parity see [http://en.wikipedia.org/wiki/Purchasing\\_power\\_parity](http://en.wikipedia.org/wiki/Purchasing_power_parity)

Graph 1: Real income per capita in 1990 international PPP dollars



Based on information in: Angus Maddison, *The world economy. A millennial perspective* (Paris 2001).

Table 5: Colonies of Western European states, United States, and Japan

Year	Land area colonized as % of world total	Population colonized as % of world total
1760	18	3
1830	6	18
1880	18	22
1913	39	31
1938	42	32

Source: Jane Burbank and Frederic Cooper, *Empires in world history. Power and the politics of difference* (Princeton 2002) 288.

Table 6: Relative shares of world manufacturing 1750 – 1900 (%)

	1750	1800	1830	1860	1880	1900
Europe as a whole	23.2	28.1	34.2	53.2	61.3	62.0
United Kingdom	1.9	4.3	9.5	19.9	22.9	18.5
Habsburg Empire	2.9	3.2	3.2	4.2	4.4	4.7
France	4.0	4.2	5.2	7.9	7.8	6.8
German States / Germany	2.9	3.5	3.5	4.9	8.5	13.2
Italian States / Italy	2.4	2.5	2.3	2.5	2.5	2.5
Russia	5.0	5.6	5.6	7.0	7.6	8.8
United States	0.1	0.8	2.4	7.2	14.7	23.6
Japan	3.8	3.5	2.8	2.6	2.4	2.4
Third World	73.0	67.7	60.5	36.6	20.9	11.0
China	32.8	33.3	29.8	19.7	12.5	6.2
India / Pakistan	24.5	19.7	17.6	8.6	2.8	1.7

Source: Chris Freeman and Francisco Louçã, *As time goes by. From the industrial revolutions to the information revolution* (Oxford 2001) 183.

Table 7: Per capita levels of industrialisation, 1750 – 1900 (relative to UK in 1900 = 100)

	1750	1800	1830	1860	1880	1900
Europe as a whole	8	8	11	16	24	35
United Kingdom	10	16	25	64	87	[100]
Habsburg Empire	7	7	8	11	15	23
France	9	9	12	20	28	39
German States / Germany	8	8	9	15	25	52
Italian States / Italy	8	8	8	10	12	17
Russia	6	6	7	8	10	15
United States	4	9	14	21	38	69
Japan	7	7	7	7	9	12
Third World	7	6	6	4	3	2
China	8	6	6	4	4	3
India / Pakistan	7	6	6	3	2	1

Source: Chris Freeman and Francisco Louçã, *As time goes by. From the industrial revolutions to the information revolution* (Oxford 2001)183.

Table 8: Capacity of all steam engines (in thousands of horse-power)

	1840	1850	1860	1870	1880	1888	1896
Great Britain	620	1,290	2,450	4,040	7,600	9,200	13,700
Germany	40	260	850	2,480	5,120	6,200	8,080
France	90	370	1,120	1,850	3,070	4,520	5,920
Austria	20	100	330	800	1,560	2,150	2,520
Belgium	40	70	160	350	610	810	1,180

(Continued)

	1840	1850	1860	1870	1880	1888	1896
Russia	20	70	200	920	1,740	2,240	3,100
Italy	10	40	50	330	500	830	1,520
Spain	10	20	100	210	470	740	1,180
Sweden	–	–	20	100	220	300	510
Netherlands	–	10	30	130	250	340	600
Europe	860	2,240	5,540	11,570	22,000	28,630	40,300
U.S.A.	760	1,680	3,470	5,590	9,110	14,400	18,060
World	1,650	3,990	9,380	18,460	34,150	50,150	66,100

Source: David S. Landes, *The unbound Prometheus. Technological change and industrial development in Western Europe from 1750 to the present* (second edition; Cambridge 2003) 221.

Table 9: Regional distribution of World Trade, 1876–1913 (%)

Region	1876–80			1913		
	Exports	Imports	Total trade	Exports	Imports	Total trade
Europe	64.2	69.6	66.9	58.9	65.1	62.0
N. America	11.7	7.4	9.5	14.8	11.5	13.2
Latin America	6.2	4.6	5.4	8.3	7.0	7.6
Asia	12.4	13.4	12.9	11.8	10.4	11.1
Africa	2.2	1.5	1.9	3.7	3.6	3.7
Oceania	3.3	3.5	3.4	2.5	2.4	2.4

Source: A.G. Kenwood and A.L. Lougheed, *The growth of the international economy, 1820–1960* (London 1971) 93.

Table 10: Extension of the railway net, in km

Year	Great Britain	France	Belgium	Germany	Habsburg Empire	Italy	Spain	Russia	Europe	U.S.	World
1850	9,757	2,915	854	5,856	1,357	620	28	501	23,100	14,400	37,600
1870 (20,000)		15,544	2,897	18,876	6,112	6,429	5,454	10,731	101,300	85,400	205,200
1890	27,820	33,280	4,526	42,869	15,523	13,629	10,163	30,595	208,000	249,700	566,900
1913	32,623	40,770	4,776	63,378	44,800	18,873	15,351	70,156	321,600	400,197	925,300

Source: Antonio di Vittorio, ed., *Historia económica de Europa. Siglos XV–XX* (Barcelona 2003 and 2007) 271. The table is taken from the contribution by Giovanni Luigi Fontana on the nineteenth century.

Table 11: Inventions and innovations per country 1750 – 1950, % of total

	<i>Total</i>	<i>Great Britain</i>	<i>France</i>	<i>Germany</i>	<i>USA</i>	<i>Other</i>
1750 – 1775	30	46.7	16.7	3.3	10.0	23.3
1776 – 1800	68	42.6	32.4	5.9	13.2	5.9
1801 – 1825	95	44.2	22.1	10.5	12.6	10.5
1826 – 1850	129	28.7	22.5	17.8	22.5	8.5
1851 – 1875	163	17.8	20.9	23.9	25.2	12.3
1876 – 1900	204	14.2	17.2	19.1	37.7	11.8
1901 – 1914	87	16.1	8.0	17.2	46.0	12.7
1915 – 1939	146	13.0	4.1	13.0	58.6	11.3
1940 – 1950	34	2.9	0.0	6.7	82.4	8.0

Source: Giovanni Gozzini, *Un'idea di giustizia. Globalizzazione e ineguaglianza dalla rivoluzione industriale a oggi* (Turin 2010) 25.

The Great Divergence was caused by the economic rise of some and the non-rise and sometimes even economic decline of many regions. More specifically, the gap emerged because the economies of parts of the world began and continued to grow, which was abnormal, whereas in the rest they did not, which was quite normal. The fundamental fact to be explained is the beginning or origin of a historically novel kind of growth that economists tend to call ‘modern economic growth’. This book deals with: ‘How it all began’. Such growth involves a per capita rise in real income.<sup>24</sup> It is defined as *substantial*, of course a qualification that is a matter of debate, but most importantly as *sustained*. The Great Divergence is studied here as the effect of the fact that some regions in the world came to know this growth, whereas most of the others didn’t or did only much later. Discussing the Great Divergence means discussing quite persistent differences in development. It is very unlikely that the persistent and increasing differences as shown in Tables 2 – 11 and Graph 1 could be sufficiently explained by reference to a punctuated rupture, a sudden coincidence or windfall, whose effects then continued *and* increased over time. Surprisingly enough, however, several scholars think they can. I will return to differences about what can count as an adequate explanation later on. First some further elucidation is in order with regard to the *explanandum* of my analysis.

That explanandum of this book thus is the emergence of modern economic growth. That type of growth is regarded here as fundamentally distinct from traditional forms of economic growth, which is not uncontested. Not all scholars think in terms of a sharp analytical distinction between traditional growth and modern economic growth as I do in my analysis. In my view though, at least analytically, the distinction is clear: when modern economic growth emerged, it

<sup>24</sup> Such per capita growth usually is referred to as *intensive* growth in contrast to *extensive* growth that refers to an increase in total income.

was, in contrast to growth in all preceding organic, ‘Malthusian’ economies, based on a massive and new use of energy sources and raw materials, on new technologies and new institutions.<sup>25</sup> It could become sustained because innovation in production became all but uninterrupted. To be more specific: with industrialisation there emerged an economy in Great Britain that was based on minerals and on fossil fuel, with fossil fuels now also providing power, and in which technological and institutional innovation was sustained. In particular, when it comes to the use of minerals and fossil fuel and to technological innovation, the economy that emerged with industrialisation in Britain is to my mind fundamentally different from even the most advanced preceding organic economies.<sup>26</sup> In reality of course, in particular during the first ‘transitional’ phase of industrialisation, we see continuity and change, a mixture of old and new, but to my view with the massive use of fossil fuels and minerals an entirely new kind of economy became possible. Berkeley economic historian Jan de Vries and his late friend from Wageningen University in the Netherlands, Ad van der Woude, for example, would not agree. They claimed in their collective *magnum opus* that the Dutch economy as the first economy in the world already went through a phase of modern economic growth (in Dutch the subtitle of their book is: The first round of modern economic growth) *before* industrialisation in Britain.<sup>27</sup> Jan de Vries expanded on this thesis and its implication in several articles.<sup>28</sup> According to them, the Netherlands actually industrialised fairly late because its economy already was so modern.<sup>29</sup> When one looks at indicators such as urbanisation, schooling, mobility, monetisation, political environment and its system of law or at the behaviour of its economic agents – perfect *homines oeconomici* – it indeed already had a modern institutional setting. De Vries and

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25 I explicitly want to point out that I use term ‘Malthusian’ here in a general ‘loose’ sense, referring to the limits to growth in a pre-industrial society and the general tension between population and resources, and *not* in the more technical sense in which demographers use it and in which very specific correlations are postulated between income, mortality and fertility. See for a brief introduction and test of that approach, Crafts and Mills, ‘From Malthus to Solow’, and Craig, ‘Comment on ‘From Malthus to Solow’, and the references in these texts. The Malthusian demographical model has three variables: a fertility or birth rate that is supposed to go down in a period of increasing scarcity and up in a period of decreasing scarcity, a mortality or death rate that does the opposite and income that is determined by labour and that over the long run is assumed to be quite stable.

26 See for these concepts Wrigley, *Continuity, chance and change*, and idem, *Energy and the English Industrial Revolution*.

27 De Vries and Van der Woude, *The first modern economy*, ‘Epilogue’.

28 See for this thesis Jan de Vries, ‘The Industrial Revolution and the Industrious Revolution’; ‘Economic growth before and after the Industrial Revolution’; ‘The industrious revolution and economic growth, 1650 – 1830’; *The industrious revolution: Consumer behavior and the household economy, 1650 to the present* and ‘Industrious peasants in East and West’. This text is a comment on Saito, ‘An industrious revolution in an East Asian market economy?’.

29 A point also made by Mokyr, *Enlightened economy*, 169.

Van der Woude do not deny that growth as such did peter out in the Dutch Republic. But in their view, that was not because of some kind of Malthusian constraint<sup>30</sup>, e.g. lack of modern sources of energy. Very substantial amounts of peat were used, in the nineteenth century as much as in the two previous centuries combined. It moreover was just as cheap to transport coal from Newcastle to London as from Newcastle to Rotterdam. One may indeed claim that the country failed to make the transition to the latest energy system. For quite some time the use of steam engines in production was rare. The initially restricted use of coal, however, had good economic reasons and when those after a couple of decades no longer existed, the country soon caught up with the most advanced technologies. De Vries and Van der Woude regard industrialisation *senso stricto*, in terms of steam and factories, as only a – non-indispensable – part of a much broader process of modern economic growth, and that much broader process in their view had already started in the Dutch Republic. Moreover, as they wonder, is the sustained growth of the industrial world indeed sustainable? Is not the post-industrial modern world now in a position similar to that of the Netherlands in 1700? Basically we are dealing here with a debate about the relative importance of various motors of growth. My view would be that with coal and especially steam Britain entered a new economic regime with unheard of potential for growth, whereas the Dutch Republic with all its institutional modernity ‘only’ presented the highest but finite last stage of traditional economic growth. In reality, of course, all distinctions are floating and blurred, but analytically I think that with steam a new economy was born. I in any case hope to show in the rest of book that in the eighteenth century in Britain something really novel emerged with huge and worldwide consequences.

Identifying the Great Divergence with the emergence of modern economic growth has some important implications. It means that explaining it is not identical to explaining capitalism as is often simply assumed in texts about ‘the rise of the West’. Not only because conceptually modern economic growth and capitalism – here for the sake of convenience and to some extent erroneously defined as ‘the market economy’<sup>31</sup> – are two distinct phenomena, even when they in practice are often related. There are several examples of capitalist societies (a very complex, multi-faceted and debated concept anyhow) that did not ‘automatically’ take off into modern economic growth. Adam Smith (1723 – 1790) never discussed the transition from what we here for the sake of convenience and brevity call ‘mercantile’ to ‘industrial’ capitalism and to modern economic growth be-

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30 See for the meaning of that term page pages 66 – 79.

31 For an analysis of the concept and its many meanings see pages 329 – 335. For me capitalism is not identical to the market economy as it is often loosely described as in capitalism *all* goods and services are commodified not just those meant for consumption.

cause he never thought growth could really be sustained over a long period of time. Most modern economists following in his footsteps seldom if ever discussed that distinction and transition, in their case because they came to think that market competition would sooner or later inevitably bring technological innovation.<sup>32</sup> Most followers of Weber also tended to explain the rise of the West in terms of the rise of capitalism and to look at industrialisation and the growth that accompanied it as just a phase in that rise. The same goes, be it for quite different reasons, for scholars such as Fernand Braudel (1902–1985) and Immanuel Wallerstein. How exactly the transition from feudalism to capitalism and *then* to industrial capitalism was made, continues to divide Marxist scholars.<sup>33</sup> While recognizing that mercantile capitalism is fundamentally different from industrial capitalism, they as a rule claim that the former, somehow, produced the latter. Karl Marx (1818–1883) himself distinguished between two routes in the transition to modern industry: the really revolutionary one, where the producer may become a merchant, and a second one in which the merchant takes control over production.<sup>34</sup> For him capitalism before industrialisation was fundamentally different from industrial capitalism, but still the first one somehow ‘contained’ the second one. Although I think Wrigley is exaggerating – I personally do see a clear and strong tendency for modern economic growth to result from the logic of capitalism *à la* Marx – his comment that the relationship between capitalism and industrialisation (and modern economic growth) would be *casual* rather than *causal* is in any case a welcome reminder that industrialisation and modern economic growth are not as such *necessary* outcomes of capitalism.<sup>35</sup> Not by accident, in current debates the issue tends to be discussed in different terms, to wit as the transition from ‘Smithian’ growth to ‘Schumpeterian’ growth.<sup>36</sup>

Identifying the Great Divergence with the first emergence of modern economic growth also implies that explaining it is not per se identical to explaining industrialisation either as Marx, Weber and many others tend to suggest. In any case not if that term is meant to refer solely to the rise of mechanised factory production. C. Knick Harley rightly points out that “we often loosely, but *mis-takenly* [*italics mine*] use the term “industrialisation” as a synonym for modern

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32 See for examples pages 110, 132, 323–324.

33 See, for example, the already somewhat dated publications by Holton, *Transition from feudalism to capitalism* and Hilton, *The transition from feudalism to capitalism* and the more recent ones by Wood, *Origin of capitalism* and Epstein, ‘Rodney Hilton, Marxism and the transition from feudalism to capitalism’.

34 Karl Marx in *Marx Engels Werke* (Berlin 1956–1990) Volume 25, page 347. From now on referred to as *MEW*.

35 Wrigley, *Continuity, chance and change*, 115. This is true for ‘Smithian’ as well as ‘Marxian’ capitalism. See for those terms pages 329–335.

36 See the previous note.

economic growth.”<sup>37</sup> In Britain the emergence of modern economic growth to a large extent coincided in time with the rise of the factory and the machine, and probably can also best be symbolised by them, but it clearly was not identical to their rise as, for example, Parthasarathi assumes in his recent book when he even goes as far as identifying that revolution solely with what was happening in cotton and iron production.<sup>38</sup> A very substantial part of Britain’s growth over the period 1750 – 1850 occurred in *other* sectors of manufacturing, *outside* factories, and not to forget, in other sectors of the economy like agriculture and services, including transport.<sup>39</sup> The country not only had a relatively *large*, highly productive *secondary* (i. e. manufacturing and industrial) *sector* but also, which in the end is just as important for explaining its high GDP per capita, a relatively *small*, but highly productive *primary* (i. e. agricultural) *sector*. The importance of the service sector for Britain’s economy at the time can hardly be overestimated, and over time it further increased.<sup>40</sup> That also was the case in countries that industrialised later. Many countries developed a modern economy with modern economic growth without going through a phase of massive industrialisation in the literal, restricted sense of the word.<sup>41</sup> Some sectors knew more growth and dynamism than others but to have growth and change in the orders of magnitude we see in Britain in the long nineteenth century, innovation in terms of hard technology and the way in which production was organized simply must have occurred over a very broad front.<sup>42</sup> Quite often, moreover, in manufacturing, modern growth ‘created’ increasing productivity as much as or even more than the other way around. One must be wary anyhow of talking as if the different sectors of modernising economies can be clearly separated and contrasted with each other in terms of ‘modern’ and ‘non-modern’. Many if not most developments in the service sector

37 Harley, ‘Trade: discovery, mercantilism and technology’, 195.

38 Parthasarathi, *Why Europe grew rich*, e. g. page 12.

39 See e. g. Harley, ‘Reassessing the Industrial Revolution’, chapter 8, ‘Conclusion’, and Griffin, *Short history of the British Industrial Revolution* chapter 6.

40 See e. g. Cain and Hopkins, *British imperialism, 1688–2000*, chapter 3, and Chapman, *Merchant enterprise in Britain*, *passim*. See for the relative share of the service sector in total employment and GDP Table 19. Eisenberg, *Englands Weg in die Marktgesellschaft* is entirely devoted to showing the crucial importance of the service sector in Britain’s economy during the eighteenth and nineteenth centuries. Around 1800, *more* people worked in the service sector than in the manufacturing and industrial sectors combined. Overall, in several estimates for the period 1700–1860, growth in Britain’s service sector is estimated to have been somewhat *higher* than in the manufacturing and industrial sectors. (See tables 4 and 5 in the book on pages 113 and 115). For a brief synthesis and evaluation, see her concluding comments with many relevant references on pages 107–118.

41 One might think of the Netherlands, the Scandinavian countries and to some extent even France.

42 Bruland, ‘Industrialization and technological change’ in particular page 146. See also Mokyr, *Enlightened economy*, chapter 7.

in particular its further 'globalisation' were only possible thanks to technological breakthroughs like trains, steamships, the telegraph and the telephone. The same goes for agriculture where the introduction of all sorts of machinery and artificial fertilisers had a huge impact. That it is quite misleading to associate modern economic growth exclusively with industry of course also shows in the fact that currently the rich and developed world is 'post-industrial' with the bulk of added value generated in the service sector.<sup>43</sup>

This does not mean that industry would be just another economic sector in the process of economic growth. It as a rule has a fundamental role to play in the process of taking-off for all economies, except maybe for very small city-states that can focus almost entirely on services. The introduction of machines and factories in pre-industrial society makes it possible to generate big increases in productivity, employing masses of not very highly skilled, relatively cheap labourers. Expenses in terms of building up human capital in that stage are still relatively low, as only a small group of highly skilled specialists is needed to run production processes. To a certain extent this *can* also apply to the modernisation and mechanisation of agriculture, in case it turns into a large-scale business. Industrialisation can so create relatively high economic gains at relatively low economic costs. Services, overall, require a higher level of skills whereas increases in their productivity tend to be lower and more costly than in manufacturing. An additional advantage of industry over services is the fact that, again overall, it is much easier to export commodities than services.<sup>44</sup>

As indicated, the question I want to tackle here has usually been discussed in terms of a 'rise of the West', or at least a 'rise of Western Europe'. Even now many authors still simply juxtapose 'the West' or (Western) Europe and 'the Rest'. That the category 'the Rest' is rather strange should be obvious. But actually, when it comes to the economic history of early modern Europe – and that is the period the majority of my comments will refer to, there is no such thing as '(Western) Europe'. Fundamental differences existed between regions. The trajectory taken by 'Western Europe', roughly the part of Europe to the West of an imaginary Saint Petersburg-Trieste line, was very different from that taken by Central and Eastern Europe in almost all relevant respects, e. g. agricultural development, urbanisation, the rise of free labour and a bourgeoisie, the importance of intercontinental trade

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43 See e. g. *The Pocket World in Figures 2013 Edition*, 47. Data, unless otherwise indicated refer to the year ending 31 December 2010. See, however, Ha-joon Chang's claim that we should be careful not to underestimate the importance of industry even in so-called 'post-industrial economies'. See his *23 things they do not tell you about capitalism*, chapter 9.

44 I am paraphrasing Studwell, *How Asia works*, 59–61. For the difficulty to increase productivity in services see note 331.

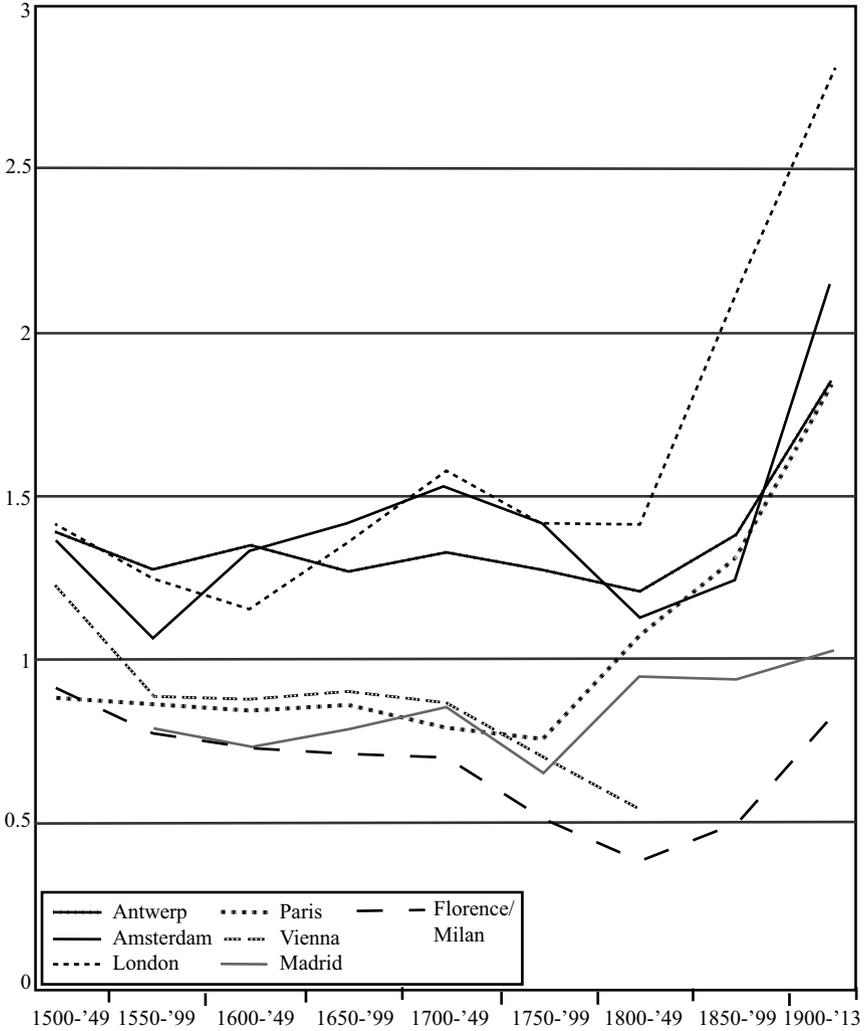
etc.<sup>45</sup> But even if we leave out East and Central Europe, and focus only on ‘Western’ Europe during the early modern era, we are still faced with such differences in terms of wealth and development that Robert Allen described them in terms of yet another Great Divergence.<sup>46</sup> During the early modern era the South – roughly, the Mediterranean world – was increasingly surpassed in terms of dynamism, development and wealth, by the Northwest, i. e. the region on the shores of the North Sea. Real wages for ordinary labour in the South decreased substantially and the region showed clear signs of stagnation and impoverishment.

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45 See Aston and Philpin, *The Brenner debate* and Chiot, *The origins of backwardness in Eastern Europe*.

46 Allen, ‘The Great Divergence in European wages and prices from the Middle Ages to the First World War’.

Graph 2: Real incomes in several European cities, 1500–1914. The values at the left are index values.



Source: Robert C. Allen, 'The great divergence in European wages and prices from the Middle Ages to the First World War', *Explorations in Economic History* 38 (2001) 411–447, page 428.

What also tends to be brushed over in rise-of-the-West stories is the fact that economic development insofar as it manifested itself in economic growth in the West before the first Industrial Revolution, even in Western Europe, was *not* linear. Even in Western Europe – that scarcely knew any per capita income growth for skilled and unskilled labour over the period as a whole anyway – the economy did *not* grow uninterruptedly. It did so with ups, downs and phases of stagnation, and with differing trajectories. The early modern period from 1500 – 1800 was definitely *not* a period of a permanent unprecedented rise in the West as e. g. Acemoglu and his colleagues suggest.<sup>47</sup> The economies of Western Europe undeniably became further developed in the centuries before Britain’s economy took off but that development overall did not yet create substantial growth nor a real gap in terms of wealth between various regions.

Table 12: Comparative levels of GDP per capita (United Kingdom in 1820 = 100)

	<i>c. 1500</i>	<i>c. 1700</i>	<i>c. 1750</i>	1820	1870
UK	57	73	87	100	187
Netherlands	67	109	109	107	162
Belgium	58	69	76	77	158
France	n.a.	n.a.	n.a.	72	110
Italy	83	71	76	65	88
Spain	63	61	58	62	71
Sweden	64	66	67	70	97
Poland	50 – 54	38 – 42	34 – 37	41	55
Russia	n.a.	n.a.	n.a.	40	55
Turkey	n.a.	35	38	40	52

Source: Stephen Broadberry and Kevin H. O’Rourke, ‘Introduction to Volume 1’ in: Stephen Broadberry and Kevin H. O’Rourke, eds., *The Cambridge Economic History of Modern Europe. Volume I: 1700–1870* (Cambridge 2010) 1–4, page 2.

Table 13: Growth rates of GDP per capita (% per annum) in European countries, 1500 – 1870

	1500 – 1700	1700 – 1750	1750 – 1820	1820 – 1870
UK	0.12	0.35	0.20	1.25
Netherlands	0.24	0.00	–0.02	0.83
Belgium	0.09	0.19	0.02	1.44
France	n.a.	n.a.	n.a.	0.85
Italy	–0.08	0.14	–0.22	0.61

47 Acemoglu, Johnson, and Robinson, ‘The rise of Europe: Atlantic trade’, 546: “In fact between 1500 and 1800, Western Europe experienced a historically unprecedented period of sustained growth...”

*(Continued)*

	1500–1700	1700–1750	1750–1820	1820–1870
Spain	–0.02	–0.10	0.10	0.27
Sweden	0.02	0.03	0.06	0.65
Poland	–0.13	–0.24	0.21	0.59
Russia	n.a.	n.a.	n.a.	0.64
Turkey	n.a.	0.16	0.07	0.52

Source: Stephen Broadberry and Kevin H. O'Rourke, 'Introduction to Volume 1' in: Stephen Broadberry and Kevin H. O'Rourke, eds., *The Cambridge Economic History of Modern Europe. Volume I: 1700–1870* (Cambridge 2010) 1–4, page 2.

The comments just made indicate that it is important to be precise about what regions actually diverged during the Great Divergence. It is important to realise that the Great Divergence caused by the emergence of modern economic growth first and foremost marked a bifurcation in the economic trajectories of differing parts of the world, to wit Western Europe and its offshoots, and the rest of the world, apart from, *to some extent and only from the end of the nineteenth century onwards*, Japan. It therefore does not make sense to follow Goody's advice and "... look not for a European miracle, but rather for a Eurasian miracle."<sup>48</sup> Differences in wealth and development between various parts of Eurasia simply became too big for that. In the nineteenth and twentieth centuries, overall, Asia became a very poor continent. There simply was no 'Eurasian' miracle then. This comment also applies to Jared Diamond's, *Guns, germs and steel*, a book that is often referred to in debates on the Great Divergence, but that actually does *not* explain the main gap between rich and poor in the world at all, as it focuses almost entirely on what parts of Eurasia *shared* as opposed to the rest of the world, whereas only a very tiny fragment of it deals, very superficially, with what might have caused the enormous differences in wealth *in* Eurasia, where some two-thirds of the world's population actually lived.

This, however, does not mean that one can treat the West as one undifferentiated entity. When it comes to discussing and locating the Great Divergence there, one should opt for a mix of an exclusively British and a pan-(West-) European perspective. Great Britain was the first and for a couple of decades for all intents and purposes the *only* major industrial country. Considering the fact that its economy, or in any case that of England, had been quite different from that of the rest of Western Europe for already quite some time, this need not really surprise us.<sup>49</sup>

<sup>48</sup> Goody, *Eurasian Miracle*, back-flap.

<sup>49</sup> For some distinct characteristics of pre-industrial England see Wrigley, 'Divergence of England', and Macfarlane, *Invention of the modern world*. <http://fortnightlyreview.co.uk> *The 2012 Spring –Summer Serial*. In this text I will, as a rule, refer to Great Britain, consisting of

Table 14: Some indicators of the enormous lead of Great Britain in the middle of the nineteenth century

	<i>Great Britain</i>	<i>France</i>	<i>Germany</i>
1850 population in millions of people	21	35	33
1850 coal consumption in millions of tons	49	4.4	6.7
1850 iron consumption in tons	1,970,000	600,000	420,000
1850 steam power in HP	1,290,000	370,000	260,000
1850 railroads in kilometres	10,000	6,600	3,200
1840s total cotton consumption in tons	2,300,000	610,000	410,000
1850 – 1860 percentages of global trade	23	11	9
1850 index of industrialisation, UK 1900 is 100	64	20	15

Source: I took these figures from, Joel Mokyr, *The Enlightened economy. An economic history of Britain 1700 – 1850* (New Haven and London 2009) 476. See there for the original sources.

Table 15: Per capita real income in 1990 international PPP dollars

<i>Year</i>	<i>UK</i>	<i>France</i>	<i>Germany</i>
1820	1,706	1,135	1,077
1870	3,190	1,876	1,839

Source: Angus Maddison, *Contours of the world economy, 1 – 2030 AD. Essays in macro-economic history* (Oxford 2007) 382.

As I already indicated, the rise of modern economic growth in Britain – and I want to really emphasize this – manifested itself not just in industrial production, far from it. Even at the time it was the workshop of the world, the commodity trade balance of Great Britain as a rule was *negative*. The deficit, however, was more than compensated by a surplus on the balance of invisible trade (i. e. business services, shipping and overseas investment income).<sup>50</sup> In the beginning of the twentieth century, half the tonnage of all the fleets in the world was British. In 1913, some twenty-two per cent of total exports of the United Kingdom consisted of invisible exports (transport, banking, insurance and finance). No less than fifty per cent of all foreign direct investment in the world at that moment came from the United Kingdom alone.<sup>51</sup> Great Britain already after a couple of decades of industrial primacy became the service centre rather than the workshop of the world.

It is only fair that Britain should hold centre stage in this text. On the other

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England, Wales and Scotland, as the entity that will be compared to China and other regions or nations of the world.

50 See, for the period 1850 – 1911, Cain and Hopkins, *British imperialism 1688 – 2000*, 158.

51 See fur further comments and references Vries, ‘Europa und die Welt’, pages 411, 414 and 417 See for two quite distinct approaches to show the importance of the service sector, Cain and Hopkins, *British imperialism*, and Wrigley, *Energy and the English Industrial Revolution*, chapter 5.

hand a more European perspective is essential as a lot of what happened in Britain can only be understood against the backdrop of a shared Western European history, as can be seen – which of course as such is yet another reason not to focus exclusively on Britain – in the relative ease with which most of Western Europe caught up. There must have been strong Western European congenialities. That does not mean that countries that industrialised after Britain did so by simply copying the forerunner. There is no such thing as a single model of nineteenth-century industrialisation.<sup>52</sup> There are many different ways to create an economy with modern economic growth although certain basic ingredients over time have proven to be indispensable. I only refer to the following disparate list of ‘pre-requisites’: massive availability of fossil fuels in the field of energy (coal, natural gas and oil, nuclear energy or modern wind, water, and solar energy or a combination of these, to provide heat, power and light); artificial fertilisers; synthetic fibres and plastics; iron, steel and concrete; chemical dyestuffs and medicines; continuous technological innovation, which means institutionalisation of scientific research and technological development, a permanent improvement of human capital, institutional flexibility and an efficient state infrastructure.

Debates about the Great Divergence tend to focus on the *take-off* phase of modern economic growth; that is the moment when this growth began. It, of course, was Walt Rostow who introduced that concept. Scholarship meanwhile has completely distanced itself from the exact way in which he implemented the concept in his stage-theory.<sup>53</sup> But I think his imagery is still very helpful, and I use the concept here in the rather more loose interpretation by Hobsbawm, who describes the ‘take-off’ as the process in which “the shackles were taken off the productive power of human societies, which henceforth became capable of the constant, rapid and up to the present limitless multiplication of men, goods and services.”<sup>54</sup> In my analysis, the focus will also be on this moment when the economy, as we can see with the benefit of hindsight, the economy entered a new phase. All the same, I again want to repeat that the essence of modern growth and development is their sustained or preferably even self-sustaining character, which means that in my explanations I will have to refer to not just what lifted Britain’s economy up but also to what kept it in the air and made it rise ever higher, to stick to the aircraft metaphor.

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52 See e.g. O’Brien, ‘Do we have a typology for the study of European industrialization in the XIXth century?’, and Verley, *L’échelle du monde*, chapter 3.

53 Rostow, *Stages of economic growth*, 39.

54 Hobsbawm, *Age of revolution*, 45.

## 2. Taking off and falling (further) behind

The focus of my analysis here will be on Great Britain and China. The choice of Great Britain, the country where the first take-off took place, is quite obvious as is the choice of the period discussed here, the period from 1688 to 1849, i. e. from the Glorious Revolution onwards to the formal end of mercantilism, the period when the actual take-off took place. When it comes to analysing parts of the world that were left behind economically speaking, selection is unavoidable. From an analytical point of view, it is not much use, on the contrary, to try to provide a general overview in which 'the West' is simply confronted with an undifferentiated 'Rest'. We will not discuss the situation in Central and Eastern and in Southern Europe here, regions that of course felt the impact of economic changes in Western Europe quite intensively and to a certain extent saw clear 'sprouts of industrial development', but that did not really catch up.<sup>55</sup> Japan, of course, did start to industrialise quite early and provides a much-studied, quite idiosyncratic case of a non-Western country that already with the beginning of the First World War was firmly on the road to becoming an industrial nation. Up until now it nevertheless hardly figures in the debates that explicitly deal with the Great Divergence. Would it be farfetched to suppose that the California School tends to ignore it because its favourite coal-and-colonies explanation simply does not fit a country that had hardly any coal and no colonies and yet it took off in a situation that looked even more like a Malthusian trap than that of China at the time? To me the case of industrialising Japan is ideal for illustrating the extent to which institutions matter in explaining the wealth and poverty of nations.<sup>56</sup> In particular when it comes to manufacturing, India in many respects

55 The amount of literature I could refer to here of course is limitless. For the pre-industrial period I refer to the literature under note 45 plus Cerman, *Villagers and lords in Eastern Europe*, for Eastern and Central Europe, and to Lains and Ferreira da Silva, *História económica de Portugal*; Ringrose, *Spain, Europe and the Spanish miracle* (for a fairly positive interpretation of the situation since 1700), and Malanima, *Fine del primate*, for the situation in Portugal, Spain and Italy. For the situation in the nineteenth century for all these regions a brief first introduction can be found in Teich and Porter, *Industrial revolution in national context* and a state-of-the-art synthesis in Berend, *Economic history of nineteenth-century Europe*.

56 For an analysis dealing with the question to what extent the ideas of the California School might apply to the case of Japan, see Carmen Gruber, 'At the Edges of the Pacific. What the California School Means for Japan', unpublished Master Thesis at the University of Vienna. The text can be downloaded on request. Please mail peer.vries@univie.ac.at. For some telling data see Kaoru Sugihara, 'The state and the industrious revolution in Tokugawa Japan', GEHN Working Paper no 2 (London, London School of Economics 2004) figures 1 and 2. For literature in which directly or indirectly the Japanese case is directly or indirectly brought into the debate see note (for its standard of living) notes 78 (for the East Asian development path/ and the industrious revolution) plus Osama Saito, 'All poor but no paupers: a Japanese perspective on the Great Divergence, Economic and Social History at Cambridge', The

was a highly advanced economy, although no one to my knowledge has ever claimed it could have become the world first industrial nation. But its case has only very recently, with the book by Prasannan Parthasarathi, been introduced with a full-scale monograph into the Great Divergence debate as it is currently being waged.<sup>57</sup> I have never come across an author who claimed that (parts of) Africa would have been in a position to have an industrial revolution *before* or at about the same time as Great Britain. Robert Allen explicitly claims it did *not*.<sup>58</sup> So do Daron Acemoglu and James Robinson in their *Why nations fail*:

Africa was the part of the world with the institutions least able to take advantage of the opportunities made available by the Industrial Revolution. For at least the last one thousand years, outside of small pockets and during limited periods of time, Africa has lagged behind the rest of the world in terms of technology, political development and prosperity.<sup>59</sup>

Gareth Austin, without any doubts one of the main experts in the field of African economic history, apparently agrees and made the following interesting observation.

... I would not claim that African economies were, on average, on a growth path equal to those followed in the Lower Yangzi Valley or Western Europe ... No such path was available under the environmental constraints they faced ... The economic premise of the external slave trades was precisely that African labour was more productive, in market terms, in the continents to which slaves were taken than at home. The implication is that these trades, even the Atlantic one, reinforced rather than originated Africa's relatively poor economic position compared to Western Europe (and parts of Asia).<sup>60</sup>

I can only agree with these scholars and refer to their work and the literature it is based on.<sup>61</sup> Many parts of the continent were hit by a complex set of vicious

Leverhulme Lectures Podcast. The amount of literature on Japan's beginning industrialisation after the Meiji Restoration of course is enormous.

57 Parthasarathi, *Why Europe grew rich*. There of course already existed several relevant articles dealing with the subject. I only refer here to two very recent ones: Washbrook, 'India in the early modern world economy' and Roy, 'Knowledge and divergence from the perspective of Early Modern India'. For several attempts to measure early modern India's wealth see note 78.

58 Allen, *Global economic history*, 92. In chapter 7 of this book Allen gives a compact analysis of Africa's economic predicaments.

59 Acemoglu and Robinson, *Why nations fail*, 115.

60 Austin, 'The 'reversal of fortune' thesis and the compression of history', 1019. See also idem, 'Resources, techniques and strategies south of the Sahara'.

61 For further literature analysing the long-term economic (non-) development of Africa, see Bertocchi and Canova, 'Did colonization matter for growth?; Englebort, 'Pre-colonial institutions, post-colonial states, and economic development in tropical Africa; James, Fenske, 'The causal history of Africa: a response to Hopkins', <http://mpra.ub.uni-muenchen.de/24458/> posted 16 - 8-2010; Hopkins, 'The new economic history of Africa', and finally several

circles caused by ‘bad geography’, negative effects of slave trade, slavery, colonialism and imperialism, a dangerous specialisation on primary products and resources with volatile and often declining prices, bad institutions, e. g. weak and often even ‘failed’ states. We must be very careful though not to simply ignore differences of time and place or simply write off a continent on which some countries have surprisingly high growth rates and show more dynamism than Western Europe’s economies at the moment. But for the early modern period, an African take-off simply is too unlikely to be explicitly and extensively discussed here. For the Islamic world too, voices claiming it might have taken of first, are absent. The rare studies that deal with its economic history in periods that are relevant to our topic from a comparative perspective, e. g. those by Şevket Pamuk and recently Timur Kuran basically focus on the question of why capitalism did not or only slowly and partially emerge in the Ottoman Empire. But they never suggest that modern economic growth could have emerged there earlier than in Western Europe.<sup>62</sup>

The situation is quite different in the case of North America. It looks as if it is almost taken for granted that it would catch up quickly. Its fast growth at least is hardly ever really regarded as an issue in general debates on the Great Divergence. At the time of Britain’s industrialisation, it already was a highly developed part of the West. According to Paul Bairoch (1930 – 1999) real income per capita of the United States surpassed that of the United Kingdom already in the 1890s, whereas real wages for industrial labour in several parts of what were to become the United States already were higher than those even in London in the eighteenth century.<sup>63</sup> Industrial production of the United States surpassed that of the United Kingdom in the 1880s.<sup>64</sup> There of course is a very extensive literature on the economic history of the United States and Canada, but, and that is decisive here, developments there have as yet hardly if at all been taken on board in the Great Divergence debate. Explicit reference to economic develop-

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publications by Nathan Nunn. See his website at Harvard University. For literature specifically dealing with the slave trade and its consequences see pages 253 – 262. For literature that focuses more on the contemporary situation, be it with historical background information, see Easterly and Levine, ‘Africa’s growth tragedy’; Keefer and Knack ‘Why don’t poor countries catch up?’; Mills, *Why Africa is poor and what Africans can do about it*; Sachs and Warner, ‘Sources of slow growth in African economies’, and Van der Veen, *What went wrong with Africa?*

62 For publications by Pamuk see [www.ata.boun.edu.tr/sevket.pamuk.htm](http://www.ata.boun.edu.tr/sevket.pamuk.htm) and for publications by Kuran see <http://econ.duke.edu/people/kuran>. Donald Quataert published several interesting texts about Ottoman economic history and in particular about the development of industry in the Ottoman Empire, but he never used an explicitly comparative approach, trying to connect his work to the Great-Divergence debate. See for his work <http://www2.binghamton.edu/history/people/faculty/donald.html>.

63 See Bairoch, *Victoires et déboires*, Volume II, 252 – 253, and Allen, *Global economic history*, 69.

64 Di Vittorio, *Historia económica de Europa*, 253.

ment in Central and South America also is still rather scarce in debates on the Great Divergence, although comparing what happened there to what happened in the Northern hemisphere of the American continent has always been quite popular. Those comparisons definitely throw light on the central question of this book, so I will repeatedly refer to them.<sup>65</sup> What is becoming increasingly problematic about them is that they up until very recently and almost without exception started from several assumptions that now are becoming heavily contested. Basically all the scholars who dominated the debates on why North America became so rich and Latin America ended up being so poor – we will encounter several of them further on in this book – took the following claims for proven facts: (1) Latin America soon after it had been conquered overall became very poor;<sup>66</sup> (2) it was characterised by extreme inequality of income and wealth and (3) by coercive and extractive institutions that ensured that these inequalities were perpetuated, and (4) on top of that a substantial part of its wealth was drained off to Spain and Portugal. For (the north of) what is now called the United States and Canada, premises for growth were almost the opposite as incomes and wealth were less unequally spread, the mass of the population had a relatively high purchasing power, labour predominantly was free and wealth was not siphoned off. The southern parts of the United States of course had something of an intermediate *status aparte*, particularly, but not exclusively, before the abolition of slavery in the 1860s. All the main explanations of the gap in wealth in the New World in the nineteenth and twentieth century have basically shared these premises.

Now, however, several articles have been published on the economic history of Spanish Latin America that very seriously question those premises and that, to the extent that their claims are correct, which has already been fiercely contested<sup>67</sup>, would require a fundamental rethinking of what needs to be explained and what can be regarded as a valid explanation. The most efficient way to show what these recent revisionist articles claim is simply to quote them extensively. This is the abstract of an article by scholars who have the explicit goal of bringing (Spanish) Latin America into the Great Divergence debate by comparing incomes there with incomes in Western Europe, and other parts of the world.

We show that nominal wages and prices were on average much higher than in Western Europe or in Asia, a reflection of the low value of silver that must have had consequences for the competitiveness of the Latin American economies. Labour scarcity

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65 For a recent overview of the positions in this debate see Engerman and Sokoloff *Economic development in the Americas since 1500*, in particular chapter 1.

66 How wealthy, and populous, the Americas were 'before Columbus' is a matter of debate. For a very positive overall view of their wealth and development see Mann, 1491.

67 Allen, Murphy and Schneider, 'Colonial origins of the Divergence in the Americas'.

was the second salient feature of Spanish Latin America and resulted in real wages much above subsistence and in some cases (Mexico, Bolivia, Argentina) comparable to levels in North-western Europe. For Mexico, this was caused by the dramatic decline of the population after the Conquest. For Bolivia, the driving force was the boom in silver mining in Potosí that created a huge demand for labour. In the case of Argentina, low population density was a pre-colonial feature. Perhaps due to a different pattern of depopulation, the real wages of other regions (Peru, Colombia and Chile) were much lower, and only increased above subsistence during the first half of the 18th century.<sup>68</sup>

This is the abstract of another revisionist article:

Neither were wages low nor were heights short by the international standards of the period. Thus, living standards of the Spanish Americans compare favourably with those of other regions of the world, including Europe. As in many parts of the West, a trend towards deterioration of real wages is observed in Spanish America at the end of the period. Our findings suggest that the Great Divergence in living standards between Spanish America and the developed Western countries might have taken place mainly after the Independence.<sup>69</sup>

According to the view that is still current, wages were not only low but basically also quite exceptional in the sense that free labour would have been the exception and all sorts of coerced labour the rule. Several authors now claim that the focus on coerced labour and extractive institutions has been unjustified as their importance became quite small over time.<sup>70</sup> The ‘classic story’ of persistent inequality in wealth and incomes is also under attack. Jeffrey Williamson, in one of his many iconoclastic articles, claims that this pessimistic belief would be a myth. It, so he writes, is in any case not supported by the admittedly small amount of available evidence. That evidence does not suggest that pre-industrial Latin America overall – he uses evidence from the period 1790–1870 – was unambiguously more unequal than pre-industrial Northwest Europe – for this region he uses evidence for England, the Dutch Republic and France for various moments in the eighteenth century. He, however, adds – which is not in full concordance with claims by the authors cited above – that Latin America was poorer than north-western Europe and that poorer societies have smaller surpluses for elites to extract. Therefore its extraction rates, indicating the part of the actually available societal surplus that is appropriated by the elite, would have been higher.<sup>71</sup>

68 Arroyo Abad, Davies, and Van Zanden, ‘Between conquest and independence’.

69 Rafael Dobado-González and Héctor García-Montero, ‘Neither so low nor so short: Wages and heights in Bourbon Spanish America from an international comparative perspective’, EHES Working papers in economic history number 14, 2012. [http://ehes.org/EHES\\_No14.pdf](http://ehes.org/EHES_No14.pdf)

70 See e.g. Dobado-González and García-Montero, ‘Neither so low nor so short’, 1–4.

71 Williamson, *Trade and poverty*, 154–156.

The idea that the Spanish colonies in Latin America would have been squeezed by their motherland is also disputed now, in particular in work done by Regina Grafe and Alejandra Irigoin. This is the abstract of one of their articles:

This article revises the traditional view of Spain as a predatory colonial state that extracted revenue from natural resources and populations in the Americas while offering little in return. Using eighteenth-century Spanish American treasury accounts, we show that local elites exerted important control not only over revenue collection, as previously argued by the authors, but also over expenditure allocation. The Spanish colonial state developed into a stakeholder model, in which local interests were deeply invested in the survival and expansion of empire. The means of co-optation were intra-colonial transfers, as well as credit relations between the state and colonial individuals and corporations, which guaranteed that much of colonial revenue was immediately fed back into the local economy, while minimizing enforcements costs.<sup>72</sup>

Grafe and Irigoin in this article claim that by the late eighteenth century, transfers in Spanish America to the metropolis made up only just over five per cent of Spanish American revenue: ninety-five per cent of the taxes raised in the Spanish Americas were spent in the Spanish Americas. These quite revisionist views have up until now not really been digested by scholarship so it is not clear what to think of them. They in any case have not yet had much impact on the way in which Latin America's 'backwardness' has been discussed. But I guess they soon will.

### **3. Two case studies: Great Britain and China in the very long eighteenth century**

The core of the Great Divergence debate as it has been waged over the last fifteen years or so has undoubtedly been the comparison between early modern Great Britain and Qing China (1644–1911). By far most of the contributions to the debate have focused on that comparison. It will therefore also be at the heart of this text. In discussing Britain, I will, where helpful, also refer to other parts of Western Europe. When it comes to 'the rest' the focus will be on China, but there will also be comments on the rest of Asia, the Americas and Africa. This book does not aim to provide an overview of concrete developments over time in a narrative trying to give full coverage of the history of Great Britain and China in the very long eighteenth century, let alone the history of the world. In that sense it is not a history book. It discusses central questions and positions with regard to the origins of modern economic growth in the eighteenth and nineteenth cen-

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<sup>72</sup> This is the abstract from Grafe and Irigoin, 'A stakeholder empire'. See also their, 'The Spanish Empire and its legacy'.

turies using Great Britain and China as illustrative case studies to support analytical claims.

For China, the focus will be on the period from 1683 to 1842, i. e. from the beginning of effective Qing rule in the country till the end of the First Opium War when, after its efflorescence under the Kangxi (1661 – 1722), Yongzheng (1723 – 1735) and Qianlong (1736 – 1795) emperors, it had become clear that China was no longer a formidable power politically and economically.<sup>73</sup> The choice for China during the period of Qing rule was and is not an obvious one. In all probability China reached its highest level of development and wealth – that is *before* the twentieth century – during the period of the Song Dynasty (907 – 1276). Song China in many respects was more developed and more dynamic than Qing China. Mark Elvin, in his path-breaking *The pattern of the Chinese past*, contrasts the dynamism of China under the Song and partly even under the Yuan (1215/1276 – 1368) with what he regards as the beginning of technological stagnation and decreasing dynamism from as early as the fourteenth century onward.<sup>74</sup> Economist and economic historian Eric Jones is even more explicit and claims that, “China came within a hair’s breath of industrialising in the fourteenth century.”<sup>75</sup> The question why there was no breakthrough under the Song and why (probably) the Song achievement was never repeated is still open and, what is more surprising, all but ignored, by the Californians as well. Debates about the Great Divergence almost exclusively focus on the question why Qing China did not take off. As I confine myself here to synthesising and evaluating existing scholarship, my references will also primarily be to the Qing era, although there are very good reasons in future, pending further research to pay far more attention to the Song period.<sup>76</sup>

In preceding paragraphs I as a matter of fact already indicated *when* I think the great diverging actually took place by comparing the situation in Britain and China in what one might call the very long eighteenth century. In all Californian texts, without much further ado and explication, the beginning of the Industrial Revolution in Britain is regarded as the starting point of the Great Divergence. I think that in principle is correct, but a couple of comments nevertheless are in order. As Pomeranz himself now admits, Great Britain in all probability already

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73 For the concept ‘efflorescence’ that I will use quite regularly in this text, see Goldstone, ‘Efflorescences and economic growth in world history’.

74 Elvin, *Pattern of the Chinese past*, chapters 2 and 3, and idem, *Another history*, chapters 2 and 3.

75 Jones, *European Miracle*, 160. See also his *Growth recurring* and ‘The real question about China’. To my view the real medieval efflorescence of China was already receding in the fourteenth century.

76 See for a very recent analysis Kent Deng, *Demystifying growth and development in North Song China, 960 – 1127*. Working Paper 178 (2013) London School of Economics and Political Science.

*before* industrialisation was wealthier than the wealthiest parts of China.<sup>77</sup> Full well realising how risky it is to make firm statements in this respect, a new consensus appears to be emerging that the wealthiest parts of China at the end of the eighteenth century were *not* as wealthy as Britain (or the Dutch Republic and the United States) after all – as Californians had enthusiastically been claiming – but that on the other hand as compared to the gap that emerged over the long nineteenth century, the differences were still relatively small. According to the most recent trustworthy estimates, Great Britain and the Dutch Republic at the eve of the Great Divergence apparently were wealthier than any part of Asia.<sup>78</sup> The differences, however, though small compared to what they would later become, were not negligible. At the very low-income levels we are discussing here, every penny counts and those differences may well have given the wealthier regions a head start. They in any case show that talk about ‘Europe’s backwardness’ at the time is just fashionable ‘Euro-bashing’. Robert Allen produced the following table comparing the real income of labourers in various parts of the world via a so-called ‘welfare ratio’. This ratio indicates how many times one fully employed male adult labourer earned the amount of money needed to support his four-person family at ‘bare-bones level’, that is calculated by Allen to be at 365 dollars from 1990.<sup>79</sup>

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77 Pomeranz, ‘Ten years after’, 24.

78 For China the optimism has been toned down in Allen, ‘Wages, prices, and living standards in China, 1738–1925’. See also Allen, *Global economic history*, 3–14. For India it has been done in Broadberry and Gupta, ‘The early modern great divergence’, *idem*, ‘Indian GDP, 1600–1871. Some preliminary estimates and a comparison with Britain’, Asian Historical Economics Conference Beijing 19–21 May 2011, and in Gupta and Ma, ‘Europe in an Asian Mirror’. Examples of a far more optimist view can be found in Parthasarathi, ‘Rethinking wages and competitiveness in the eighteenth century; in *idem*, ‘Agriculture, labour, and the standard of living in eighteenth-century India’, and in Sivramkrishna, ‘Ascertaining living standards in erstwhile Mysore, Southern India, from Francis Buchanan’s journey of 1800–1801’. For a quite positive image of the economy of Tokugawa Japan, see Hanley, *Everyday things in premodern Japan*. Optimism here is somewhat toned down by Jean-Pascal Bassino and Debin Ma, ‘Japanese wages and living standards in 1720–1913: an international comparison’, Paper for the Conference Towards a Global History of Prices and Wages, Utrecht 19–21 August 2004; Jan Pascal Bassino and four colleagues, ‘Japan and the Great Divergence 730–1872’, Third European Congress on World and Global History, held at LSE, 14–17 April 2011, and Osamu Saito, ‘Wages, inequality and pre-modern growth’, Working Paper Hitotsubashi University Research Unit for Statistical Analysis in Social Sciences. Then finally there has been research with regard to the Ottoman Empire that is not so much toning down optimism but showing that in comparison to this region too, north-western Europe in the eighteenth century was wealthier. I refer to Pamuk and Ozmucur, ‘Real wages and standards of living in the Ottoman Empire, 1489–1914’.

79 Allen, *Global economic history*, 12. In Maddison *The world economy*, the real income of several African countries is estimated to have been much lower than 365 US dollars of 1990. For Zaire for the year 1998 Maddison even gives a figure as low as 220 of such dollars. See page 224. That is not credible See for a critique of Maddison’s approach, with reference to

Table 16: Welfare ratios of ordinary labourers in Europe, America and Asia, indicating the ratio of income to subsistence

	1500 – 49	1550 – 99	1600 – 49	1650 – 99	1700 – 49	1750 – 99	1800 – 49
<b>North America</b>							
Boston			1.44	2.32	3.00	4.17	
Philadelphia					4.84	5.40	
Maryland				3.67	3.35	4.18	

<b>Latin America</b>							
Potosí				1.83	1.82	1.75	1.71
Bogota				1.28	2.14	2.15	2.05
Mexico-urban					2.54	2.37	1.53
Mexico-rural	0.18	0.61	0.91	1.27	1.5	1.44	0.93

<b>North-western Europe</b>							
London	3.73	2.96	2.83	3.49	4.16	3.51	3.77
South English Towns	2.89	2.21	1.65	2.03	2.79	2.52	3.15
Antwerp	2.88	2.87	2.98	2.48	2.75	2.48	2.32
Amsterdam	3.80	3.64	3.84	4.33	4.20	3.77	2.89

<b>Southern and Central Europe</b>							
Valencia	2.46	1.65	1.7	1.87	1.82	1.35	
Madrid	1.99	1.77	1.71	1.65	1.39	0.99	0.73
Florence		1.29	1.52	2.35	1.92	1.64	1.82
Milan	3.28	2.07	1.82	1.99	1.77	1.35	
Naples	2.46	1.65	1.70	1.87	1.82	1.35	
Leipzig	1.99	1.77	1.71	1.65	1.39	0.99	0.73
Vienna		1.29	1.52	2.35	1.92	1.64	1.82

somewhat different data, Morten Jerven, 'An unlevel playing field: national income estimates and reciprocal comparison in global economic history', *Journal of Global History* 2012 (7) 107 – 128. Compare J. Bradford DeLong, 'Estimating world GDP, one million B.C. – present', on his Website at Berkeley under econ161. I regard his preferred estimates of average global per capita income for the pre-industrial period e.g. 178 1990-international dollars in 1750, as very unrealistic.

*(Continued)*

	1500–49	1550–99	1600–49	1650–99	1700–49	1750–99	1800–49
Asia							
Beijing					1.25	1.04	0.79
Lower Yangzi			0.78	2.17	1.79	1.15	0.78
Delhi			2.96	2.99			1.30
Bengal					1.39	0.83	0.84

Source: Robert C. Allen, Tommy E. Murphy and Eric B. Schneider, 'The colonial origins of the Divergence in the Americas: A labour market approach', *The Journal of Economic History* 72, 4 (2012) 863–894, Online Appendix, page 31, Table 4.

They actually leave out some unavoidable costs like those of housing. Allen's calculation as such is not unproblematic. A fundamental problem is that worldwide the bulk of people were not wage-labourers, let alone that they would work for wages full-time. On the other hand, in families with wageworkers there very often was more than one income. Over the period from the 1780s to the 1860s, the contribution of other family members to total family income in Britain, for example, hovered between ten and forty per cent depending on time and type of occupation.<sup>80</sup>

Allen and others who are sceptical about several Californian claims, probably, at least in these calculations, may be somewhat *too* revisionist. The difference between Britain and China overall might have been smaller than the figures presented by them suggest. In Britain wage labour was quite normal and relatively well paid; in China, by contrast, it was very exceptional and relatively badly paid. So the figures used for that country here in all probability underestimate incomes. But still, firm doubts that Britain was wealthier no longer exist. What really matters then is how important that existing difference in wealth on the level of ordinary incomes might have been for economic development. Allen himself emphasises the possibility provided by a higher income to enjoy more and better education, which would create a labour force with more literacy, numeracy, and other skills. He considers mass education a necessary precondition for economic development.<sup>81</sup> One may also assume that higher income led to improved health and strength for workers. Higher total income also created extra room for consumption, which is certainly relevant as economic historians are increasingly becoming aware that changes in consumer behaviour – not only and not even primarily an increase of total consumption but often just a shift to certain products – may have played a major role in the process we call industrialisation. For savings and investment, the amount of ordinary wages, so

<sup>80</sup> See for this estimate Humphries, 'Household economy', 259.

<sup>81</sup> Allen, *Global economic history*, 26 and 15.

it seems, was less relevant. As we will discuss later, in all advanced pre-industrial economies there was in principle sufficient money available to make the still fairly small investments needed during the very first stages of industrialisation.

#### 4. Continuity and change, inevitability and contingency

When it comes to timing, a second comment is in order: notwithstanding the often-repeated claim that the actual Great Divergence came quite late and suddenly, and I would add as something *unprecedented*, it did have a pre-history. Even ‘the new’ somehow has to be borne in the old. It did not come out of the blue as Pomeranz actually argues *against* his own intentions by claiming that Britain’s industrialisation was caused by ‘coal and colonies’ actually. ‘Coal’ and ‘colonies’ both were already quite prominent in Britain’s history decades before the first sprouts of industrialisation emerged. Coal was not exactly ‘invented’ by industrialising Britain.<sup>82</sup> It, moreover, did not *launch* industrialisation, at least not in the cotton industry, but *enabled* it to continue and turn an economic ‘efflorescence’ into a real breakthrough. It was only in the 1830s that it became a really important source of power in textile production. Empire-building also was already going on for decades when industrialisation began and Britain’s most important colonies, those in what now is the United States, became independent exactly when its industry is supposed to have taken off.

But it has to be admitted – and in that respect the Californians do have a point – that the differences between Britain and China before roughly 1700 or 1750 did not yet make a big difference in terms of wealth. Nor did they point at fundamentally different economies in terms of their potential. Britain as well as China may have been advanced organic economies but they both still were subject to ‘Malthusian constraints’.<sup>83</sup> It was only with the process of industrialisation and the emergence of modern economic growth in Britain that a fast acceleration of development and a major widening of the gap between both countries set in. It is essential for my arguments to realise the magnitude and character of what is discussed here: what we try to explain for Britain and Western Europe is the take-off into an increase in wealth that between 1820 and 2003 amounted to no less than *1500 per cent*; that occurred in an almost continuous process *over many decades* and that was accompanied by *structural changes* in Western Europe’s economy and society. Western European countries on average had a *real per*

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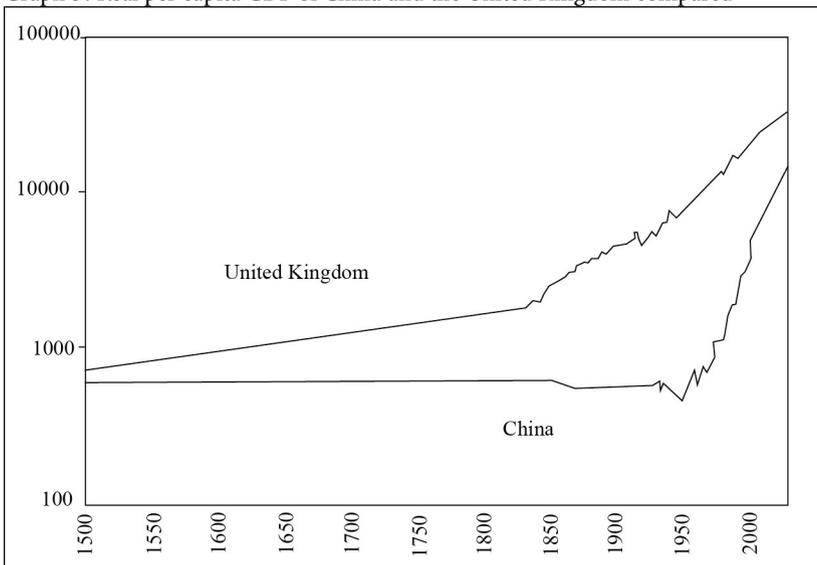
82 Already in 1700, half of the energy consumed in England and Wales came from fossil fuel. See Warde, *Energy consumption in England and Wales*, 69.

83 For an explanation of that concept see pages 66–79.

capita income of 1,202 so-called 1990-international dollars in 1820: in 2003 this was 19,912.<sup>84</sup>

The Great Divergence, whatever its causes and their longevity, indeed involved a *rise* of the West. It is important to realise that it was not due to increasing poverty after 1750 of the countries that were to become the poor ‘Rest’ but to increasing wealth of the countries that turned out to be rich. The cases of China and Britain, the countries that will be at the heart of this book, clearly illustrate this. In China the economic situation over the period 1820 – 1950 often was very bleak and at times its real GDP per capita even declined somewhat. The emerging gap between it and Britain, however, was almost entirely caused by the growth of Britain’s real GDP per capita.<sup>85</sup>

Graph 3: Real per capita GDP of China and the United Kingdom compared



Source: Angus Maddison, *Contours of the world economy, 1 – 2030 AD. Essays in macro-economic history* (Oxford 2007) 158.

Yet another comment that needs to be made, in this case concerning chronology, deals not with the beginning but with the *end* of the Great Divergence. It has become fashionable to claim that the divergence is over. Frank, e.g. claims the Rise of the West was just, “a mere blip in what was, and is again becoming, an Asia-centred world.”<sup>86</sup> The Great Divergence, however, which only adds to its importance, is not over yet. It is not even certain that we, as Goody suggests, are

84 Maddison, *Contours of the world economy*, 382.

85 Maddison, *Contours of the world economy*, 380.

86 Frank, *ReOrient*, back-flap.

experiencing another swing towards the East.<sup>87</sup> In a way, Western primacy indeed belongs to the past: in terms of purchasing power the combined output of the developing economies surpassed that of the original members of the OECD minus Turkey as early as 2008. Emerging economies now in many respects have a greater bigger share of the global economy than developed ones and their economies have much higher growth rates.<sup>88</sup> In particular, the prospects for Western Europe, which has become an old, tired, spoiled and indebted region, are bleak. But in terms of per capita real income – and that is what really counts when one discusses wealth – there still is a wide gap between the West and most of the rest of the world. GDP per capita in real terms in Britain in 2010 still was almost five times as high as in China, far *more* than at the beginning of the Great Divergence.<sup>89</sup> In 1820, China's GDP in terms of purchasing power was 32.9 per cent of the world's GDP. In 1952 it was only 4.6. Now, in 2012, it will be over 15 per cent.<sup>90</sup> In terms of real income per capita, China is now where Great Britain was more than 70 years ago. In 1989 it was about as wealthy as Great Britain was in 1830.<sup>91</sup>

The Great Divergence is definitely not just another phase in a continuing movement of historical ups and downs that, by the simple fact that the West will in turn also decline, loses its exceptionality and much of its historical relevance. To argue this means to completely lose sight of orders of magnitude. It is ahistorical and anachronistic to describe it, as Goody does, as “a long-term exchange of information between East and West, and the dominance of one followed by the dominance of the other – in other words, alternation rather than dominance.”<sup>92</sup> The same applies to his claim: “So when we now see China and India making such an important contribution to the world economy, this is nothing new, but a revival of the past, an alternation.”<sup>93</sup> What occurred in the nineteenth century with Western industrialisation and imperialism was *not* simply a changing of the guard. What emerged was a gap between rich and poor nations, powerful and powerless nations that was *unprecedented* in world history. The emerging gap was not only far bigger than ever before, it also had much more of a *global* impact than ever before because the world had become so much more of a unity in terms of the intensity, extensity, velocity and impact of intercontinental contacts. Any

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87 Goody, *Eurasian Miracle*, 2. See also the back-flap for a “further alternation in favour of the East”.

88 *The Economist*, August 6, 2011, page 59.

89 *The Economist Pocket World in Figures 2013 edition* (London 2012). All data refer to the year ending 31 December 2010.

90 Maddison, *Contours of the world economy*, 381.

91 Allen, *Global economic history*, 12 and 4–5.

92 Goody, *Eurasian Miracle*, back flap.

93 Goody, *Eurasian Miracle*, 95.

analysis ignoring the unprecedented scale and scope of Western global primacy that emerged with the Great Divergence simply misses the point.

It must be clear beforehand – although apparently for many scholars it is not – that such an extraordinary growth needs an extraordinary explanation, not just ‘more of the same’. Even if growth like this might *in principle* be explicable according to the principle of ‘compound interest’, that would simply miss the point in two respects: why all of a sudden in global history would growth ‘simply’ continue? If it was basically reducible to such a simple mechanism, then why did it take so long before it materialised? And secondly: What actually happened in countries experiencing modern economic growth was not a matter of a little bit *more* of the same year after year – and in that sense like ‘compound interest’ – but of sustained increased efficiency and structural *change* in every aspect of economic life. The coming of modern economic growth was *not* a natural continuation of previous economic history, be it on a different scale: it was quite *unnatural*. It was *not* something that was bound to occur if only certain blockades would disappear. It was really new, as Dengjin Jin puts it, a matter of “transcending” the old.<sup>94</sup> These comments bring us to that perennial bone of contention in historical debates: the role of continuity and change, inevitability and contingency.

Looking at the data, one can distil from recent research by economic historians that the Great Divergence appears as the relatively fast emergence of an increasing and large difference in wealth between countries against the background of relatively much smaller differences that existed for much longer. Considering these circumstances I personally am quite reluctant to attach a major and in particular an *independent* and *determining* role in my explanation to very long-term and constant background factors like geography, the European state-system, Europe’s culture or religion. I think one should in general be very wary of giving explanations that focus on the *very longue-durée*. To my taste such explanations tend to ‘fix’ history and become fatalistic. Path-dependency exists and history matters, but things can change or, rather, at times people can change things.<sup>95</sup> I have to admit I get somewhat nervous when I read a claim by Oded Galor that “pre-historical bio-geographical conditions” had a “persistent direct effect ... on the process of development over the entire course of human history” i. e. “from the dawn of human civilization to the modern”, I, as a historian, even if his correlations are statistically sound, cannot help asking: why, for millennia, did no one do anything about this?<sup>96</sup> The same goes for the positive answer that

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94 This is the thesis of Dengjin Jin in his forthcoming publication in the *Princeton Economic History of the Western World*.

95 See the interesting analysis by Nunn, ‘The importance of history for economic development’.

96 See e.g. Galor, *Unified growth theory*, chapter 6.4. The quotations are on page 208. For a

D. Comin, W. Easterly and E. Gong give for their question about whether the wealth of nations was determined in 1000 BC<sup>97</sup> or for the suggestion taken over by Jones that "... the establishment of a cultural form in remote prehistory" ... would ... "ipso facto explain the special behaviour of later European society."<sup>98</sup> Jared Diamond too does not shy away from very long-term determinism: "Of course, those technological and political differences as of A.D. 1500 were the immediate cause (sic! PV) of the modern world's inequality ... How, though, did the world get to be the way it was A.D. 1500?"<sup>99</sup> He even goes as far as to write: "The hand of history's course at 8000 B.C. lies heavily on us."<sup>100</sup> Robert Allen apparently thinks one can confidently claim that, "to understand why Africa is poor today we have to understand why it was poor in 1500."<sup>101</sup> Reading Nathan Nunn's analyses of the long-term impact of slavery in the regions where the slaves came from, one cannot help wondering why those effects continued to persist.<sup>102</sup> If as he claims one of the effects of the slave trade is that it created a sense of distrust amongst Africans that still persists, then how is it possible that Germans and French at the moment are such good neighbours?<sup>103</sup> Persistence as well as change, they both have to be explained.

And there have been changes, even clear 'reversals of fortune'. According to Acemoglu, Johnson and Robinson, who coined that phrase, the richest regions that were colonised by Western powers became poor, whereas those that were not so rich to begin with, fared much better.<sup>104</sup> But even with these authors there is a clear tendency to turn the past into destiny. One cannot help thinking that for them 'the critical juncture' of the establishing of different systems of property rights shortly after their discovery sealed the fate of the regions they discuss. Scholars like Daron Acemoglu and colleagues and Stanley Engerman and Kenneth Sokoloff (1952 – 2007) also tend to underestimate agency, in their case that of the people who lived in the regions where Westerners interfered and tried to enforce their will. The inhabitants of Africa and Latin America in their analyses seem to be reduced to fairly passive objects in a history that is made by Euro-

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similar very-*longue durée* approach see Olsson and Hibbs Jr., 'Biogeography and long-run economic development'.

97 D. Comin, W. Easterly and E. Gong, 'Was the Wealth of Nations Determined in 1000 BC?', NBER Discussion Paper 12657, 2006.

98 Jones, *European Miracle*, 13 – 14.

99 Diamond, *Guns, germs and steel*, 16.

100 Ibid, 417.

101 Allen, *Global economic history*, 92.

102 See for example his, 'The long-term effects of Africa's slave trades'.

103 See his website at Harvard with the article written together with Leonard Wantchekon 'The slave trade and the origins of mistrust in Africa'. Why would some societies be "shackled to the past", to quote the title of an article by him dealing with the long-term consequences of slavery?

104 See their 'Reversal of fortune'.

peans or certain collaborating elites. That often turns out to be a serious exaggeration of the power of those Europeans and an underestimation of room for manoeuvring and the self-interests of the inhabitants of those regions. The tendency amongst economists in particular to ‘compress history’ by comparing two moments in time with no discussion whatsoever of the period in between only invigorates this tendency to leave actual agency out. It, moreover, can lead to somewhat misleading conclusions as the exact choice of the moments in time that one wants to compare can have major consequences for what must be explained and what can count as an explanation.

Virtuous and vicious circles, which reinforce each other and are not easy to escape, do definitely exist. But they can be and sometimes have been broken, which means that path dependency always has to be *explained* and not just *assumed*.<sup>105</sup> Otherwise one turns history, whether it would be determined by geography or institutions, into fate, depriving it of any consequential human agency as, for example, Ian Morris explicitly does when he time and again discusses whether historical actors are “bungling idiots” and claims history is made by “maps” and not “chaps”.<sup>106</sup> That seems quite exaggerated as Acemoglu and Robinson discuss in their latest book in which they show that people can actually ‘break the mould’ of such vicious, or virtuous, circles and change their economic trajectory by changing their institutions. Why should things last for centuries when it is so obvious that they *can* change overnight? In 1950, GDP per capita in the Central African Republic was the equivalent of 772 international dollars of 1990; in 1998 it amounted to 653 of those dollars. For Haiti, to again refer to that country, the figures are 1051 dollars and 816 dollars, for South Korea 777 dollars and 12,152 dollars.<sup>107</sup> Moreover, even countries with the wrong institutions can experience periods of growth. Haiti – a country that nowadays is one of the poorest on the entire globe – may have been the richest part of the entire Americas and even of the world in 1790, on the eve of its Revolution, when it was a very extractive slave-plantation colony. The economy of Argentina during the nineteenth and twentieth century is one of boom and bust.<sup>108</sup>

Considering its relative fastness after centuries of relative stasis, I also cannot endorse Julian Simon’s idea that the Great Divergence might have been caused by

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105 See for some comments my ‘Does wealth entirely depend on inclusive institutions and pluralist politics?’

106 See my review in *Journal of Global History* 7, 1 (2012) 143–147. In his *Why the West rules* he refers no less than sixteen times to “bungling idiot(s)”.

107 Maddison, *World economy*, 323, 289 and 304. The dollars here are so-called 1990 international dollars.

108 For figures about Haiti, see Engerman and Sokoloff, *Economic development in the Americas since 1500*, 11. See for those ups and in particular those downs caused by existing extractive institutions, Acemoglu and Robinson, *Why nations fail*, under ‘Haiti’ and ‘Argentina’.

a “cumulatively large random process whose first step may have been a *small* “accident”.<sup>109</sup> It, moreover, was so incisive and consequential and the gap it created so difficult to close – that the existence of ‘surprising resemblances’ and a ‘Eurasian similarity’ is not very likely. I sympathise with John Bryant’s critique that the recent exclusive focus on resemblances and similarities and its suggestion that Europe’s rise to economic pre-eminence was both “late and lucky”, removes “all potentially invidious distinctions between West and East”. This means I also sympathise with his rejection of Jack Goody’s claim that “...the distinct qualitative difference between East and West came only with industrialization.” In my view, Bryant is right in writing that “... a world flattened of determinant social differences makes the local emergence of any historical novelty structurally inexplicable”, and restricts explanatory options to “the aleatory or incidental.”<sup>110</sup> Landes’s “golden rule of historical analysis” to wit “...big processes call for big causes” to me seems fairly straightforward to me.<sup>111</sup> Considering the nature of the explanandum, in my view explanations focusing on ‘contingency’, ‘luck’, ‘accident’ fortune’, ‘fortuitous circumstances’ and the like are simply unconvincing. Even if things may have *started* with some ‘luck’ it would be hard to be so permanently lucky as to sustain increased production for many decades on a row in a region with tens of millions and later on several hundreds of millions of people. Such explanations nevertheless have become surprisingly popular. John Hobson, in his *The Eastern origins of Western civilisation*, claims, that the West was lucky no less than five times.<sup>112</sup> Rosaire Langlois claims that: “Europeans weren’t just lucky; they were lucky many times over.”<sup>113</sup> In publications by Robert Marks, Peter Perdue, Kenneth Pomeranz, Jean-Laurent Rosenthal and Roy Bin Wong references to ‘contingency’, ‘conjuncture’, ‘accidents’, and ‘fortuitous circumstances’ abound.<sup>114</sup> In a way Andre Gunder Frank too refuses any agency to the West in his explanation of the Great Divergence by describing it entirely in terms of anonymous, abstract global

109 Simon, *Great Breakthrough and its cause*, 174.

110 See for these quotations, Bryant, ‘West and the Rest revisited’, pages 410, 417 and 418. This text sparked a debate in *Canadian Journal of Sociology/ Cahiers Canadiens de Sociologie* 33, 1 (2008) with contributions by Jack Goldstone, Rosaire Langlois, Joseph M. Bryant and Mark Elvin. See also Coclanis, ‘Ten Years After: Reflections on Kenneth Pomeranz’s *The Great Divergence*’, 12: “At the end of the day, though, Pomeranz’s own argument has too many “black swan” elements to prove convincing or intellectually satisfying, at least to me.” For an introduction to the theory of so-called black swan phenomena, see Taleb, *Black swan*.

111 Landes, ‘What room for accident in history?’, 653.

112 Hobson, *Eastern origins of Western civilisation*, 313–316.

113 Rosaire Langlois, ‘Closing of the sociological mind’, 141.

114 Marks, *Origins of the modern world*. See under ‘conjuncture’ and under ‘contingency’; Perdue, *China marches West*, 536–539; Pomeranz, *Great Divergence*, the flap text and pages 12, 16, 68 and 241; Wong, *China transformed*, 278–279; Rosenthal and Wong, *Before and beyond divergence*, 127.

cycles and Kondratieff waves.<sup>115</sup> It apparently escapes these anti-Eurocentrists that it is not exactly a comforting thought for the poor of this world that those few societies that escaped from poverty would have done so by sheer luck. Would that not at least suggest that agency, conscious planning and the implementation of specific policies are fairly irrelevant when it comes to developing modern economies and promoting modern growth? Moreover, if wealth is simply good luck, is poverty then simply bad luck? Strikingly enough, Daron Acemoglu and James Robinson, who never refer to the work of any Californian in their *Why nations fail* also repeatedly emphasize the major importance of “small differences” and “contingency”.<sup>116</sup>

Of course, in the strict, technical sense of the term, it indeed was a contingency that industrialisation happened in Britain first, or for that matter that it happened anywhere at all. In logic, the term ‘contingency’ refers to a possible but not very likely future event or condition. In that sense, Britain’s industrialisation and the rise of the West clearly were contingent. But that does not mean they were contingent in the common sense meaning of the word, i. e. purely accidental, a matter of chance. The undeniable divergence between Britain and the most advanced regions of China was *not* a pure historical accident. In my view, the chances that Qing China would have industrialised first instead of eighteenth-century Britain are nil. The probability that Britain would industrialise considering the trajectory it was on definitely was not negligible and in any case much higher than the probability that any other region *outside* Western Europe would and also – but with less distance – higher than the probability that this would occur in, e. g. the Dutch Republic or France. The huge, enduring and for many decades steadily growing gap that we call the Great Divergence simply cannot be the sole consequence of some luck or windfall. Even if one admits – as one should – that Western industrialisation and imperialism created a new environment in which catching up was made anything but easy for non-Western countries, it simply should have been much easier if indeed initial differences had been as negligible as Californians like to claim. And why would all those wanting to catch up constantly claim that their societies ought to radically change, i. e. modernise, if basically they already were like those in the West? Growth as we have seen in the West since industrialisation cannot be treated as a (by definition fairly momentary) windfall. It involves a continuing process of structural and broad innovation in the use of resources, technologies and institutional arrangements.

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115 See e. g. Frank, *ReOrient*, 248 – 267.

116 Acemoglu and Robinson, *Why nations fail*, 435: “Small differences and contingency are not just part of our theory; they are part of the shape of history.” See further under ‘contingencies’ in the Index.

The fact that I deny that the Great Divergence would be contingent in the sense of a matter of sheer accident does not mean I would opt for the other extreme and claim that the emergence of modern economic growth during the Industrial Revolution was inevitable. Although it is quite common to claim that ‘Eurocentrists’ – and I guess I will be considered as one – would do that, no serious scholar actually ever did. John Hobson’s book is full of attacks on Eurocentrists for thinking that “...Europe autonomously developed through an iron logic of immanence” and that “... *only* the West was capable of independently pioneering progressive development.”<sup>117</sup> According to him they have a “... triumphalist teleology in which all of human history has ineluctably been leading up to the Western endpoint of capitalist modernity.”<sup>118</sup> On more than one occasion he writes that they “... impute an inevitability to the rise of the West and the stagnation of the East”<sup>119</sup> and claim that the rise of the West “can only be accounted for by factors that are strictly endogenous to Europe.”<sup>120</sup> About Max Weber (1864 – 1920), one of the many *bêtes noires* in his text, he writes: “Max Weber’s whole approach was founded on the most poignant Orientalist questions: what was it about the West that made its path to modern capitalism inevitable? And why was the East predestined for economic backwardness?”<sup>121</sup> One finds similar accusations, although less repetitious, in Robert Marks’ book on the origins of the modern world, where he writes, “One very powerful implication of the storyline of the rise of the West, though it is seldom made explicit, is that the way the world turned out was the only way possible. ... this interpretation implies that the rise of the West was *inevitable*.”<sup>122</sup> In his blockbuster, Ian Morris, too, suggests that there would have existed one school of ‘long-term lock-in theorists’ who claim, “...from time immemorial some critical factor made East and West massively and unalterably different, and determined that the industrial revolution would happen in the West.” That it would happen there and not some place else would have been inevitable according to these theorists. That is, if we are to believe Morris, which we should not.<sup>123</sup> Pankaj Mishra, in a review of Ferguson’s *Civilization*, writes, “To ask, as Ferguson does, why the West broke through to capitalist modernity and became the originator of globalisation is to assume that this was inevitable, and that it resulted basically from the wonderfulness of the West, not to mention the hopelessness of the

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117 Hobson, *Eastern origins of Western civilisation*, 2 and 9.

118 Hobson, *Eastern origins of Western civilisation*, 10.

119 Hobson, *Eastern origins of Western civilisation*, for example, 18, 295 and 312.

120 Hobson, *Eastern origins of Western civilisation*, 306.

121 Hobson, *Eastern origins of Western civilisation*, 14 – 15.

122 Marks, *Origins of the modern world*, 10. (Italics in the original PV).

123 Morris, *Why the West rules*, e.g., 13 and 14. The quote is on page 13.

East.”<sup>124</sup> Even nuanced scholars succumb to attacking determinist straw men. Prasannan Parthasarathi dedicates of couple of pages to such attacks in the beginning of his recent book.<sup>125</sup> In the discussion on Pomeranz’s work in *Historically Speaking* Hoffman thinks it is necessary to point out that, “...the British Industrial Revolution was not at all foreordained”<sup>126</sup>, whereas Pomeranz himself writes, “Yet a deeply rooted divergence is not the same as a divergence that was locked in and bound to happen as soon as the first step of those slowly maturing advantages appeared” and “Even once some new machines appeared, it was not inevitable that this would lead to a sustained and growing divergence.”<sup>127</sup> I can only agree, but who would not?

This claim that Eurocentrists would postulate the inevitability of the rise of the West is completely unfounded. Just look at the work of scholars like, in alphabetical order, Paul Bairoch (1930 – 1990)<sup>128</sup>, Ernest Gellner (1925 – 1995)<sup>129</sup>, John Hall<sup>130</sup>, Eric Jones<sup>131</sup>, Alan Macfarlane<sup>132</sup>, Michael Mann<sup>133</sup>, Joel Mokyr<sup>134</sup>,

124 See Pankaj Mishra in *London Review of Books* 33, no 21, 3 November 2011.

125 Parthasarathi, *Why Europe grew rich*, 8 – 14.

126 Hoffman, ‘Comment on Ken Pomeranz’s *The Great Divergence*’, 17.

127 Pomeranz, ‘Ten years after’, 24.

128 Bairoch, *Victoires et déboires, Volume I*, 267 – 269, where Bairoch explicitly says that the occurrence of the Industrial Revolution in Britain was not inevitable and not even very probable.

129 See, for example, Gellner, *Plough, sword and book*, 199: “We have striven to explain how one society, and only one, had by a series of near-miraculous coincidences, attained this kind of world.” (i.e. the modern industrial world, PV) For a similar statement see page 204. For further analysis of Gellner’s position, and information on that of Macfarlane himself, see Macfarlane, ‘Ernest Gellner and the escape to modernity’.

130 Hall, *Powers and liberties*, 111, where he describes the rise of Christian Europe as “a curious concatenation of circumstances” and as “miraculous”; page 142, where he writes about this same phenomenon: “We can rationally reconstruct how this occurred, but it is all too easy to imagine things happening otherwise. It was the European miracle”, and page 249, where again the word “miraculous” is used.

131 Jones, *European miracle*, 238: “Europe’s very long-term development appears miraculous. Comparable development in Asia would have been super-miraculous.”

132 Macfarlane, *Riddle of the modern world*. See, for example, chapter 14: ‘The riddle resolved’, where he explicitly objects to thinking in terms of inevitability e.g. on page 289. See also his *Invention of the modern world*, chapter I.

133 Mann, *Sources of social power. Volume I*, 505 – 506: “... it is difficult to avoid the conclusion that the *origins* (Italics in the original, PV) of the European miracle were a gigantic series of coincidences. Many causal paths, some long-term and steady, others recent and sudden, others old but with a discontinuous historical growth (like literacy), emanating from all over the European, Near Eastern and even Central Asian civilisations, came together at a particular time and place to create something unusual.”

134 For two quotations see Mokyr, *Enlightened economy*, 12 and 487: “...it is important not to succumb to “hindsight bias.” By this I mean that when we know that a certain event occurred, we tend to view it as more or less inevitable and reinterpret all prior conditions as facilitating the outcome” and: “...one of the irrepressible sentiments of the economic

and even David Landes.<sup>135</sup> If they are not Eurocentrists, who is? Yet none of them ever writes in terms of ‘inevitability’. To claim as Hobson does that Max Weber would regard ‘the rise of the West’ as ‘inevitable’ and the economic backwardness of the East as “predestined” is ridiculous.<sup>136</sup> Wallerstein, who is also often accused of Eurocentrism, explicitly writes that the emergence of the European, capitalist world-system was due to “... a fortuitous simultaneity of events.” He refers to “the implausible contemporaneity of four collapses – those of the seigniors, the state, the Church and the Mongols.” According to him “Europe is historically aberrant.” He adds: “In some ways this was a historical accident, not entirely Europe’s fault.”<sup>137</sup> Fernand Braudel, another famous ‘Eurocentric’, never talked in terms of inevitability and had no problem in admitting that Western Europe was not richer than India or China around 1800.<sup>138</sup> When it comes to ‘inevitability’, one might refer to a couple of economists and other scholars who claim that *some kind* of industrial revolution in the end was inevitable *someplace*, because the increase of collective knowledge over which mankind can dispose and the competitive pressure to use it as efficiently as possible make economic progress the normal outcome of a Darwinian process of natural selection. But

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historian studying the Industrial Revolution is a sense of amazement that it occurred *at all*.” (Italics in original PV).

- 135 Landes makes it quite clear that he does not like the debunking of the rise of the West into a matter of sheer contingency. But nowhere does he claim that it would have been inevitable. See, for example, his *Wealth and poverty of nations*, 29, where he starts the chapter on European exceptionalism with the comment “Europe was lucky...” and then claims that the probability of European global dominance around the year 1000 A.D. was “somewhere around zero”.
- 136 See, for example, Käsler, *Einführung in das Studium Max Webers*, 172: “To consider it a “theory of evolution” in which the history of the world would be depicted as a steady rise to the perfection of a rational dominance of the world, would be a grotesque *misunderstanding* (Italics in the original, PV) of Weber’s work. It was exactly the incredible, ‘contingent’ aspect of the process that he called ‘rationalization’ and its permanent interruption by ‘non-rational’ developments that Weber was fascinated with during his entire life time and that led him to keep asking his central question for new subjects.” The translation is mine. In German the quotation reads: “Eine “Evolutionstheorie”, nach der die Weltgeschichte sich als steter Aufstieg zur Vollkommenheit rationaler Weltbeherrschung darstellen würde, wäre ein groteskes *Missverständnis* des Weberschen Werkes. Gerade das ungläubliche, “zufällige” an jenem Prozess den er Rationalisierung nannte, und zugleich dessen konstante Unterbrechung durch “nicht-rationale” Entwicklungen war es, was Weber zeit seines Lebens faszinierte und ihn die Fragestellung auf immer neue Gebiete anwenden ließ.” See further Kalberg, *Max Weber’s comparative-historical sociology*, passim, for example, pages 145 – 146.
- 137 Wallerstein, ‘World system versus world-systems’. The quotations are on pages 295, 293 and 295. For an explanation of how Europe emerged as an aberration out of its late-medieval crises, see his ‘The West, capitalism, and the modern world-system’.
- 138 Braudel, *Civilization and capitalism, 15<sup>th</sup>-18<sup>th</sup> century. Volume III*, 533 – 535. See also his *Civilization and capitalism, 15<sup>th</sup>-18<sup>th</sup> century. Volume II*, 134: “... the gap between the West and the other continents appeared *late in time*”. (Italics in the original).

even if one would be willing to endorse this line of reasoning, which, I, following Dengjian Jin, would hesitate to do, that of course is a far cry from claiming that the Industrial Revolution as it actually occurred in Great Britain was *bound* to occur.<sup>139</sup>

No one in Britain had a presentiment that so many fundamental technological breakthroughs were in the air, even as late as the 1750s. The brightest economist in the realm in the eighteenth century, Adam Smith, argued that sustained economic growth was impossible and he could not imagine a non-Malthusian economy. The idea that Britain would within a couple of decades be the biggest power on the globe would also have struck almost everyone in the country as very odd, even as late as the 1780s. The Industrial Revolution and modern economic growth were neither foreseen, nor predicted or planned. It would be a major error to look at pre-Great Divergence history as a race between countries, which one would industrialise first<sup>140</sup>, although one in particular for European countries already in the early modern era should certainly not underestimate the importance of international economic competition and ‘emulation’: that was enormous and to my view one of the main if not *the* main driving force behind economic development. Interstate competition and ‘emulation’ certainly were the essence of mercantilism.<sup>141</sup> Things of course became quite different when people noticed that the changes that we associate with the emergence of modern economic growth brought wealth and power to those who initiated them. Economic development and industrialisation then very quickly became ‘a national project’, something rulers and their subjects wanted – and actually considering international competition *needed* – for themselves and their countries. They became fixed ingredients of all plans to modernise as was clear to economists otherwise as different as Walt Rostow (1916–2003), Alexander Gerschenkron (1904–1978), and Simon Kuznets (1901–1985).<sup>142</sup> Let me just give one quotation by Gerschenkron:

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139 For Dengjian Jin see note 94. For the thesis that an industrial revolution was bound to occur sometime someplace see e.g. in alphabetical order: Christian, *Maps of time*; Galor, *Unified growth theory* and ‘Towards a unified theory of economic growth’; Jones ‘Was an Industrial Revolution inevitable?’; Kremer, ‘Population growth and technological change’; Ridley, *Rational optimist* (I will refer to the paperback edition that came out in 2011 in London); Simon, *Great Breakthrough*, and Wright, *Nonzero*. Gregory Clark too, is beginning to think in such terms. See e.g. his *Fare well to alms*, 8–12. For the fairly senseless contrast that is often made between the contingency and the inevitability of modern economic growth and a suggested compromise see also White, *Understanding economic development*, chapter 14.

140 Parthasarathi, in his *Why Europe grew rich* writes as if Eurocentrists would endorse all these erroneous assumptions. See e.g. pages 7–14.

141 See e.g. Hont, *Jealousy of trade*; Reinert, *How rich countries got rich...and why poor countries stay poor* and Sophus Reinert, *Translating empire*.

142 See e.g. Rostow, *Stages of economic growth*, chapter 3; Gerschenkron, *Economic back-*

To break through the barriers of stagnation in a backward country, to ignite the imaginations of men, and to place their energies in the service of economic development, a stronger medicine is needed than the promise of better allocation of resources or even of the lower price of bread. Under such conditions even the businessmen, even the classical daring and innovating entrepreneur, needs a more powerful stimulus than the prospect of high profits. What is needed to remove the mountains of routine and prejudice is faith...<sup>143</sup>

Plans to modernise their economies were easier to realise to the extent that states embarking upon them knew social cohesion and political consensus. In that sense some sort of nationalism often played a very prominent and positive role in economic development and in creating and sustaining growth.<sup>144</sup> In the long run, the chances of sustaining growth by means of brute force are quite slim. In that respect David Landes clearly has a point when he emphasizes that Britain as first industrialiser “had the early advantage of being a nation.”<sup>145</sup>

Neither does looking for the causes of the Great Divergence imply that one would think that Europe would have been fundamentally different and superior from time immemorial as e.g. James Blaut (1927–2000) claims in his anti-Eurocentric attack on ‘the colonizer’s model of the world’.

The purpose of this book is to undermine one of the most powerful beliefs of our time concerning world history and world geography. This belief is the notion that European civilization – “The West” – has had some unique historical advantage, some special quality of race or culture or environment or mind or spirit, which gives this human community a permanent superiority over all other communities, *at all times in history* [italics mine] and down to the present.<sup>146</sup>

When Goody claims that we should “... abandon the notion of perpetual supremacy of one or the other” and “the common, western, idea of the permanent, or even long-term, dominance or superiority of Europe in its trajectory to modernization or capitalism,” I can only wonder who ever endorsed such a notion.<sup>147</sup> Which serious historian can he have in mind when he writes, “History

*wardness in historical perspective*, 22–26, and Simon Kuznets, [www.nap.edu/html/biomems/skuznets.pdf](http://www.nap.edu/html/biomems/skuznets.pdf)

143 Gerschenkron, *Economic backwardness in historical perspective*, 24.

144 See e.g. Greenfeld, *Spirit of capitalism*; Magnusson, *Nation, state and the Industrial Revolution*; Moe, *Governance, growth and leadership* and Sen, *Military origins of industrialisation and international trade rivalry*. For a more detailed comparative empirical study see David, *Nationalisme économique et industrialisation*. Rostow, by the way, in his *Stages of economic growth* already strongly emphasized the importance of nationalism for countries wanting to catch up. See the references to ‘nationalism’ in the index of his book.

145 Landes, *Wealth and poverty of nations*, 219. See for the emergence of British nationalism Colley, *Britons. Forging the nation, 1707–1837* and Greenfeld, *Nationalism. Five roads to modernity*.

146 Blaut, *Coloniser’s model of the world*, 1.

147 Goody, *Eurasian Miracle*, 105 and 106.

did and does not move in the straight lines the essentialist accounts assume.”<sup>148</sup> His recent books bristle with references to Eurocentrists assuming a perennial or at least age-old advantage that the West possesses, a built-in Western supremacy, a Western essence versus an Eastern one, and attacks on Max Weber for claiming the West had always had an advantage. We have already noticed that Morris too departs from the notion there are people thinking in such terms.<sup>149</sup> But is there really anyone who for example has seriously suggested that Western Europe around 1000 A.D. was more advanced than Song China or various parts of the Islamic world?

Finally, the fact that developments in the West are *compared* to those in other parts of the world in an analysis like mine of course does not imply that I would want to deny the existence of all sorts of exchange over time between the regions involved. In this context too, Goody – but not only he – is fond of fighting straw-men in his recent publications with his attacks on scholars who neglect “the contributions of other societies to the achievements of the Industrial Revolution and, in particular overlooked ... the contributions of the east to ‘modernization’, mechanization and industrialization.”<sup>150</sup> Again, I do not know any serious scholar at the moment that would want to deny such contributions.

In my view, the Great Divergence is neither something pre-ordained from time immemorial, based on fundamental and perennial differences, nor “a late, rapid, unexpected outcome of a fortuitous combination of circumstances in the late eighteenth century” as Perdue and many Californians want us to believe.<sup>151</sup> An explanation of the Great Divergence should not start from a ‘long-term lock-in perspective’, in which the West has been ‘exceptional’ from time immemorial and in which industrialization could only – and would inevitably – happen there, nor should it depart from a ‘short-term accident perspective’ and regard it as “just a recent, freakish accident.”<sup>152</sup> The emergence of modern economic growth and industry in the Western world were not inevitable whatever that exactly may mean – but they did have a relevant pre-history that certainly stretched further back in time than the late eighteenth century. They were path-dependent outcomes of a specific trajectory that made their occurrence in Britain (and Western Europe) in the eighteenth century much *less unlikely* than they would have been in Qing China (and any other part of the non-Western world) at the time. Historical developments and outcomes can only be explained and compared in terms of probabilities. The phenomena we are dealing with here are so important that it is perfectly legitimate and highly relevant to design research that ex-

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148 Goody, *Eurasian Miracle*, 105.

149 See note 123.

150 Goody, *Eurasian Miracle*, 2.

151 See note 121.

152 For these terms see Morris, *Why the West rules*, 13–15 and 21.

clusively focuses on their preconditions although we of course have to be careful not to turn all previous history into either their *prehistory*, or regard it, when it did not lead to modern economic growth, as therefore irrelevant, or a failure, as Parthasarathi and Pomeranz rightly, although in my view somewhat superfluously, remind us.<sup>153</sup>

I hope the extended comments made so far show that it is of the utmost importance to be as explicit as possible, and to refer as much as possible to *concrete links* and *concrete mechanisms* that can be shown to indeed connect the *explanandum* (the situation to be explained) and the *explanantia* (the factors adduced to explain that situation). What we want to explain is *the emergence of long-during, sustained, substantial growth* in one part of the world and its non-emergence at the time in the rest of the world, focusing on the very beginning of the process of breaking the strangleholds of the old economy.

## 5. Old clichés about Asia’s economic past that are no longer tenable

The main direct reasons that the debate on the emergence of big differences in the wealth and poverty of nations has flared up again so much of late must be sought in the emergence of a new economic order, of which ‘the rise of the East’ is the most prominent feature, and in the major revisions that have occurred in the historiography dealing with the economic history of early modern Asia, and in particular early modern China. The current decline of the West and rise of the East provide ample reason to rethink the phenomena of development and growth. Apparently the ‘East’ need not be stuck in a ‘*histoire immobile*’<sup>154</sup> and many historians now find out it did not do so in the past either. Not many scholars would still want to defend the classic bleak image of early modern Asia as, economically speaking, almost the perfect anti-Europe. For the West most of the classic stories of its rise were too rectilinear, too self-assured, too exceptionalist. For ‘the Rest’, a weird category anyhow, they as a rule were too bleak, ‘timeless’ and undifferentiated. ‘Non-Western’ history is now much more

153 Pomeranz, ‘Ten years after’, 22: “... we can’t just look aback from what eventually happened and say “Europe was, by definition, on the road, to where Europe wound up, and China wasn’t: therefore China wasn’t on the road to anything significant.” He adds “and doesn’t seem to have been addressing problems raised by increased resource demands in any constructive way.” Here I have my doubts: to be honest, I think the Chinese did *not* solve their problems and from the 1750s onward did not show much inventiveness in trying to tackle them.

154 A pun on Peyrefitte, *L’empire immobile ou le choc du monde*, a book on eighteenth-century China.

seen in its own right and in the light of the times, not in a Western light and with the very dubious benefit (?) of hindsight that 'knows' what region will 'succeed' and which ones will 'fail'. Of course, not everyone has given up on all clichés, and not all clichés are wrong. To give a couple of fairly recent examples of how one should *not* discuss the rise of the West, let me briefly quote Eric Jones, David Landes, and Daron Acemoglu and James Robinson, who all have written on the subject and received an enormous response. I will confine myself to what they write about 'Asia'.

In his book on the European miracle, Jones time and again pointed out that Asian empires were extremely crowded. In his view pre-colonial Asia was "... heading into a demographic cul-de-sac". In China and India, so he writes, "Seemingly, copulation was preferred above commodities" with people given to a "mere insensate multiplication of the common life." In contrast, the population pressure in Europe was held in check thanks to its specific (Western) European marriage pattern.<sup>155</sup> Landes in his *Wealth and poverty of nations* actually is quite silent on demography. This is what Jones, still in 1981, in the time-honoured tradition of 'oriental despotism', wrote about property rights in early modern Asia: "The Asian condition was summed up by Reade ... as *property is insecure*. In this one phrase the whole history of Asia is contained."<sup>156</sup> On page 229 of his *The European Miracle* it reads: "The Ottoman, Mughal and Manchu systems were all alien, imposed military despotisms: revenue pumps. They were primarily responsible for the blighted developmental prospects of their subjects." Landes in 1998 still describes Qing China as "despotic" or even "totalitarian", and as an empire of "stasis and retreat", whereas he discusses the history of the Islamic nations in a chapter with the title: 'History gone wrong?'<sup>157</sup> In Jones's words, Europe in contrast to Asia's empires avoided "the plunder machine". Government there, even so-called absolute rule, was always checked. It was seldom as "insecure as Moreland's India" and witnessed a "withering away of arbitrariness, violence, custom and old social controls."<sup>158</sup> In Western Europe in particular, the state provided some security, order and services. Acemoglu and Robinson who in their work almost exclusively focus on institutions reproduce all the standard clichés when it comes to Asian institutions. They hardly refer to India and what they say about the Ottoman Empire and Qing China is in the best tradition of oriental despotism: they are 'absolutely' ruled by extractive governments that respect no property rights, systematically oppose any innovation

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155 The quotations are on pages 231, 15 and 3 of his *European Miracle*. For references to a European marriage pattern see, for example, pages 14–16 and 19–21 of that book.

156 Jones, *European Miracle*, 165. Jones here refers to a book by Winwood Reade published in 1925. Italics in the original.

157 Landes, *Wealth and poverty of nations*, 56–57, chapters 21 and 24.

158 Jones, *European Miracle*, 233, 232 and 235.

and keep the population poor.<sup>159</sup> The interested reader can look for many more examples of ‘Eurocentrism’ in the compilations by James Blaut, that in all their one-sidedness and propensity to blatant exaggeration do come up with quite a few authentic examples of silly views on ‘the Rest’ that no serious scholar should ever have defended, or in some of the more extreme parts of Ferguson’s *Civilization*.<sup>160</sup> On the basis of much recent research one can only agree with Peter Coclanis: ... it is no longer possible today for any serious student of pre-modern history to overlook – or even understate – the size, sophistication and wealth of the major economic centres in Asia.<sup>161</sup> Not only were those centres sophisticated and wealthy; they were also far less extractive than claimed, often even much less extractive than Western states.<sup>162</sup> There indeed existed far fewer checks and balances for rulers in the big Asian empires than in Western European states, but terms like ‘totalitarian’, ‘despotic’ and ‘absolute’ clearly exaggerate the level of un-freedom and constraint in Asia, while exaggerating that of freedom and liberty in the West.

We will discuss the old negative stereotypes of Qing China in more detail in the text and see that amongst experts they have almost all been discussed and rejected or at least corrected.<sup>163</sup> Such revision was long overdue. Qing China during its ‘efflorescence’, from roughly 1700 to 1780, in many respects was a highly developed country. The majority of knowledgeable Europeans at the time did not regard it as ‘underdeveloped’ or ‘poor’, nor did they describe it in categories of ‘oriental despotism’ and ‘corruption’. They rather (optimistically, I would say!) looked at it as a benignly and well-ruled country that even practised a kind of *laissez-faire*. Nor was it regarded at the time as an overpopulated land of famines or a military weakling. Halfway into the eighteenth century, it was not at all obvious that the future would belong to the West. The Ottoman and Mughal Empires clearly had known better days and in India, with the Battle of Plassey in 1757, the British had acquired a substantial foothold. But considering the way they were treated in China, Japan or Korea, Westerners certainly were not ‘calling the shots’ in Asia. On the contrary. During the two last decades of the eighteenth century, the Chinese, too, were confronted with problems that were still overwhelmingly of their own making. But no one would have been able to actually

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159 See in their *Why nations fail* under ‘Ottoman Empire’ and ‘China’.

160 Blaut, *Eight Eurocentric historians*.

161 Coclanis, ‘Ten Years After: Reflections on Kenneth Pomeranz’s *The Great Divergence*’, 11. For a good survey of the changes for the case of early modern China, see Deng, ‘A critical survey of recent research in Chinese economic history’.

162 See for example my ‘Governing growth’ and Yun-Casalilla and O’Brien, *Rise of fiscal states*.

163 See for brief overviews of the way China was represented in the West, Blue, ‘China and Western social thought in the modern period’ and Ho-fung Hung, ‘Orientalist knowledge and social theories’.

predict that these problems would be the beginning of some 150 years of major trouble. There may have been differences in wealth and development between West and East but they definitely were not always to the disadvantage of the East. To ask why China wasn't the first country with modern economic growth is not as a-priori senseless as it would be if the old clichés were even only partially true.

## 6. Income, growth and wealth: problems of measurement

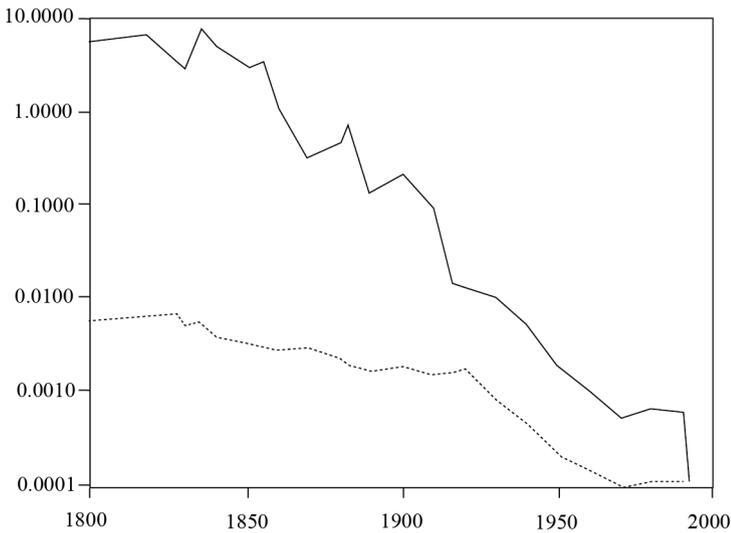
To discuss modern economic growth and its emergence, one must be able to measure it. Economists currently as a rule do that by measuring the increase of real GDP per capita over time. In my analysis and data, references to GDP in all its varieties also are frequent and they play an important role in my arguments. As such, GDP is of course not an unproblematic concept, neither in theory nor in practice. Using it becomes even more problematic when one applies it to a period that to a large extent was pre-statistical and in which many, if not most, prices were set by tradition or authority or at least heavily influenced by all sorts of manipulation rather than reflecting relative scarcity. Many goods and services did not receive a price at all. Comparing real incomes between places over time is anything but unproblematic,<sup>164</sup> particularly in periods of fast economic change – and we are discussing such a period here – when not just *more* but in particular more *new* things are produced. Their value often cannot (easily) be determined in terms of what was already known and as a rule is under-estimated. Many of the products that exist at the moment simply did not exist when Britain took off. In that respect, growth as the increasing potential to satisfy needs certainly was much greater than our GDP figures indicate. Existing price indices by their very nature tend to ignore the most important technological revolutions.

Even if new products or services catered to old needs, they still made an enormous qualitative difference and completely changed the way in which they satisfied wants, often by basically creating new ones. The revolution in light to which Nordhaus (graph 4) refers, for example, was not a matter of simply adding millions of candles. Light became an entirely new product whose costs in terms of work dwindled since the revolutionary changes in lighting that set in with gas lighting. Undoubtedly, one can tell a similar story as Nordhaus does for lighting for transportation, heating and many other forms of consumption. Their labour prices have changed beyond recognition. An automobile with ten HP is not identical to ten horses. This is a fact of major importance.

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164 For an analysis of a just a couple of the problems involved, that has special relevance for debates in global economic history, see Jerven, 'Unlevel playing field'.

Graph 4: The labour price of light 1800 – 2000: hours work per Kilo Lumen Hour. The price (top line) of lighting in terms of actual labour hours as compared to its price (bottom line) as measured in consumer price indices



Source: William Nordhaus, 'Do real wage and output series capture reality? The history of lighting suggests not' in: Timothy Bresnahan and Robert Gordon, eds., *The economics of new goods* (Chicago 1997) 54.

The amount of new products that came on the market in 'modernising' economies was enormous. Retailers have a measure, known as Stock Keeping Unit, to count the number of types of products sold in their stores. In New York at the beginning of the twenty-first century, that number has been estimated at some ten billion; in primitive hunter-gatherer economies it was several thousand at best.<sup>165</sup> Not surprisingly, definitions of wealth and poverty changed over time:

Today, of Americans officially designated as 'poor', 99 per cent have electricity, running water, flush toilets, and a refrigerator; 95 per cent have a television, 88 per cent a telephone; 71 per cent a car and 70 per cent air conditioning. Cornelius Vanderbilt (the richest man in the world in the mid 1800s) had none of these.<sup>166</sup>

On the other hand, there are good reasons to be quite sceptical when it comes to the question whether the increases in expenditure for government services – i. e. what governments actually do apart from redistributing –, health care and education, mirror increased production rather than increased payments.<sup>167</sup> Are we

<sup>165</sup> Beinhocker, *The origin of wealth*, 9.

<sup>166</sup> Ridley, *Rational optimist*, 17.

<sup>167</sup> See for some interesting and not very comforting comments Cowen, *The Great Stagnation*, chapter 2.

really so much better ruled, is our health so much better taken care of and are we really so much better educated as exploding costs over the last century and a half suggest?

GDP as Gross Domestic Product refers to *income*, not to *wealth*, i. e. to what a country *earns* in a year at home, not to what it *has*. The focus in my analysis will be on growth in terms of increased earnings, but that of course can be misleading when this growth is unsustainable, i. e. when it is produced at the expense of existing stocks of wealth. How and with what a country earns its income and what that means for its earning potential *in future* certainly is not irrelevant. Measuring the wealth of nations is even more complicated than measuring their income. Unsurprisingly up until now, not many efforts have been undertaken to systematically do so. In a recent study national wealth of some twenty countries has been, I think very sensibly, measured by estimating three kinds of ‘assets’ of their economies: ‘manufactured’ or ‘physical’ capital (machinery, buildings, infrastructure and so on); human capital (the population’s education and skills) and natural capital (land, forests, fossil fuels and minerals). For all countries in the world apart from Nigeria, Russia and Saudi Arabia, the biggest asset turned out to consist in its people. For the United States, they amount to seventy-five per cent of its national wealth, for Great Britain to eighty-eight per cent. The value of that human capital is measured in years of schooling of the labour force, the wages the workers can command, and the number of years they can expect to work before they retire or die.<sup>168</sup> To put the figures about GDP into perspective, they in the following table and figure are also compared to figures expressing ‘human development’ that measure and combine Gross National Income per capita in real terms, average real or expected years of schooling and life expectancy in an index going from 0 to 100 and, in figure 3, to estimates of national wealth.

Table 17: A comparison of the ranking of nations according to their GDP per capita in real terms and their Human Development Index

	GDP 2010	HDI 2011
Norway	126.7	94.3
United States	100	91
Canada	84.3	90.8
Australia	83.7	92.3
United Kingdom	76.5	86.3

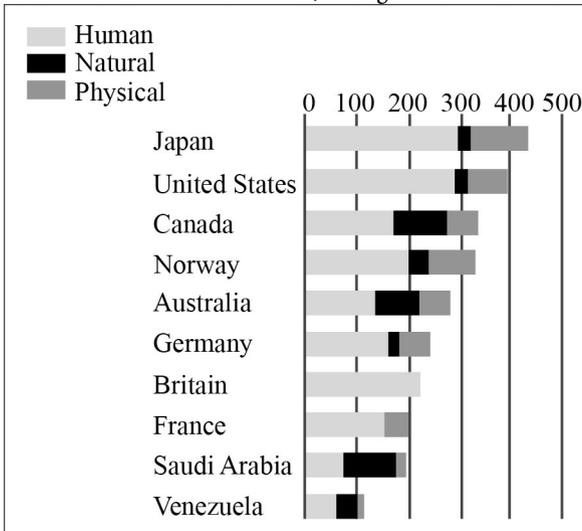
168 See <http://www.ihdp.unu.edu/article/iwr>. This volume can be cited as: UNU-IHDP and UNEP (2012). *Inclusive Wealth Report 2012. Measuring progress toward sustainability*. Cambridge: Cambridge University Press. UNU stands for United Nations University, IHDP for International Human Dimensions Programme on Global Environmental Change, and UNED for United Nations Environment Programme.

(Continued)

Germany	76.3	90.5
Japan	73.6	90.1
France	71.3	88.4
Saudi Arabia	51.8	77
Venezuela	27.7	73.5

Source: *The Economist. Pocket World in figures, 2013 Edition* (London 2012) 25, the figures in that text are for the year ending 31 – 12 – 2010.

Figure 3: A comparison of the ranking of nations according to their wealth per person in 2008 in constant dollars of 2008, average annual rate: in thousands of dollars



Source: *The Economist*, June 30<sup>th</sup> 2012, page 75.

One last but very important comment: I will explicitly focus here on Gross Domestic *Product*. From a social perspective the question of *distribution* is enormously important, but what interests me here is (the increase in) production and productivity and in particular the question of why some societies could get so much more done than others. Who profited from that increase is an extremely important but different question.

## 7. Industrial Revolution and Great Divergence

The Great Divergence began when Britain went through its Industrial Revolution, a time that in most books is, too hastily, fully identified with it. In discussions about the Great Divergence amongst more global historians, that

revolution tends to be described as an event of world-historical importance, a turning point in the economic history of the globe. Amongst economic historians whose focus is more confined to Britain, strikingly enough, a long and fierce debate has been waged about whether Britain's industrialisation actually amounted to a revolution. The ideas about what actually happened in Britain during the very long eighteenth century have changed substantially. Sceptics have noticed that during the period from 1750 to 1850 growth in Britain was far too slow and hesitant to warrant the label 'revolution'. Overall, growth indeed was slow and hesitant. That is not surprising though: it was a period, lasting until 1815, of several considerable wars. The Napoleonic Wars, in which Britain was directly and indirectly involved, were global conflicts that cost enormous amounts of effort, people, money and resources. Agricultural production was intermittently hit by bad weather and bad harvests. Probably most important of all, Britain's population tripled between 1750 and 1850. Without the emergence of new ways of producing, the situation in all probability would have been catastrophic. Sceptics also point at the fact that structural change actually was fairly slow and not yet clearly visible in many macro-economic data. They again are right, but that too need not surprise us. Even if some 'new' sectors of the economy grew fast, which they did, it obviously took time to fundamentally transform and lift the *entire* British economy. In many sectors, moreover, change was less fast and sweeping. Innovations will initially have caused problems of adaptation and stagnation and sometimes even decreasing productivity. The expansion of new sectors caused several old sectors to expand too, and so on and so forth.<sup>169</sup> This claim by Nicolas Crafts and Knick Harley very probably synthesizes the new *communis opinio*: "Growth had probably begun to accelerate by the early eighteenth century but modern economic growth only became fully established in Britain by the railway age."<sup>170</sup> Pioneers tend to have lower growth rates than those who successfully catch up. All these decelerations notwithstanding: what was going on in Britain's economy definitely was revolutionary if not in speed then in impact. The many innovations were a harbinger of a new era in economic history and opened completely new windows of opportunity. An entirely transformed economy was set to emerge.<sup>171</sup> The period we focus upon in this text was the period in which Britain's economy took off.

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169 One must not underestimate the effect of even low growth: 2.5 per cent growth per year already leads to a doubling of GDP in 29 years.

170 Crafts and Harley, 'Output growth and the Industrial Revolution', 705.

171 For a view that I endorse, see Griffin, *Short history of the British Industrial Revolution*, in particular chapters 1 and 2, and Joel Mokyr, 'Accounting for the Industrial Revolution' in: Floud and Johnson, *Cambridge Economic History of Modern Britain*, 1–27.

Table 18: Output of various sectors of the British economy, 1750 – 1900 (indexed to 1750 or 1800 = 1) plus Britain's population

Year	Cotton	Coal	Pig Iron	Steam-ships	Railways	Steam Engines	Water Wheels	Woollens	Linen	Population
1750	1.0	1.0	1.0	–	–	1.0	1.0	1.0	1.0	1.0
1800	24	2.1	6.7	1.0	1.0	7.0	1.71	1.4	3.0	1.5
1850	267	10.6	83.3	56.0	62.4	114.8	2.79	2.2	7.3	3.1
1900	788	53.2	337.2	2,402.7	191.6	1,931.8	2.54	7.2	5.4	5.6

Source: Jack Goldstone, *Why Europe? The rise of the West in world history, 1500 – 1800* (New York 2008) 127.

Table 19: Composition of GDP and of active population per sector in Great Britain

	GDP (%)			Active population (%)		
	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary
1788	40.0	21.0	39.0	–	–	–
1841	22.0	35.0	43.0	22.3	44.3	33.4
1871	15.0	40.0	45.0	15.3	47.1	37.6

Source: Antonio di Vittorio, ed., *Historia económica de Europa. Siglos XV – XXX* (Barcelona 2003) 190. The table is taken from the contribution by Giovanni Luigi Fontana on the nineteenth century.

## 8. Malthusian constraints, premodern growth and modern growth

We study the origin of modern economic growth because of its societal relevance. It has created a global gap in wealth with major implications for all societies involved. But there is also a more strictly scholarly motive: although we may have come to regard growth as quite normal, it actually is extremely *abnormal* and ‘miraculous’. The most efficient and salient way to understand what modern economic growth actually is and means probably is to compare our current Western world, in which it is prevalent, with the pre-industrial world where poverty, stasis and stagnation were the rule or as some would even claim, I think correctly, ‘inevitable’.<sup>172</sup>

172 See e.g. Wrigley, *Poverty, progress, and population*, chapter 7: ‘Why poverty was inevitable in traditional societies’. For a brief overview of the changing ideas about the poor and about poverty over the last three centuries see Martin Ravallion, The idea of anti-poverty Policy NEBR Working Paper no 19210 July 2013, in synthesis available at [http://www.aae.wisc.edu/mwiedc/papers/2013/Ravallion\\_Keynote.pdf](http://www.aae.wisc.edu/mwiedc/papers/2013/Ravallion_Keynote.pdf)

These are some indicators for the (relative) lack of growth, wealth and development in Western Europe at the end of the eighteenth century:

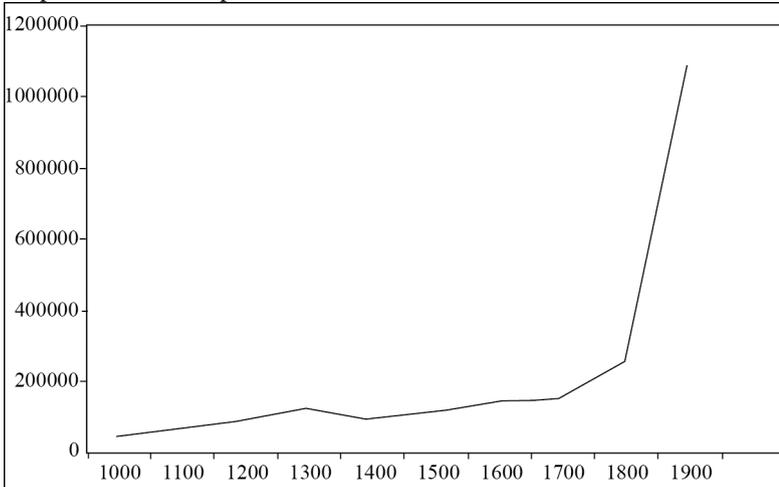
Table 20: The European population 1300 – 1870 (x1000)

	1300	1400	1500	1600	1700	1750	1800	1870
Scandinavia	2,500	1,400	1,500	2,400	2,900	2,600	5,250	9,550
England (+Wales)	4,500	2,700	3,500	4,450	5,450	6,300	9,250	23,000
Scotland	1,000	700	800	1,000	1,200	1,260	1,630	3,420
Ireland	1,400	700	800	1,000	1,900	3,120	5,200	5,800
Netherlands	800	600	950	1,500	1,950	1,950	2,100	3,650
Belgium	1,400	1,200	1,300	1,300	1,900	2,300	2,900	4,900
France	16,000	12,000	15,000	18,500	21,500	24,600	29,000	38,000
Italy	12,500	8,000	9,000	13,300	13,500	15,500	18,100	28,000
Spain	5,500	4,500	5,000	6,800	7,400	9,300	10,500	16,200
Portugal	1,300	1,050	1,200	1,300	2,000	2,600	2,900	4,300
Switzerland	800	500	800	1,000	1,200	1,300	1,700	2,700
Austria*	10,000	9,000	11,500	12,800	15,500	18,300	24,300	35,700
Germany	13,000	8,000	11,000	16,200	14,100	17,500	24,500	41,000
Poland	2,000	1,500	2,000	2,500	2,800	3,700	4,300	7,400
Balkans	6,000	5,000	5,500	7,000	8,550	9,900	12,000	23,700
Russia (European)	15,000	11,000	15,000	16,000	13,000	22,000	35,000	63,000
<b>Europe</b>	<b>93,700</b>	<b>67,850</b>	<b>84,500</b>	<b>107,050</b>	<b>114,850</b>	<b>143,230</b>	<b>188,630</b>	<b>310,320</b>
<b>Europe (without Russia)</b>	<b>78,700</b>	<b>56,850</b>	<b>69,850</b>	<b>91,050</b>	<b>101,850</b>	<b>121,230</b>	<b>153,630</b>	<b>247,320</b>

\*Austria here includes Hungary, Bohemia, Croatia, Slavonia and Transylvania.

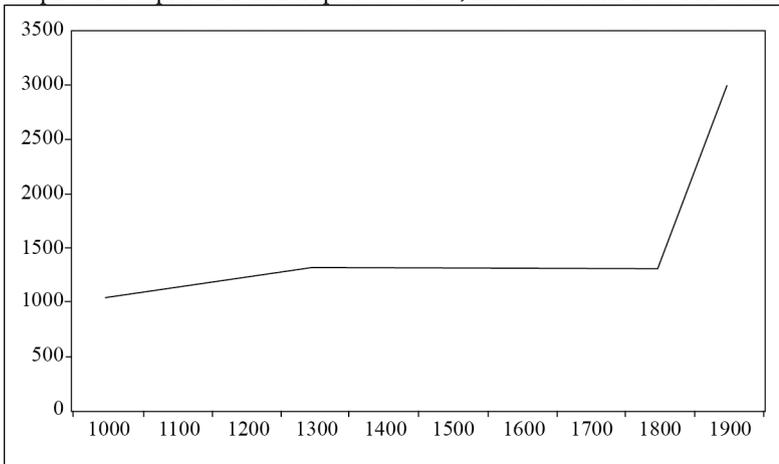
Source: Paolo Malanima, *Pre-modern European Economy. One thousand years (10<sup>th</sup>-19<sup>th</sup> centuries)*, Leiden and Boston, 9.

Graph 5: GDP in Europe 1000 – 1900, in international 1990 PPP dollars



Source: Paolo Malanima, *Pre-modern European Economy. One thousand years (10<sup>th</sup>-19<sup>th</sup> centuries)*, Leiden and Boston, 287.

Graph 6: Per capita GDP in Europe 1000 – 1900, in international 1990 PPP dollars



Source: Paolo Malanima, *Pre-modern European Economy. One thousand years (10<sup>th</sup>-19<sup>th</sup> centuries)*, Leiden and Boston, 287.

Table 21: Life expectancy in Europe and East Asia up to the 19th century

	<i>Life expectancy at birth</i>
<i>Western Europe</i>	
Germany before 1800	35
England 1550 – 1599	38
England 1650 – 1699	35
France before 1750	25
France 1750 – 1799	28 – 30
England 1750 – 1799	38
London 1750 – 1799	23
<i>East Asia</i>	
China (Anhui) 1300 – 1880	28
China (Beijing) 1644 – 1739	26
China (Liaoning) 1793 – 1867	26 – 35
Japan, countryside 1776 – 1815	33

In the period from roughly 1750 to 1800, of all 1000 children born in France only 491 survived to become 15. For England that number was 736, for Sweden 612 and for Denmark 641.

Sources: Gregory Clark, *A Farewell to alms. A brief economic history of the world* (Princeton and Oxford 2007) 94; Massimo Livi-Bacci, *Population of Europe* (Oxford 2000, originally 1998) 113 and 135, and Roy Bin Wong, *China transformed. Historical change and the limits of European experience* (Ithaca and London 1997) 28.

Under-nourishment and famine were still facts of life, even in quite developed parts of Western Europe. Robert Fogel estimates that twenty per cent of the adults in eighteenth-century France were too ill nourished to do more than three hours of light work a day.<sup>173</sup> The following facts refer to the life of a normal, ‘average’ French father at the end of the seventeenth century, the era of Louis XIV, when France was regarded as a rich country:

He was born in a family with five children of whom only half reached the age of fifteen. He in turn would also have five children, of whom only two or three would still be alive when he died. On average he would become 52 years. During his life he would witness two or three famines, two or three periods of scarcity and two or three epidemics.<sup>174</sup>

Why were poverty and stagnation so normal? That can best be explained by following the line of reasoning of Reverend Thomas Malthus (1766 – 1834) whose basic ideas have had a tremendous influence in economic history and lie at the basis of a point of view that in the rest of this book will be referred to as

173 Fogel, ‘The conquest of high mortality and hunger in Europe and America’, 47.

174 Fourastié, ‘De la vie traditionnelle à la vie tertiaire’.

'Malthusian'.<sup>175</sup> Malthus, however, with his pessimism was not an exception amongst economists in his time. His friend David Ricardo (1772 – 1823) thought in principle that with an increasing population wages would always end up at or very near subsistence level defined as the level that allows the wage-earner to buy the 'necessaries'<sup>176</sup>, whereas at the same time increasing food prices would lead to lowering profits, as they made labour more expensive. Under such circumstances, only members of the landlord class might profit as rents increased. Marx later took Ricardo's 'iron law of wages' for granted. Even Adam Smith in the end tended to pessimism: he never gave any sign that he thought what we now call 'modern economic growth' was possible.<sup>177</sup> Not by accident many people in the nineteenth century considered economics a 'dismal science'.<sup>178</sup> For all so-called classical economists, the limited availability of resources set limits to growth, in particular when population increased. Most of them had a tendency to think in terms of decreasing returns and an inevitable slowing down of growth. Smith in this respect was not very consistent. He assumed increasing returns as a result of further division of labour but nevertheless did not expect the emergence of big monopolies because, in his view, the existing competition and growing scale of production would constantly tend to push profits down to an 'average' or 'natural' level. He, moreover, thought that there were practical limits to how far labour can be divided and how far markets can be extended. Transport and communication were so slow and expensive that, in his view for most goods, markets could not be very extensive. So in the end he thought there was a limit to growth in which economies reach their 'stationary state'.<sup>179</sup>

As such it of course is very significant that in the eighteenth and nineteenth centuries, so many knowledgeable economists in Britain, the wealthiest country in the world and its first industrial nation, were so pessimistic. This appears to be quite a telling indication of how abnormal growth apparently was and how normal it had always been to think of the bulk of the population, the working

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175 For a succinct explanation see Wrigley, *Poverty, progress, and population*, Part I, in particular chapter 6. See my comments on the way in which I use the word 'Malthusian' under note 25.

176 It is clear that in any case Smith, Ricardo and Marx meant 'social subsistence' not bare 'biological' subsistence when they talked about 'natural wages'. See Schlefer, *Assumptions economists make*, 39 – 41.

177 See for some further explanation why pages 79 and 426 of this book.

178 See, for some introductory information with regard to lives and ideas of these scholars, Heilbroner, *Worldly philosophers*; Milgate and Stimson, *After Adam Smith* and particularly relevant for the question at hand, Wrigley, 'The classical economists and the industrial revolution'.

179 See e.g. Smith, *Inquiry into the nature and causes of the wealth of nations*, 99 and 111. For the natural tendency of profits to diminish see e.g. pages 108, 111 and 113.

people, as poor.<sup>180</sup> Karl Marx, with his focus on technology, innovation and on increasing returns here clearly was an exception. He, in principle, was very optimistic about possible ways to increase productivity but obviously not about the future of the capitalist system that had created them.

Malthus, to return to him, departed from the fundamental problem, which, in his opinion, stated that the satisfaction of the main human needs depended very strongly on the (limited) availability of (good) land. Before the emergence of modern economic growth, the satisfaction of those wants was either entirely – in the case of food, clothing and shelter – or predominantly – in the case of energy where one might also use wind and water power and in some regions coal and/ or peat – dependent on the quantity and quality of available land. The same actually applies for all the materials used for fertilising, for lighting and dyeing, for making drugs and so on. In ‘organic’ economies, it was all but impossible to increase wealth substantially and over a longer period of time, in particular when the population increased simultaneously.<sup>181</sup> That would simply lead to too many competing claims on a fairly stable amount of land. Such economies were subject to what we call ‘Malthusian constraints’ and knew their ‘Malthusian ceiling’ and might even be caught in a ‘Malthusian trap’.<sup>182</sup> Britain during industrialisation was the first economy in the world where resources no longer were overwhelmingly organic.<sup>183</sup> The enormous growth in the use of coal as fuel and, even more consequentially, as source of power, was essential. This is how Fernand Braudel put it: “Until the Industrial Revolution, every burst of growth came up against ... the limits of the possible”, a ceiling imposed by agricultural input, by the available means of transport, sources of power or market demand. Modern growth begins when that ceiling or limit recedes indefinitely into the distance – which is not to say of course that some kind of ceiling may not be reached in the future.”<sup>184</sup>

Malthusian stories about dependence on nature normally focus on ‘availability’ and on ‘overall quantities’. Those, of course, are extremely important. Actually, however, they certainly were not the only constraints on development and growth, particularly but not exclusively when it comes to energy. As Douglas Allen in a fascinating book rightly remarks, before the steam revolution, “...

180 For the ideas about the obvious presence of those ‘labouring poor’ see Lis and Soly, *Worthy efforts*, chapter 7, 478–494.

181 See for the concepts ‘organic economy’, ‘advanced organic economy’ and their ‘contrast’ the ‘mineral-based energy economy’, Wrigley, *Continuity, chance and change*.

182 All these concepts point at the fundamental limits to growth in Malthusian thinking.

183 Although one has to realise that a) already in 1700 half of the energy used in that country came from fossil fuel (See note 82) and b) the increased use of ghost acreage that was so important in Britain’s escape from land scarcity was not a ‘real’ escape but a matter of ‘evading’ problems via the use of land somewhere else.

184 Braudel, *Civilization & capitalism, 15<sup>th</sup> -18<sup>th</sup> century*, III, 592.

power was not only limited and low, but intermittent and unreliable. ... Steam power introduced an era of *reliable* power.”<sup>185</sup> Some of the ‘old-regime’ power variation was seasonal, much of it however quite random. That is obvious in the case of wind and water as power sources. Windmills and watermills were very unreliable machines. The lack of reliability of wind and water also had major consequences for transport. Sailing ships depended on the wind and were severely curtailed in their movements at sea by currents and changing tides. Transport on rivers and canals could be seriously hindered by water levels that were either too high or too low. “The British navy”, as Douglas Allen comments, “by this time (the eighteenth century PV), was perhaps the largest firm in the world, and yet, all of its capabilities were at the mercy of wind and sea.”<sup>186</sup> Changes in food supply and diseases – often caused by natural condition – had an enormous impact on the quantity and quality of available labour power of people and animals, and in the case of animals also on the supply of fertiliser. Agriculture and transportation were heavily dependent on the weather.

This means that in the pre-industrial world, to again quote Douglas Allen, “variance” was “everywhere”.<sup>187</sup> That made economic activities very hard to plan, opaque, risky and thus costly. The introduction of steam power was an essential part of a wide-ranging process of eliminating this variance, a process that very positively impinged on productivity. Steam power was reliable in the sense of being independent of the whims of nature and in principle in continuous supply. It could also be standardised and made measurable – a man is not a man and a horse is not a horse, but one horsepower is one horsepower – and in that way helped to standardise and measure production and productivity. It, moreover, created unheard-of possibilities to accumulate and concentrate power.<sup>188</sup> Machines driven by reliable and continuous energy in turn standardised production: they reproduced identical products in identical ways. They were not the only force behind standardisation but they were very important. The hold of nature and its variance were also diminished, for example, because methods of measurement and measures themselves were standardised and turned into abstract, formal and science-based concepts. Measures of time, distance, temperature and so on and so forth were made independently of context (i. e. nature) and determined mechanically. Gas lighting, to just point at yet another important innovation, made the difference between day and night almost irrelevant to production. Life in general became more predictable; more predictability meant better, more ‘realistic’ planning and decreasing trans-

185 Douglas W. Allen, *Institutional revolution*, 26. The Italics are in the original.

186 Allen, *Institutional revolution*, 25.

187 Allen, *Institutional revolution*, chapter 2: ‘Variance everywhere’.

188 For concentration and accumulation of power see Goldstone, ‘Efflorescences and economic growth in world history’, 359 – 366.

actions costs. Diminished interruption and disturbance, thanks to 'modern' sources of energy, meant that far less time was lost or wasted. Making large-scale investments and specialising in specific products thereby became less risky; the fact that modern sources of energy lowered the prices of fixed capital goods like iron, steel, glass, or buildings, made it cheaper. The essence of modern economic growth is steadily increasing productivity. That requires reliability, continuity and predictability, not only to obtain it but also to be able to measure it at all. In the pre-industrial setting of omnipresent variance, it was almost impossible to determine how efficient production actually was, which will have been yet another impediment for those who wanted to increase it.

Malthusians present a correct description of the ultimate, long run logic of pre-industrial economies. Growth was exceptional, often extensive at best, fragile and intermittent, with a tendency to peter out. The clear emphasis in the theory and explanation of Malthus and those inspired by him as a rule is on the limited availability and specific characteristics of resources. But their actual 'scarcity' and 'limitations' to a very large extent were a function of the absence of technological innovation (caused by constraints in the field of knowledge, as practical know-how was insufficiently or not at all embedded in theoretical knowledge), which in turn was closely linked to institutional and cultural constraints, in particular widespread rent seeking and opposition to innovation. Those technological, institutional and cultural constraints apparently were and in the case of Malthusianist scholars very often still are more or less taken for granted or regarded as of limited relevance.<sup>189</sup> That means that many cases of Malthusian 'overpopulation' may also, or even just as well, be blamed on technological or institutional 'deficiencies'. Actually Malthus considered the possibility of technological innovation, but he simply thought that could never be as effective as his 'positive' or 'negative' checks. Sustained growth is only possible in a setting of continuing 'improvement' in all three of these contexts (resources, institutions, and technology). Growth in a setting of technological change but inflexible institutions will peter out, and, as more and more economists are realising, even in a setting of permanent technological and institutional innovation growth is not guaranteed when in the end resources become scarce. In every day practice, most people, including most economists, ever since the first industrial revolution behaved and argued as if the problems Malthus had been brooding about had been solved. One, of course, knew that resources in principle are not limitless, but did not really bother about that for the time being, apart from the economist William Stanley Jevons (1835–1882), who already in 1865 wrote about the dangers of a gradual exhaustion of the UK's coal sup-

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189 See for an insightful and enlightening analysis Mokyr, 'Why was the Industrial Revolution a European phenomenon?.'

plies.<sup>190</sup> Many resources like coal actually became *cheaper* during take-off. But now in the twenty-first century with so many more consumers and so much more consumption and aspiration to consume, the idea that there might be limits to growth because of resource scarcity has again become a major issue in debates amongst economists. An economy can only experience modern economic growth when the limitations in terms of resources, technology and institutions *all* are continuously pushed aside in a process of permanent innovation. Explaining the Great Divergence ultimately means explaining how societies could emerge in which innovations in the use of resources, in the application of technology and in the existing institutional set-up became normal and self-sustaining.

Those Malthusian constraints and the ceilings they implied were structural and global phenomena. They were omnipresent in the entire pre-industrial period in the entire world even if many regions never became so ‘overpopulated’ that they actually hit a Malthusian ceiling. In the West, for example, differences in the level of wealth and development between the Roman Empire at its height and Britain on the eve of its industrialisation were rather small. As for the Roman Empire, Robert Allen claims: “The real wage evidence supports a guardedly optimistic view of Roman living standards. Certainly, the Roman worker in Diocletian’s time was doing about as well as most workers in eighteenth-century Europe or Asia.”<sup>191</sup> Both the Roman and the British Empire – at least up until industrialisation started – did not know modern economic growth. Differences in wealth and development between various societies at the same moment in time before modern growth emerged also were small. Between the richest and the poorest society, they would have been in an order of magnitude of maybe five to one at the eve of Britain’s industrialisation as compared to some hundred to one now. Between the wealthiest parts of Western Europe and the wealthiest parts of China at the eve of Britain’s industrialisation, they would have been in an order of magnitude of at best two, maybe three to one. Real incomes in north-western Europe (Great Britain and the Dutch Republic) were substantially higher than in the rest of Europe.

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190 For Jevons’ worries see his *Coal question*.

191 Robert C Allen, How prosperous were the Romans? Evidence from Diocletian’s price edict A.D. 301 <http://economics.ouls.ox.ac.uk/12121/1/paper363.pdf>. See also Manning and Morris, *Ancient economy* and Temin, ‘Economy of the early Roman Empire’.

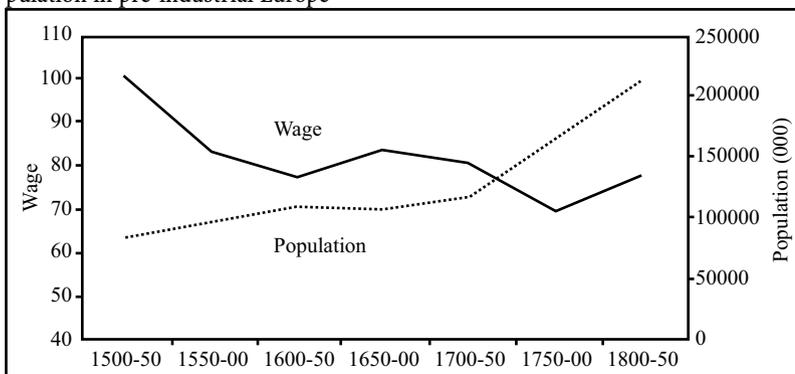
Table 22: Estimated Gross Domestic Income per capita in 1990 international dollars at PPP

Roman Empire	year 14	844
England and Wales	year 1688, social tables	1,418
Holland, province of the Dutch Republic	year 1732, tax census	2,035
England and Wales	year 1801 – 1803, social tables	2,006
China	year 1880, social tables	540

Source: Branko Milanovic, Peter H. Lindert and Jeffrey G. Williamson, 'Measuring ancient inequality', The World Bank, Policy Research Papers WPS 4412. 2007 – 11/1.

The tension between population and wealth existed even in the economically most advanced countries. Even in Britain during the early modern era, a sustained increase of population normally led to higher food prices and put pressure on real incomes.<sup>192</sup> Over time the relation between population and wealth tended to be inverse.

Graph 7: The tension between real incomes (of unskilled building workers) and population in pre-industrial Europe



Source: Paolo Malanima, *Pre-modern European economy, One thousand years (10<sup>th</sup>-19<sup>th</sup> centuries)*, (Leiden and Boston) 275.

I already pointed out how pessimistic many economists in the eighteenth and nineteenth century were, including in Britain, when it came to the possibility of sustaining growth with an increasing population. Fairly substantial differences, however, exist between scholars when it comes to the extent to which they think that pre-industrial economies showed at least *some* growth and *some* development, even if a Malthusian logic in the end would prevail. Those differences of course have implications for the way in which the Great Divergence is interpreted and explained. Strict Malthusianists like Gregory Clark and Oded Galor claim that there was no real growth whatsoever. They only see ups and downs of incomes that on *average* always hovered near the level of subsistence.

192 See e.g. Wrigley, *Continuity, chance and change*, 60 – 67.

Clark, in his *A farewell to alms*, is very outspoken. He opens his book by claiming, "...short term gains in income through technological advances were inevitably (sic! PV) lost through population growth" and "...the average person in the world of 1800 was no better off than the average person of 100,000 BC." In his view the situation was even worse: in 1800 so he claims, "the bulk of the world's population was poorer than their remote ancestors. The lucky denizens of wealthy societies such as eighteenth-century England or the Netherlands managed a material lifestyle equivalent to that of the Stone Age." "In the pre-industrial world" so he writes on page 32, "sporadic technological advance produced people, not wealth." On page 166 it then reads: "The Malthusian era was one of astonishing stasis, in terms of living standards and of the rate of technological change."<sup>193</sup> It would seem that Clark would endorse the first part of this claim by Beinhooker: "To summarize 2.5 million years of economic history in brief; for a very, very long time not much happened; then all of sudden, (with industrialisation PV) all hell broke loose."<sup>194</sup> In the literature dealing with the history of Europe there exists a venerable line of 'Malthusians', e.g. historians from the *Annales*-School like Fernand Braudel or Emmanuel Le Roy Ladurie, who even wrote about *l'histoire immobile*, and others like Wilhelm Abel (1904–1985) or Michael Postan (1899–1981). The Italian historian Paolo Malanima would be an excellent recent example.<sup>195</sup>

Scholars who are less strict claim that Malthusian economies were not entirely immobile and could go through periods of some growth and development. Their thesis is the more convincing one. So-called 'advanced organic economies' like those of North-western Europe, of Qing China (1644–1911), Mughal India (1526–1858) and Tokugawa Japan (1601–1868) had their phases of 'efflorescences' before the economy in Britain took off. For north-western Europe, for example, that would be during the High Middle Ages, for the Dutch Republic during its Golden Age, and for Britain during the period of growth of the eighteenth century before it would usher in the Industrial Revolution when steam power became a major source of power. As indicated, the highest level of development and wealth in China was in all probability reached during the period of the Song Dynasty, but the period of the high Qing up until the last decades of the eighteenth century is also widely regarded as one of 'efflorescence'.

Economic growth was certainly not completely unknown in the pre-industrial world. Direct proof in terms of unequivocal statistics will always be lacking but

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193 Clark, *Farewell to alms*, 1 and 166. The fierce critiques the book received did not make him change his mind. See his, 'In defence of the Malthusian interpretation of history'.

194 Beinhooker, *Origin of wealth*, 11.

195 See e.g. his *Pre-modern European economy*.

there is clear circumstantial evidence. In most parts of the world, apart from the Americas with their disastrous mortality rates as a consequence of the introduction of Eurasian diseases, population was higher than ever before at the eve of the First Industrial Revolution in Britain. That indicates at least a certain extensive growth. For the sake of convenience, I will confine myself in my further examples to the situation in Western Europe. Population growth over time was such that one may wonder when exactly, if ever, diminishing returns set in. Apparently 'Malthusian limits' were fairly flexible there between 1000 and 1800. Urbanisation also increased. In the wealthier regions of Western Europe, which were as a rule also the ones that were *more* densely populated, many people, moreover, clearly and permanently lived above subsistence. In Britain and the Dutch Republic in the seventeenth and eighteenth centuries even the working poor had an income above bare subsistence. They had some room to spare in their budgets to buy, for example, new products like tea, sugar, coffee or tobacco, and alcoholic beverages.<sup>196</sup> But one has to realise these were the wealthiest countries in Europe at the time. Mortality indeed was at times high, but deaths often were the result of diseases that were only indirectly or hardly at all related to famine or food scarcity. The famines and food scarcity that did occur, in turn, were often caused by problems of distribution or had political causes like war. The link between fertility and the availability of resources also often was much weaker than strict Malthusianism would suggest. Apparently there was some room to increase the amount and quality of arable land, technology was not completely stable and institutional change was not entirely lacking.<sup>197</sup> If one realises how rich – or rather poor – and developed – or rather underdeveloped – even the richest and most developed societies still were in the second half of the eighteenth century just before industrialisation began in Britain, it is clear, however, that the history of the pre-industrial world could never have been one of *substantial* and *sustained* growth and of *major* development.

What brought about the little pre-modern growth there was? Very important was rent seeking, a common denominator for all sorts of surplus extraction that are not so much a matter of creating and profiting from overall growth as of appropriating as much as possible of an already existing 'pie' via force or, in any case, power.<sup>198</sup> Think of war, plunder, extortion, coercion, manipulation or

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196 That has been shown in many publications. I here just refer to Voth's review of Clark's book in *European Review of Economic History* 12 (2008) 152 – 153.

197 See e.g. the critical comments on Clark's book by Hans-Joachim Voth, George Grantham and Karl Gunnar Persson in *European Review of Economic History* 12, 2 (2008) 149 – 173; Karl Gunnar Persson, 'The end of the Malthusian stagnation thesis', <http://www.econ.ku.dk/europe/early-growth.htm> and Allen, 'Review of Gregory Clark's *A farewell to alms*', a very systematic and I think absolutely devastating critique.

198 This is the simple definition of Wikipedia of rent seeking or rent-seeking: spending res-

monopoly. The wealth of a nation was then as a rule regarded as something that could best be promoted on the backs of other nations, which would imply that until the Industrial Revolution, “the limits to economic growth were set by geopolitics.”<sup>199</sup> Then there was the strategy of making more intensive use of the resources, in particular land, that one already had and – very important – extending the ‘resource-pool’ by incorporating more and more frontier resources, in Europe first<sup>200</sup>, and with the passing of time increasingly also in other continents. Another way to increase production and preferably productivity has always been to increase the stock of capital goods. We see many examples of that in the pre-industrial world: an increasing use of animals and implements; the building of extra windmills, watermills and ‘machinery’; the construction of manufactories and ports, et cetera. In a Malthusian context, though, this strategy is not unproblematic. It implies increasing claims on the land, to feed animals, for example, or to grow trees to produce wood that can be used in building or for making implements or can serve as fuel to produce capital goods of iron or stone. Many ‘fixed’ capital goods, moreover, were so vulnerable to wear and tear that they were hardly distinguishable from fluid capital. Then there is improvement of capital, whether physical, human or social. Technological innovation was not absent: there were some important innovations and many small adaptations. But one has to concede to the Malthusians that no real breakthroughs occurred since there was no scientific underpinning of technology. Innovation was ad hoc, intermittent and not interconnected. When it comes to human capital, progress over the long run in literacy and numeracy was definitely made, but its impact on production is hard to measure. People started to work harder and longer and the percentage of working people on the whole of population increased. There very probably was an (worldwide) increase in industriousness. That had its limits of course, especially since poverty, illness and under-nourishment incapacitated many people and prevented them from working for long stretches of time and from working hard. One may wonder whether all this extra toil really brought growth in terms of an rise of productivity or rather, much more likely, only a meagre extra compensation for much extra work. Social capital may have

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ources in order to gain by increasing one’s share of existing wealth, instead of trying to create wealth. The net effect of rent seeking is to reduce total social wealth, because resources are spent and no new wealth is created. In a theoretical context, it is important to distinguish rent seeking from profit seeking. Profit seeking in this sense is the creation of wealth, while rent seeking is the use of social institutions such as the power of government to redistribute wealth among different groups without creating new wealth. Rent seeking implies extraction of uncompensated value from others without making any contribution to productivity. See Wikipedia under rent-seeking.

199 I here quote from Mokyr, *Enlightened economy*, 156. Mokyr himself does not endorse this mercantilist view. He refers to David Ormrod who according to him does. See Ormrod, *Rise of commercial empires*.

200 See Bartlett, *Making of Europe*.

improved as trust either deepened or more people worked in bigger entities where it could – and should – become more formalised.<sup>201</sup>

Then there was ‘Smithian’ growth via specialisation, i. e. the division of labour, in particular when it occurred in a setting of free and fair competition. But, as indicated, even Adam Smith himself, who gave so much thought to this source of ‘the wealth of nations’, thought this strategy was not sustainable and would reach its limits, its ‘stationary state’ as he called it, quite soon.<sup>202</sup> Even in free markets, the costs of exchange over long distances soon became prohibitive. Many markets, moreover, were not free and much competition not fair. Many people wanted to keep it that way. As long as many people were so poor that they could not buy something coming from a faraway place, substantial extension of the market was quite illusory anyway. Be it as it may: in the pre-industrial world, none of these ‘strategies’ brought a breakthrough, nowhere on the globe. Constraints in terms of resources, knowledge, and institutions made that impossible. Then where did this modern economic growth come from? What more obvious way to find out is there than to ask economists?

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201 See for this topic: A note on social capital, Tine de Moor, ERC Starting Grant Project, ‘United we stand’. The dynamics and consequences of institutions for collective action in preindustrial Europe <http://vkc.library.uu.nl/vkc/seh/research/Lists/Projects/DispForm.aspx?ID=19>

202 For the modern concept of ‘Smithian’ growth see Kelly, ‘The dynamics of Smithian growth’.



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## Part one: Economists and theories of economic growth

### 1. Introduction

Economics as a serious intellectual discipline came into being at about the same time as modern economic growth. That growth is or at least ought to be one of its central topics. It would therefore be strange not to take a brief look at what this science has to say about growth in general and modern growth in particular. I will muster what I think are the main explanations of growth that economists have come up with over time in terms of proximate as well as ultimate causes<sup>203</sup> and then in the rest of the book compare them with the explanations that have been presented by scholars discussing the Great Divergence and present and argue my personal points of view along the way. My analysis will therefore not be structured according to different schools or approaches in global economic history, nor will it follow chronology, presenting explanations as they have been put forward over time. I must immediately add, that taking stock of the main explanations that have been suggested by economists for (modern) economic growth as point of departure for my own analysis sounds far simpler than it is. Actually the practitioners of ‘the queen of the social sciences’ hardly agree on anything substantial and for any economist making a claim, one can find another one claiming exactly the opposite, which, in a way, is comforting, as it allows me to be unashamedly selective. Is it clear that economics has not yet answered its major question, or to put it in the words of the author of a lucid overview of the debates, Elhanan Helpman:

For centuries economists have been preoccupied with the growth of nations, and they have studied this subject continually since the days of Adam Smith. This effort has produced a better understanding of the sources of economic growth. But the subject has proved elusive, and many mysteries remain.<sup>204</sup>

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203 For a further explanation of these two concepts see White, *Understanding economic development* under ‘causation’, ‘proximate’ and ‘ultimate’.

204 Helpman, *Mystery of economic growth*, Preface IX.

Colin White seems to agree in his recent book on understanding economic development:

Despite an explosion in relevant publications on economic growth, there is still no good explanation of why modern economic development has occurred where and when it has. It is disappointing that there is such a marked disproportion between the effort expended and its return.<sup>205</sup>

Gregory Clark is even more outspoken, and quite negative:

...since the Industrial Revolution we have entered a strange new world in which the rococo embellishments of economic theory help little in understanding the pressing questions that the ordinary person asks of economics: Why are some rich and some poor? In the future will we all be among the lucky?

He refers to a “deluge” of publications by economists that “serves more to obscure than to illuminate” and claims that:

History shows ... that the West has no model of economic development to offer the still-poor countries of the world. There is no simple economic medicine that will guarantee growth.<sup>206</sup>

But there are many positive signs and it would of course be extremely inefficient and arrogant to simply ignore the points of view of economists, many of whom admit that they have no *simple* recipe. Dani Rodrik correctly writes that economists could do with a lot more modesty and should be much more aware of their shortcomings. Without giving up the principles of neo-classical analysis, he holds a paean for economics as a discipline that stresses the importance of careful reading of empirical evidence, admits the possibility that governments change economies for the better, and is always attentive to context and to local realities with their specific sets of constraints and possibilities, a paean that to me almost sounds like a plea to transform economics into a kind of historical economics in which economists can learn as much from historians as historians from economists.<sup>207</sup>

In that respect however, it is striking and somewhat disturbing that historians discussing the Great Divergence have taken on board so little of the economists’ theorising. Many if not most historians seem to harbour serious doubts whether economics as a way of thinking can be of *any* use to them. And to be honest, most economists discussing growth as a rule continue to hover at such an abstract and in particular general level that it remains rather unclear how exactly they would explain a concrete historical phenomenon like the Great Divergence. They are

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205 White, *Understanding economic development*, Preface VII.

206 Clark, *Farewell to alms*, 372 and 373.

207 Rodrik, *One economics, many recipes*, 3–6.

not really interested in the in-depth analysis of unique phenomena in the past, whatever their importance. But in the end no one gains from mutual ignoring. This ‘essay’, as the French would call it, aims on the one hand to discuss in a fairly idiosyncratic, personal and definitely not exhaustive way, whether and how economics might be of any help in answering one of the greatest, if not the greatest question in economic history, and on the other hand what (global) economic historians might teach economists. What struck me in my reading of the fairly extensive amount of literature that is at the basis of this book are the enormous differences in approach and more surprisingly in emphasis between what economists say about (the origins of) modern economic growth and what most global (economic) historians say about it. They often seem to live in two different universes, assuming things the other party would never assume and often knowing things ‘the counterpart’ simply does not know. This book will not try to provide a ‘thesis’ of its own in the form of a ‘definitive’ mono-causal explanation or a small selection of key variables. I do not believe such a thing is possible. Even if universally valid theories would exist, they would never be fully applicable to specific cases in the sense that they can never fully cover them. That means that even if universally valid theories of economic growth existed, they would not be able to fully explain the Great Divergence as it actually occurred. Historical explanation always is a matter of *logic in context*, i. e. applying theories in specific configurations and then assessing their validity for that context. The same logic may very well entail different outcomes in differing contexts, as Rodrik correctly points out. A good historical explanation is one that fits the case well, but always in comparison to other explanations. A good social scientific theory is one that formally is impeccable and in practice covers as many idealized cases as possible. I hope this confrontation between what is going on in two lively fields of scholarship will prove fertile for both these fields.

Probably the most obvious way to discuss the views of economists on the causes of economic growth would be to start with having a look at what they are saying about the contributions to growth of the classical factors of production: land, labour and capital. That clearly does not suffice: a simple adding up of inputs in whatever combination in the end will lead to diminishing returns. Sustained growth requires changes in the production process that make it more productive. One way to increase productivity, long known to economists and central in the work of Adam Smith, consists in the dividing of production processes in more parts (specialisation) while at the same time extending the market. Nowadays changes in production are often more or less identified with ‘technological changes’ or more broadly with the concept of ‘innovation’. Innovation and even change can only become structural features of an economy and a society if that economy and society in turn have certain institutional features. Those very probably will be strongly influenced by the dominant

culture in a certain society. We will therefore briefly muster what economists have said about the contribution of the different factors of production, innovation, institutions and culture to modern economic growth, and then have a look how scholars studying the Great Divergence appraise their role in the explanations they come up with.

## 2. Land, resources, geography

Let us begin our overview with what in classical economics used to be referred to as 'land', basically shorthand for what nature has to offer: natural resources, location, climate and disease. In this text I will refer to it as 'geography' in the widest meaning of the word. Its importance looks quite obvious. In practice, however, the connection between geography and wealth appears to be anything but clear. Amongst economists – and surprisingly enough also amongst geographers – it is not very popular to refer to 'geography' in debates about economic development out of fear to be accused of geographical determinism. Which, to be honest, indeed has produced quite a few *too* simple explanations. Economist Daron Acemoglu and political scientist James Robinson, for example, recently quite explicitly rejected geographical explanations of the Great Divergence.<sup>208</sup> But paying attention to geographical factors need not lead to geographical determinism and simply ignoring them would be unwise, as, by the way, Acemoglu and Robinson and their colleague Simon Johnson in practice clearly admit. One can only agree with Clint Ballinger that geographic factors are necessary in development studies.<sup>209</sup> Geography – amongst other things – deals with the question why something happens at a certain place, which is highly relevant as for example shows in world-systems theory that focuses entirely on the working of its 'system' but actually as such cannot explain why the core and periphery emerged *where* they emerged. Geographical circumstances can trigger certain developments, amplify or (re)enforce them, create path-dependency, throw light on processes of concentration and agglomeration and their effects. Actually, these topics are the subject of lively debates, in particular in the so-called 'new economic geography'.<sup>210</sup>

When references to geography pop up in general debates on economic development, they mostly tend to be negative, i. e. they provide explanations of why growth did *not* occur. One can find quite a few references to 'bad' geography in

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208 See their *Why nations fail*, chapter 2, pages 48 – 56.

209 Clint Ballinger, Why geographic factors are necessary in development studies [http://philosophyofscience.webstarts.com/working\\_papers.html](http://philosophyofscience.webstarts.com/working_papers.html)

210 The book by Braun and Schulz, *Wirtschaftsgeographie* provides a very helpful general introduction. See further under note 211.

the sense of e.g. bad soil, location (being landlocked or suffering from the tyranny of distance), climate, natural disasters or diseases that all hamper economic development and act as barriers to growth.<sup>211</sup> Such 'geographical' conditions can indeed often (help to) explain why some nations are poor. Jeffrey Sachs, for example, one of the most important economists of our time, in an article written with colleagues, points at the fact that the great majority of the poorest countries lie in the geographical tropics, the area between the Tropic of Cancer and the Tropic of Capricorn. Most of the richest countries, in contrast, lie in the temperate zones. A more precise picture of this geographical divide can be obtained by defining tropical regions by climate rather than by latitude. They then conclude that geography is important because of geographically determined transport costs, the prevalence of disease and its impact on agricultural productivity. That all sounds quite convincing.<sup>212</sup> But one must be wary not to become too deterministic. One can easily find counterexamples. The Dutch Republic during its 'golden' seventeenth century in many respects was not exactly blessed by nature. Other examples that come to mind would be Japan or Switzerland, countries that became very wealthy but where, in any case, *prima facie* nature was a challenge rather than an asset and both of which were regarded as poor and having bleak prospects at the moment Great Britain took off. For Japan, this overall was the case at least up until the Meiji Restoration. As late as 1815, Patrick Colquhoun (1745 – 1820), a Scottish merchant, statistician and magistrate, described (landlocked, mountainous and split-up!) Switzerland – that soon was to become one of the richest countries in the world – as a place

...where the density of the population, the insufficiency of food, and the paucity of resources for profitable employment, produce much misery: and where no relief can be found but emigration to countries, where for want of colonies the labour of the people is lost to the Parent State.<sup>213</sup>

It would seem quite obvious that being blessed by nature has a positive impact on the wealth of a nation. In stories about industrialisation reference to the fundamental importance of the availability of coal and iron ore, for example, can hardly be overlooked. That availability undoubtedly determined the location of

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211 See in particular publications by Jeffrey Sachs, Andrew D. Mellinger, John L. Gallup and Paul Krugman. For ample references to their work and that of many others that is relevant to this topic, I refer to Ballinger, 'Why geographic factors are necessary in development studies'; White, *Understanding economic development*, chapters 5 and 6, and to the websites of the four scholars mentioned.

212 See Sachs, Mellinger and Gallup, 'Geography of poverty'. The title is very apt. The text tells us a lot about geography and poverty but nothing much about geography and growth.

213 Colquhoun, *Treatise on the wealth, power and resources of the British Empire*, 4. For the country's wealth see Maddison, *World economy*, 264.

many of the first industrial sites in Europe.<sup>214</sup> More generally, it would seem obvious that when a country has many resources in the form of raw materials, it can use that windfall and the comparative advantage it creates by exporting them and so earn money that it can use to finance development. This is exactly what Harold Innis (1894 – 1952) claimed in his ‘staples thesis’ when he, building on the case of Canada, postulated that exporting raw materials can trigger sustainable economic growth.<sup>215</sup> Most mainstream economists have long considered it a good strategy for countries that have a lot of resources to put them to good use and export them. That would mean they use their comparative advantage in trade, which is supposed to ensure a win-win situation for all parties involved and provide the exporting countries with the money necessary for investment. In the ‘staples thesis’ and similar approaches, producing and exporting primary goods is regarded as a sensible option that can act as a stepping-stone to wealth and growth, in particular when the resource-rich country that opts for it has an ample supply of labour that keeps wages down and invests in capital goods<sup>216</sup>, and, many economists would add, does not use too much of the money that is earned by exporting to pay for imported consumer goods but rather focuses on strengthening and broadening the domestic growth potential of the country.

Counter-intuitive as that may seem, being blessed by nature does not guarantee wealth, far from it. Actually, the ample availability of resources for various reasons often is *not* a good predictor of wealth. In the words of historian Gavin Wright, “there is no iron law associating natural resource abundance with national industrial strength.”<sup>217</sup> For the period since roughly World War II, it has been statistically shown that low- and middle-income economies are more resource-dependent than wealthy economies.<sup>218</sup> For previous periods, including the period when the Great Divergence took place, for which we of course have fewer data, this generalisation seems generally valid as well.<sup>219</sup> So many of the poor and underdeveloped countries in the world are countries whose exports

214 See e. g. Pollard, *Peaceful conquest*, maps 1 and 2, pages XIV and XV, and of course, as will be discussed later on, Pomeranz, *Great Divergence*.

215 See for Innis’s ideas [http://en.wikipedia.org/wiki/Harold\\_Innis](http://en.wikipedia.org/wiki/Harold_Innis), consulted 15 – 12 – 2011.

216 See for this thesis for example Findlay and O’Rourke, *Power and plenty*, chapter 7, where they build on the ideas of W. Arthur Lewis (See note 251), and Barbier, *Scarcity and frontiers* under ‘resource-based development’ and ‘resource-dependent development’. Investment in capital goods in poor countries that only have relatively small stocks of them is considered to add more value than it does in rich countries that already have a lot of them, and is therefore considered to facilitate catching-up.

217 Wright, ‘The origins of American industrial success’, 666.

218 Resource dependence refers to the ratio of primary products to total merchandise exports. For the claim made in the text see Barbier, *Scarcity and frontiers*, 583 – 585. See for further information his chapter 9, and in particular Box 9.1. For the definition of resource dependence see *ibidem*, 583.

219 See Williamson, *Trade and poverty*.

mainly consist of raw materials, that to simply trust that such exports in the end will lead to wealth in any case is rather optimistic, to put it very mildly. There is a substantial amount of economic literature devoted to the so-called ‘curse of natural resources’ – with the so-called ‘Dutch disease’ as a special case – in which the frequent existence of a *negative* connection between the ample availability of (certain) natural resources and growth is postulated and analysed.<sup>220</sup> This effect can also occur when one imports resources from elsewhere. A quite peculiar case would be that of early modern Spain and Portugal, which imported huge amounts of cheap bullion from the Americas; this did not trigger substantial economic growth but rather became a hindrance to economic development, amongst other things because of the inflation they produced. The Iberians focused their attention and their extractive activities on the (bullion-)‘rich’ regions of the Americas exactly because they yielded easy income. These extractive activities and the general exploitation that in the end did not make the Iberians rich would have impoverished those resource-rich regions where they ruled. The West Indies were exploited by West European plantation-owners because they too offered the opportunity to earn huge amounts of money. In these examples, the resource-wealth of regions turned out to be a curse that may have contributed substantially to their own under-development. ‘Poorer’ parts of the Americas, in contrast, had the fortune to attract less unwelcome attention.<sup>221</sup> In a similar vein, parts of Africa may have profited from their inhospitable or rugged environment because it kept out slave hunters and conquerors.<sup>222</sup>

The ‘curse of natural resources’-effect has always played an important role in what has become known as ‘dependency-theory’ and later also in so-called ‘world-systems analysis’, a body of thought that claims that countries whose

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220 See e.g. Jeffrey Sachs and Andrew Warner, ‘Natural resource abundance and economic growth’, Harvard Institute for International Development. Discussion paper 517a (October 1995); *idem*, ‘The curse of natural resources’ and Wick and Bulte, ‘Curse of natural resources’. For further references see Williamson, *Trade and poverty*, 183–184. The expression ‘resource curse’ very probably originates with Auty, *Sustaining development in mineral economies*. In economics, the Dutch disease is a concept that explains the apparent relationship between the increase in exploitation of natural resources and a decline in the manufacturing sector. The mechanism is that an increase in revenues from natural resources (or inflows of foreign aid) will make a given nation’s currency stronger compared to that of other nations (manifest in an exchange rate), resulting in that nation’s other exports becoming more expensive for other countries to buy, which in turn makes the manufacturing sector less competitive. *The Economist* coined the term in 1977. See for this definition and further explanation [http://en.wikipedia.org/wiki/Dutch\\_disease](http://en.wikipedia.org/wiki/Dutch_disease), consulted 15–12–2011.

221 This is a ‘reversal of fortune-thesis’, that is defended by Daron Acemoglu, Simon Johnson and James Robertson as well as Stanley Engerman and Kenneth Sokoloff. See pages 162–174.

222 Nunn and Puga, ‘Ruggedness’.

economies heavily rely on exporting raw materials tend to end up being poor and stuck in a development-trap. The explanation of that trap in this perspective is directly connected to the existence of a global division of labour, in which rich countries are more likely to *import* raw materials than to *export* them, and to specific power relations, both in countries that themselves export primary products and internationally.<sup>223</sup> Dependency theorists and kindred spirits claim that countries specialising in the export of raw materials tend to develop a dual economy in which the export-sector is isolated from the rest of the economy and lacks positive backward or forward linkages. Such countries, still in their view, do not develop an integrated economy and continue to be dependent on foreign markets to sell their goods, for finance and knowledge. Their export sector is in the hands of a small and wealthy elite that pays its labour low wages, which is an impediment to the emergence of a domestic mass market and technological development. Such elites collect huge rents and oppose social change and innovation. The rising demand for resources in particular when they are in the hands of small elites often e.g. in case of minerals – that do not provide much work and whose production is easily isolated from the rest of the economy – provides them with very high incomes or, rather, rents. Those rents can enable ruling elites to further strengthen their position and create an extraction-intensive economy with a vicious circle of “circular cumulative causation” which does not lead to equilibrium as is always implied in neo-classical economics but rather to increasing inequality and poverty.<sup>224</sup>

Overall income for countries specialising in the production of primary resources lagged far behind, still according to adherents of this perspective, because the terms of trade for primary goods are assumed to be structurally deteriorating. In this respect, the work of the economists Raúl Prebisch (1901–1986) and Hans Wolfgang Singer (1910–2006) was extremely influential.<sup>225</sup> Their empirical research focused on the period 1870–1940, for which they claimed the existence of those structural deteriorating terms of trade. The findings of their work for that specific period, however, tended to be presented as an illustration of a general universal mechanism hitting all countries whose exports mainly consisted of primary goods. In ‘dependency-theory’ focusing on

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223 See for a first introduction and several references [http://en.wikipedia.org/wiki/Dependency\\_theory](http://en.wikipedia.org/wiki/Dependency_theory), consulted 15–12–2011. For the rise and many would claim the decline of dependency theory I refer to Bernecker and Fischer, ‘Rise and decline of Latin American dependency theories’.

224 The concept ‘circular cumulative causation’ was coined by the Swedish economist Karl Gunnar Myrdal (1898–1987). Acemoglu’s and Robinson’s vicious (and virtuous) circles remind strongly of this way of reasoning. See pages e.g. page 126.

225 See for their life and work [http://en.wikipedia.org/wiki/Singer%E2%80%93Prebisch\\_thesis](http://en.wikipedia.org/wiki/Singer%E2%80%93Prebisch_thesis).

the production and export of primary goods therefore is regarded as a dead-end street that brings underdevelopment.

Proponents of both theses – i. e. the staples thesis and dependency theory – can refer to examples that ‘prove’ their position. Britain, the first industrial nation, had long been an exporter of wool and until as late as the 1770s it exported wheat. The United States, Canada, Australia and New Zealand and, with at times quite different histories, Argentina and Uruguay, are examples of countries that clearly profited from exporting staples. These settler colonies all went through a ‘Golden Age’ in the period from 1815 to 1914 when their exports boomed. The United States, Canada, Australia and New Zealand, overall, became economically very successful and were amongst the richest and most highly developed countries in the world even though they, in particular in the case of Australia and New Zealand, to a large extent continued to be major exporters of primary goods often including minerals. From a global perspective even Argentina and Uruguay, whose economic trajectories were much more ‘bumpy’ and volatile, continued to be quite wealthy.<sup>226</sup> The differences in development and wealth that emerged between former ‘British’ and former ‘Spanish’ colonies, were not unrelated to their differing institutional set-up and policies and the extent to which those enabled them to avoid a simple “staples trap”. The British settler colonies in particular followed a very specific and exceptional trajectory that as such would have been very hard to copy by other countries and that cannot be used as basis for broader generalizations. I will therefore not separately discuss the growth paths of these settler economies and not further refer to them in my analysis, apart from my comments in this chapter on the ideas of Engerman and Sokoloff and Acemoglu, Johnson and Robinson.<sup>227</sup>

In Latin America, Africa, and parts of Asia many countries with large exports of primary products in the end continued to be poor and underdeveloped. Whatever its exact tenability, the dependency-approach in any case forced mainstream economists and others to think about the striking phenomenon that in the nineteenth and twentieth centuries an overall increase in economic *divergence* emerged in the global economy accompanied by an overall increase in trade contacts. According to mainstream economics, *convergence* should have

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226 See for their real GDP per capita Maddison, *Contours of the world economy*, 382, under USA and other Western offshoots, and, for Argentina and Uruguay, Maddison, *World economy*, 195.

227 For a very interesting general analysis of their economic histories, see Lloyd, Metzger and Sutch, *Settler economies in world history*. For the “staples trap” see, MacAloon, ‘State and economic policy’. In Europe, Denmark would be an example of a country that successfully escaped it. For a comparison of two settler economies and their trajectories (a Spanish one and a British one: Uruguay and New Zealand) see Schlüter, *Institutions and small settler economies*.

been the outcome. Mainstream economics predicts that growth rates would tend to slow down in developed countries as they already have very high capital inputs and will therefore be confronted with decreasing returns, whereas they would be quite high in poorer countries that could directly use the latest state-of-the-art capital goods and add them to their still small stock, using investment capital that would go from rich to poor countries in search of high yields. The idea that poor countries, provided they acquire enough capital and meet some other requirements, would have high growth rates and potential to catch up has long been and basically still is widespread amongst economists and sounds quite 'logical'. The problem is that fighting poverty apparently requires more than just investment.<sup>228</sup>

The question of why so many resource-dependent countries continued to be so poor and underdeveloped and how this could be related to the nature of the goods they exported never lost its urgency. The matter is still discussed amongst economists. In current debates on the resource curse and the related question with regard to pros and cons of specialisation according to comparative advantage, one can discern two positions. There is hardly any economist left who would want to defend the extended Prebisch-Singer thesis that terms of trade of *all* primary products would *structurally* deteriorate. What empirical research has found are big differences over time and place and per product.<sup>229</sup> Most of the 'de-industrialisation' of what was now becoming a poor periphery (later the Third World) occurred before 1870, in a period when its terms of trade increased, with 1.4 per cent per year over the period from 1800–1860. For the period 1870–1939, the period that Prebisch and Singer investigated and used as basis for their thesis, the much-lamented connection between primary production and deteriorating terms of trade seems spurious. In any case, it seems too rash to speak of a secular deterioration of *the* terms of trade of *the* Third World. There was some industrial 'lift-off' in Latin America before 1913, especially in Mexico and Brazil. Not all commodity prices were deteriorating then. What became increasing problematic, though, was their high volatility. There was much more volatility in the export baskets of peripheral than of core countries. The extreme specialisation of many peripheral economies of course made them very vulnerable for such volatility. The situation, however, changed over time. Since the Korean War (1950–1953), the terms of trade of primary

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228 See my comments with regard to 'capital fundamentalism' – and an explanation of that concept – on pages 234–244.

229 The information in the rest of this paragraph is taken from Williamson, *Trade and poverty*, 52, 191 and 196 ff. For further information indicating that the terms of trade for countries producing primary products did *not* structurally deteriorate see Allen, *Global economic history*, 127–128; Bairoch, *Economics and world history*, chapter 10, and Findlay and O'Rourke, *Power and plenty*, 424–425.

products has shown no clear trend at all. After 1970, the Third World no longer was just a primary producing region. In 1970, seventeen per cent of total exports of the Third World countries consisted of manufacturing. In 1998, that was sixty-four per cent, and now in 2012 it is even higher.<sup>230</sup> Many Third World countries have recently gone through a labour-intensive industrialisation. The contrast between resource-abundance and labour-abundance lost much of its meaning and the contrast in the global division of labour – developed countries export manufactured goods and under-developed or developing ones primary goods – much of its poignancy. We will come back to the importance of terms of trade and discussions about it later on.

These findings have of course eliminated a very important building block of dependency theory and similar approaches. That does, however, not mean that the goods that are produced in an economy would be irrelevant to economic development, which brings us to the second position of the two we want to distinguish: an increasing number of economists claim that the specific nature of the goods that many poor countries produce plays a fundamental part in causing their poverty not so much because of their unfavourable terms of trade but because their prices are so volatile<sup>231</sup> and, in particular, because producing them has few ‘growth-enhancing’ effects. An increasing number of scholars, moreover, now reject the so-called ‘equality assumption’ that all economic activities are qualitatively alike and claim that what is produced is not irrelevant to economic development and growth: development and growth are activity-specific. Not every specialisation has the same potential.<sup>232</sup> As economic historian David Landes puts it: “... some activities are more lucrative and productive than others. (A dollar is not a dollar is not a dollar.) They require and yield greater gains in knowledge and know-how, within and without.”<sup>233</sup> Economist Erik Reinert created the following hierarchy to show what is meant here:

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230 For these figures for 1970 and 1998 see Martin, ‘Developing countries’ changing participation in world trade’, and idem, ‘Outgrowing resource dependence’.

231 For this extreme volatility and its possible consequences see e.g. Williamson, *Trade and poverty*, chapter 10.

232 The expression ‘equality assumption’ is coined by Buchanan in his *What should economists do?* 231 ff. See for an extensive explanation Reinert, ‘The other canon and uneven growth’ and in his *How rich countries got rich*, for example, chapter four. See also Landes, *Wealth and poverty*, the Index, under ‘comparative advantage’.

233 Landes, *Wealth and poverty*, 522.

Figure 5: The quality index of economic activities

<i>Innovations New Technologies</i>	<b>Characteristics of high-quality activities</b>
Dynamic imperfect competition (high-quality activity)	<ul style="list-style-type: none"> <li>new knowledge with high market value</li> <li>steep learning curves</li> <li>high growth in output</li> <li>rapid technological progress</li> <li>high R&amp;D content</li> <li>necessitates and generates learning by doing</li> <li>imperfect information</li> <li>investments come in large chunks/are indivisible (drugs)</li> <li>imperfect, but dynamic, competition</li> <li>high wage level</li> <li>possibilities for important economies of scale and scope</li> <li>high industry concentration</li> <li>high stakes: high barriers to entry and exit</li> <li>branded product</li> <li>produce linkages and synergies</li> <li>product innovations</li> <li>standard neo-classical assumptions irrelevant</li> </ul>
	<b>Characteristics of low-quality activities</b>
Perfect competition (low-quality activity)	<ul style="list-style-type: none"> <li>old knowledge with low market value</li> <li>flat learning curves</li> <li>low growth in output</li> <li>little technological progress</li> <li>low R&amp;D content</li> <li>little personal or institutional learning required</li> <li>perfect information</li> <li>divisible investment (tools for a baseball factory)</li> <li>perfect competition</li> <li>low wage level</li> <li>little or no economies of scale/risk of diminishing returns</li> <li>fragmented industry</li> <li>low stakes: low barriers to entry and exit</li> <li>commodity</li> <li>produce few linkages and synergies</li> <li>process innovations, if any</li> <li>neo-classical assumptions are reasonable</li> <li>proxy</li> </ul>

Source: Erik S. Reinert, *How rich countries got rich ... and why poor countries stay poor* (New York 2007) 317.

Certain (industrial-urban and modern service) activities as a rule have more cost-reducing and productivity-enhancing potential than other (traditional agricultural and service) activities. Industry and modern services overall appear to have higher returns to scale than traditional sectors and as a rule profit more from all sorts of agglomeration effects. In particular, industry will therefore clearly function as the carrier of growth, in particular when concentrated in urban clusters that foster agglomeration effects and demand for and accumulation of skills, have more efficient markets, and facilitate the creation and transfer of knowledge. Urban environments, to somewhat broaden this comment and its implications tend to be more innovative than the countryside. There apparently is, in several respects, an 'urban bias' in development.<sup>234</sup> Inhabitants being close to each other and directly connected apparently increases productivity to such an extent that it more than compensates for the fact that cities are more expensive to live in. Especially cities that are more complex and diverse can become and remain economic centres.<sup>235</sup> Countries without a strong and developing industry will tend to fall behind. In this respect, Wallerstein clearly has a point:

Since a capitalist world-economy essentially rewards accumulated capital, including human capital, at a higher rate than 'raw' labour power, the geographical maldistribution of these occupational skills involves a strong trend towards self-maintenance. The forces of the marketplace reinforce them rather than undermine them.<sup>236</sup>

Later in this text in the explanation of why the Third World fell behind the causes and effects of specialisation in the production and export of primary products will be more extensively discussed and analysed when it comes to their importance for the Great Divergence.<sup>237</sup> Again a reference to the work by Erik Reinert can explain what is meant here.

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234 Michael Lipton refers to fifteen countries that were already wealthy at the time of the Meiji Restoration. Their populations, when faster growth and industrialisation took off, were thirty-five to seventy percent urban. See his, *Why poor people stay poor*, 35.

235 See for this thesis Glaeser, *Triumph of the city*; Hall, *Cities in civilization*; Jacobs, *The economy of cities*; idem, *Cities and the wealth of nations*, Lipton, *Why poor people stay poor* –that also criticizes it–, and Polèse, *The wealth & poverty of regions*. In this book on pages 33 – 49 there is a brief discussion of several 'agglomeration effects'. And then of course there is the famous thesis of Saskia Sassen about the fundamental importance for economic development of what she calls 'global cities'. See her *Global city*. For some interesting general comments see Warsh, *Knowledge and the wealth of nations*, 245 – 247, 306 – 308, and 318 – 321.

236 Wallerstein, *Modern world-system. Volume I*, 350.

237 See pages 272 – 290.

Figure 6: Good and bad export activities

Characteristics of 'good' export activities	Characteristics of 'bad' export activities
Increasing returns	Diminishing returns
Dynamic imperfect competition	'Perfect competition' (commodity competition)
Stable prices	Extreme price fluctuations
Generally skilled labour	Generally unskilled labour
Creates a middle class	Creates 'feudalist' class structure
Irreversible wages (‘stickiness’ of wages)	Reversible wages
Technical change leads to higher wages for the producer (‘Fordist wage regime’)	Technical change tends to lower price to consumer
Create large synergies (linkages, clusters)	Create few synergies

Based on: Erik S. Reinert, *How rich countries got rich ... and why poor countries stay poor* (New York 2007) 151.

Many economists at the moment are convinced that the kind of goods one exports *as such* clearly can have major effects on the developmental potential of an economy, but most of them would discuss their impact looking at the total context in which that export takes place and at what happens in the rest of the economy. They would, in any case, advise not continuing to specialise according to static ‘comparative advantages’ based on factor endowments, but to try to actively create dynamic ‘competitive advantages’, as Michael E. Porter defines them.<sup>238</sup> Geography, as a rule, is not regarded as fate. Institutions and other variables also matter a lot as in more sophisticated varieties of dependency-theory.

A specific way to point at the importance of geography that has always been stock in trade amongst historians dealing with the pre-industrial world, but that had gone out of fashion amongst economists only to come back now with a vengeance, so it seems, can probably be best characterised as Neo-Malthusian. An increasing number of economists have begun to wonder whether, considering the enormous worldwide increase of consumption, finite resources could not again, as in Malthus’ view, become a constraint to growth. Very wide-ranging and acrimonious debates on the limits to growth and on sustainability have flared up. Not by accident, Jared Diamond’s highly acclaimed *Guns, germs and steel*, basically dealing with growth and development, was succeeded by his *Collapse*, about squandering resources and damaging if not completely exhausting the environment.<sup>239</sup> Those debates and the insights they have brought

<sup>238</sup> See e.g. his, *Competitive advantage of nations*.

<sup>239</sup> Diamond, *Guns, germs and steel*, and idem, *Collapse*.

about possible limits to growth, as we know it, could also be relevant to those studying the emergence of that growth. The same goes for neo-Ricardian analyses of rent seeking by owners of resources.

The connection between resources and economic growth in general apparently is not as straightforward as one might think. That, by the way, is not a recent discovery. In the early modern world, at least in Europe amongst authors we would now call ‘mercantilists’ – and who to my view are uniquely European – the idea that resources could easily turn into a curse actually was already widespread. In their eyes, according to Erik Reinert, “The wealth of a nation appeared, somewhat paradoxically, to be inversely related to its natural wealth.” He indicates that, “The realization spread through Europe that the real gold mines of the world were not the physical gold mines, but *manufacturing industry*.”<sup>240</sup> One can find several quotes referring to the poverty of Spain and the wealth of countries or cities that did not have gold and silver mines at their disposal. The idea that exploiting some natural resources like coal might be just as important if not more important than simply amassing bullion even occurred to an English poet as early as 1651: “England’s a perfect world, has Indies too/ Correct your maps, Newcastle is Peru.”<sup>241</sup>

What we are discussing in this book, however, is the emergence not of economic growth as such but of *modern* economic growth. That is quite consequential for our analyses. Even though, ever since the emergence of modern economic growth, technology has always managed to beat nature and to come up with solutions for scarcity and even though, according to a ‘rational optimist’ such as Matt Ridley, it probably will continue to do so in the future<sup>242</sup>, it is nevertheless clear that geography in the widest sense of the word might set limits to any kind of growth and in that way is a *necessary* precondition for modern economic growth. It definitely can facilitate, enable or even elicit such growth. But it is hard to see how it could be a *sufficient* condition. A country undoubtedly can benefit from its geographic windfalls, but geography per se is *static* or almost static, whereas modern growth is *sustained* and very strongly thrives on change and innovation.

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240 The quotations are taken from Reinert, *How rich countries got rich*, 77 and 86. See for a general discussion chapter 3.

241 Cleveland, *Poems*, 10.

242 Ridley, *Rational optimist*, in particular chapters 9–11.

### 3. Labour: the effect of quantities

The second factor of production that might act as an engine of growth would be labour. The role of labour in growth is an issue over which, not unsurprisingly, economists have strongly disagreed. Let us enter their debates by tackling the question in rather blunt and simply quantitative terms: is an ample and increasing supply of labour better for growth than a small and decreasing one? For the sake of convenience, I will distinguish between two extreme positions. The first one will be called ‘Boserupian’, after the Danish economist Ester Boserup (1910–1999), the other one ‘Malthusian’, after the British cleric and economist Thomas Malthus, whose ideas we already discussed briefly. Ester Boserup tended to focus on the positive incentives and effects of population increase. In her view, such an increase also increases the pressure to innovate.<sup>243</sup> Although in her work she focused on agricultural development and never claimed that population growth would actually cause *overall* economic growth, she was convinced that ‘necessity is the mother of invention’. It was her great belief that humanity would always find a way and she was quoted in saying, “The power of ingenuity would always outmatch that of demand.”<sup>244</sup> An increasing population can have positive effects on innovation via several supply-side mechanisms: more people means more brains, a higher intensity and ease of communication and exchange, plus the possibility of a more extended division of labour. Positive effects may also set in via incentives in the demand-side, as an increasing population as a rule means higher prices for products, larger markets for selling them, and the ability to use scale effects in production.<sup>245</sup> All these effects tend to be even more prominent in an urban environment. Many ‘new growth-economists’ who believe in endogenous growth have elaborated upon various possible connections between population growth and density and economic growth. As such they are not new. William Petty (1623–1687), by many regarded as the founder of political economy, already wrote: “It is more likely that one ingenious curious man may be found among four million persons than among 400 persons.”<sup>246</sup> Amongst modern economists, I here only mention Oded Galor, Charles

243 Her best-known book is Boserup, *Conditions of agricultural growth*. See also her *Population and technological change*.

244 See for this quote the article on her on Wikipedia in English, consulted on 12–11–2011.

245 When I refer to scale effects in this text I mean ‘economies of scale’ and ‘returns to scale’. Where economies of scale refer to the positive relationship between the size of a firm and its costs, i.e. a lowering of average costs with increasing size, returns to scale describe the relationship between inputs and outputs. Returns to scale are constant if increasing all inputs by some proportion results in output increasing by that same proportion. Returns are *decreasing* if, say, doubling inputs results in less than double the output, and *increasing* if more than double the output

246 Warsh, *Knowledge and the wealth of nations*, 309.

I. Jones, Michael Kremer, Matt Ridley and Julian Lincoln Simon. Economist-historian Gregory Clark would also be an example.<sup>247</sup> These economists also point out that, in principle, a larger population permits increased specialisation and economies of scale in the production and exchange of ideas, which would lead to synergy, or, as Matt Ridley calls it, “ideas having sex.”<sup>248</sup>

Many economists and historians would not endorse the ‘Boserupian’ approach and rather defend the Malthusian thesis that after some initial increasing returns, population growth as a rule leads to ‘overpopulation’, which means scarcity of resources and problems. In their approach, the potentially positive effects of population pressure receive far less attention than its problematic side. When it comes to the power of ingenuity, ‘Malthusianists’ claim that a large supply of labour makes it so cheap that the need to think about new technologies and the willingness to invest in them decreases rather than increases. They associate an abundant supply of labour with scarcity of resources and low wages and those in turn with ‘constraints’ and ‘ceilings’ causing ‘involution’ and several kinds of ‘traps’.<sup>249</sup>

Economics, however, would not be economics if other economists did not claim the opposite and defend the thesis that an abundant supply of labour might very well be good for development, not so much because it necessitates and facilitates innovation but because – to put it in the terms of Nobel-Prize winner W. Arthur Lewis (1915 – 1991) – “unlimited supplies of labour” and low wages may attract investment.<sup>250</sup> In his story, a ‘capitalist’ sector develops by taking labour from a non-capitalist backward ‘subsistence’ sector. At an early stage of development, the capitalist sector, because of its huge reservoir of labour, can expand without the need to raise wages. This leads to higher returns to capital, which are then reinvested in further capital accumulation, drawing further labour from the subsistence sector. *If* profits are reinvested and capital accumulation does not substitute for skilled labour in production, the process becomes self-sustaining and leads to modernisation and economic development. As soon as the excess labour in the subsistence sector is fully absorbed into the modern sector, further capital accumulation begins to increase wages, which then creates an entirely different situation.<sup>251</sup> *If* profits are *not* re-invested, there is a serious

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247 Galor, *Unified growth theory*, passim; Charles I. Jones, ‘Population and ideas. A theory of endogenous growth’, NBER Working Paper no 6285, 1997; Kremer, ‘Population growth and technological change’; Simon, *Economics of population growth*; idem *Great Breakthrough*. For Clark see his *Farewell to alms*, 8 – 14 and chapters 10, 11 and 12.

248 Ridley, *Rational optimist*, chapter 1.

249 We will discuss those later on in this text. See the Register, ‘Involution’ and ‘High-level equilibrium trap’.

250 Lewis, ‘Economic development with unlimited supplies of labour’.

251 [http://en.wikipedia.org/wiki/Arthur\\_Lewis\\_\(economist\)](http://en.wikipedia.org/wiki/Arthur_Lewis_(economist))

risk that a 'dual economy' will emerge in which the underdeveloped part will not catch up but rather become a poor 'appendix', a scenario that many scholars who think along the lines of dependency-theory and world systems-theory consider the more likely one.

Lewis's theses primarily refer to the situation in poor countries trying to catch up, but the thesis that low wages allow for higher profits and thus enable more investments that in turn enhance productivity can of course easily – and that has often been done – be turned in a general one with universal applicability. Joel Mokyr in any case thinks it is valid for industrialisation as it occurred in Europe.<sup>252</sup> But here too the opposite claim can be defended and might indeed depending on the circumstances be correct: not only can economists argue that an abundant supply of (cheap) labour takes away incentives to develop labour-saving innovations, or that low wages help to finance them, they can also argue that labour-scarcity and high wages are an incentive to look for production methods that save labour. Many scholars have indeed done so. As we will see later on Robert Allen is convinced that the emergence of modern economic growth in Britain during the industrial revolution has to be attributed to *high* wages. Here too, I guess, context matters: high wages may just as well be an incentive to not invest and set up production someplace else where labour is cheaper, as many high-wage economies have noticed of late. Basically we are confronted here with two lines of reasoning, one thinking in terms of wage-led economies where high wages make high consumption possible, which as long as there is not too much leakage via imports creates possibilities for domestic growth, and one in which low wages make high profits and thus large investments possible, in particular when there is a big foreign market.

In the context of discussing factor endowments, Swedish economists Eli Heckscher (1879–1952) and Bertil Ohlin (1899–1979), building on Ricardo's theory of comparative advantage, predicted that countries with relatively few people and many resources will focus on exporting resources, whereas countries with relatively many, 'cheap' people and few resources would focus on labour-intensive production. We will discuss this option, which in principle would be quite suitable for countries like China and Japan, later on in our analysis of the East Asian path of industrialisation. The complexity and context-dependency of causality in this context can be nicely illustrated by the fact that, to already anticipate the content of chapters 2.6 and 2.7, for both the countries that are central in our analysis, completely opposite theses have been suggested when it comes to the role of their labour supply and their wage level as explanation for their economic trajectory. In the case of Britain, there are quite respected scholars who claim it industrialised thanks to its high wages just as there are

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252 See Mokyr, 'Dear labor, cheap labor'.

scholars who claim it industrialised because of its low wages. Both of these, of course, cannot be true. For China, scholars have defended the thesis that it did not industrialise in the nineteenth century because of its low wages, whereas the fact that it industrialised later on in the last quarter of the twentieth century has also been explained by reference to its low wages. Both of these can be true.

A specific connection between population size and economic growth that will not be discussed in this text but that must at least to be mentioned is the so-called demographic dividend theory which claims that economies can profit from a specific composition of their total population. Proponents of this theory then as a rule refer to a situation in which total population increases, there still are a large number of young people available and the participation rate is high, but in which at the same time the number of children decreases. The low dependency rate that characterises such a situation then leaves more room for investment in human capital.<sup>253</sup>

The questions addressed in the previous paragraphs also were already discussed in the early modern era. Overall, in pre-industrial societies, the idea that having a big and increasing population was something positive prevailed. It, in any case, meant many subjects, soldiers and taxpayers for the rulers. I will confine myself in my examples to Europe. Mercantilist thinkers there overall were convinced that a large and increasing population not only was good for the strength of a state but also a beacon of prosperity.<sup>254</sup> But also someone like David Hume (1711 – 1776), who was not a mercantilist, in one of his many publications still suggested that, “the happiness of any society and its populousness are necessary attendants.”<sup>255</sup> From the point of view of mercantilist authors a large population in particular had positive effects on the economic strength of the nation when it was poor! Two reasons were normally given for this ‘utility of poverty’. The first one is that if labour earns ‘too much’ it becomes lazy. Innumerable quotes could illustrate this. Let me confine myself to examples from Britain. Thomas Mun (1571 – 1641) wrote: “... penury and want do make a people wise and industrious.”<sup>256</sup> William Temple (1628 – 1699) was more explicit: “The only way to make the poor industrious is to lay them under the necessity of labouring all the time they can spare from meals and sleep in order to procure the common necessities of life.”<sup>257</sup> Bernard Mandeville (1670 – 1733) claimed in 1714 that, “in order that society might be happy ... it is a requisite that

253 See, for a first introduction, [http://en.wikipedia.org/wiki/Demographic\\_dividend](http://en.wikipedia.org/wiki/Demographic_dividend)

254 See Stangeland, *Pre-Malthusian doctrines of population*. More specific for the case of Britain see Bonar, *Theories of population* and Glass, *Numbering the people*.

255 I found this quotation in Milgate and Stimson, *After Adam Smith*, 121.

256 Mun, *England's treasure by forraign trade*, 73. The book was published after Mun died.

257 I took this quote from Ashworth, *Customs and excise*, page 60, where one also can find the original references.

great numbers of them [i.e. the labouring classes, PV] be poor.” According to Arthur Young (1741 – 1820) in 1771 “everyone but an idiot knows that the lower classes must be kept poor or they will never be industrious.”<sup>258</sup> The other reason, that we also find quite explicit in, for example, the work of Thomas Mun, was that high wages might tempt labour to buy luxury goods from abroad. That was regarded as bad for the national economy.<sup>259</sup> In such a context – and that applies world-wide – the emergence of modern economic growth that only in very exceptional cases can thrive without an expanding domestic market for mass products, is not very likely. During the eighteenth century, we see a gradual change in this respect as more people started thinking about wages in terms of ‘the carrot of incentives’ instead of ‘the stick of necessities’ and began to see positive effects of increasing incomes for the mass of the population and of a growing (mass) consumption. Adam Smith for example wrote: “No society can surely be flourishing and happy, of which the far greater part of the members are poor and miserable” and repeatedly discussed the advantages of a “liberal reward of labour”.<sup>260</sup> That, however, continued to be a contested minority view. Discussions about ‘idleness’ and ‘luxury’ did not abate.<sup>261</sup>

Malthus is known to have been a clear exponent of a different view on increasing population. From the end of the eighteenth century onwards that often came to be regarded as a major potential and often even acute problem. During his lifetime – and thus during Britain’s take-off – most economists agreed that the ‘natural price’ of labour would be a subsistence wage and that increasing population would *not* have positive effects on that wage. The importance of ordinary labour in sustaining mass-*consumption* was not regarded as a major issue. Questions of cheap supply prevailed over questions of massive demand. It is not by accident that in the work of Marx, who focused so much on labour, ‘overproduction’ appears as the main threat to the sustainability of industrial capitalism. Schumpeter, though not exactly a friend of Keynes, was well aware of the importance of mass consumption: “The capitalist engine is first and last an

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258 See for these last two quotations, Furniss, *The position of the laborer in a system of nationalism*, chapter VI, ‘The doctrine of the utility (sic! PV) of poverty’, page 118. For many similar claims, see Lis and Soly, *Worthy efforts*, chapter 7, e.g. 478 – 494.

259 Mun, *England’s treasure by forraign trade*, 60.

260 See Smith, *Inquiry into the nature and causes*, 96 for the quote, and chapter I, VIII for the “liberal reward of labour.”

261 See e.g. Coats, ‘Economic thought and Poor Law policy in the eighteenth century’; idem, ‘Changing attitudes towards labour in the mid-eighteenth century’; Lis and Soly, *Worthy efforts*, chapter 7, e.g. 478 – 494; De Vries, ‘Industrial Revolution and the Industrious Revolution’, and Wiles, ‘Theory of wages in later English mercantilism’.

engine of mass production which unavoidably means also production for the masses.”<sup>262</sup> Nobody in his view ever got rich producing for the rich.

#### 4. Labour quality: human capital

In the previous paragraphs, the emphasis was on the quantity of labour, in the widest sense of the word, including those who ‘co-ordinate’ and manage the work of other people as ‘entrepreneurs’. It is evident that economic development and modern economic growth cannot just be a matter of the quantity of labour input but must also involve qualitative changes in it. In recent debates the role of human capital in this respect has even been given pride of place as the most important factor in enabling growth. In rich countries, people on average are much better educated than in poor countries, the well-educated on average have higher incomes and more wealth than the less well-educated. The correlation is statistically quite clear and the thesis that educating people will increase wealth is immensely popular. When Richard Easterlin, in 1981 asked himself the question ‘Why isn’t the whole world developed?’ he was convinced education made the difference.<sup>263</sup> Robert Allen describes promoting mass education as one of the four standard development strategies for catching up in early industrialisation.<sup>264</sup> That human capital has a central role to play in economic development has become a truism in all new growth theories.<sup>265</sup> Alice Amsden goes as far as to give the following definition of economic development: “Economic development is a process of moving from a set of assets based on primary products, exploited by unskilled labour to a set of assets based on knowledge, exploited by skilled labour.”<sup>266</sup> Human capital embodies the real treasure of an economy as may be deduced from many miraculous recoveries from physical destructions after wars. Knowledge of how to build replacements is far more important than the physical things in which that knowledge is embodied at a given moment. As long as human capital is not destroyed, physical destruction

262 Schumpeter, *Capitalism, socialism and democracy*. I quote from the fifth edition, published in London in 1976. The quotation is on page 67.

263 Easterlin, ‘Why isn’t the whole world developed?’.

264 Allen, *Global economic history*, 41–42. The other strategies are to unify the internal market, to protect it against competition from abroad and to create of a well-functioning banking sector.

265 See e. g. the introduction of Lucas, *Lectures on economic growth*. The amount of literature on human capital is staggering. I just refer to two publications I found helpful: Becker, *Human capital* and Hartog and Maassen van den Brink, *Human capital*. For a brief introduction, see [http://en.wikipedia.org/wiki/Human\\_capital](http://en.wikipedia.org/wiki/Human_capital).

266 Amsden, *Rise of “the Rest”*, 2.

can, in principle, always be repaired or replaced. The same applies to the knowledge of institutions.<sup>267</sup>

But as always, here, too, actual causality appears to be not that simple. In many cases it could also have been the other way around: an increase in wealth leading to an increase in education. Besides, as Jack Goldstone warns the readers of his book on the rise of the West that not just any kind of (college) education might do. In his view, millions of dollars have been wasted by countries trying to catch up with the West in “training college graduates in the traditional skills of law, administration, social sciences, arts, humanities, medicine, accounting, even theology – without also nurturing the engineering and entrepreneurial talents that would create a modern economy capable of employing legions of humanists and professionals.”<sup>268</sup> As Ha-joon Chang writes “More education in itself is not going to make a country richer.”<sup>269</sup> Many modern societies indeed may have become *over-educated*. Thomas Sowell, of course, is correct in claiming: “Human capital must not be confused with formal education, which is just one facet of it, and still less with the growth of the intelligentsia, which may be either a positive or a negative influence on economic development and political stability....”<sup>270</sup> In his view, the so-called intelligentsia often contribute little to growth; with their prevailing anti-business mentality, they often even hamper it. He is following in the footsteps of Schumpeter who emphasized that intellectuals as a rule tend to not be very fond of capitalism and innovation.<sup>271</sup> There still is abundant evidence about wage gains from schooling for individuals but the impact of all that schooling on GDP has become much less evident, so one may well ask along with Lant Pritchett in his famous article: “Where has all the education gone?”<sup>272</sup> Maybe Tyler Cowen has a point when he writes there is no more “low-hanging educational fruit of uneducated kids.”<sup>273</sup> Whatever the exact connection may be between (certain types of) schooling and education, in a wider sense of the word and economic growth in the beginning of the twenty-first century, studying the Great Divergence without paying serious attention to them would be negligent.

Talking about labour in the context of economic growth sooner or later involves talking about work ethic, discipline, and industriousness. The idea that the rich inhabitants of the world in this respect would be different from the poor

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267 I took this comment from Sowell, *Conquests and cultures*, 336.

268 Goldstone, *Why Europe*, 173 – 174.

269 Ha-joon Chang, *23 things they don't tell you about capitalism*, chapter 17.

270 Sowell, *Conquests and cultures*, 349.

271 See page 117.

272 Pritchett, ‘Where has all the education gone?’ Several versions exist. See under Google, Lant Pritchett, Where has all the education gone.

273 Cowen, *Great Stagnation*, chapter one.

ones and that wealth is somehow a reward for more efficient and effective behaviour, and hard work, has always been quite popular, in particular amongst the rich. I only have to refer to the famous Weber-thesis that time and again is rejected by some, only to be endorsed by others but, and that of course is what matters here, shows no signs of simply being out-dated. To be sure, the same applies to the idea that economic growth exists thanks to the activities of entrepreneurs who by their specific role in economic life create the permanent gale of creative destruction that is at the heart of modern growth. To claim that societies that produce many of such entrepreneurs and give them leeway would become rich is then an obvious next step. Capitalism, until now the system most successful in creating economic growth, is a system in which “innovation could triumph habit”, to paraphrase Joyce Appleby, with a central role for innovators. She claims that the riddle of capitalism’s ascendancy isn’t just economic but political and moral as well: “How did entrepreneurs get out of the straightjacket of custom and acquire the force and respect that enabled them to transform, rather than conform, to the dictates of their society.”<sup>274</sup> Deirdre McCloskey with her heavy emphasis on the acceptance of ‘bourgeois dignity’ as a precondition for the emergence of modern economic growth clearly thinks along similar lines.<sup>275</sup> In their work matters of human capital become tightly interconnected with matters of culture and institutions that will be discussed separately in this book.

## 5. Consumption

Traditionally, production and supply have always been at the heart of most explanations of growth, which, in a way, is evident as sustained growth would be unthinkable without increasing productivity. That meant a focus on capital goods, on machines, factories and infrastructure, on education and research. Those all have to be paid for. That can only be done by not consuming what one has accumulated or by borrowing, which of course has its costs. Growth economics has always had a strong tendency to focus on the supply-side, on capital and capital goods. In recent research dealing with growth, consumption and the consumer figure much more prominently. That is not simply an effect of Keynes’s ‘discovery’ that Say’s Law stating that aggregate supply creates its own aggregate demand, which would mean that a *general* glut is impossible, does not necessarily hold. Actually, not every offer begets its demand and, in any case, for individual producers producing only makes sense if enough people buy or at

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274 Appleby, *Relentless revolution*, 7.

275 See her *Bourgeois virtues* and her *Bourgeois dignity*.

least in principle can buy *their* produce.<sup>276</sup> The approach of John Maynard Keynes (1883–1946) presented a switch in perception, according to which saving is not primarily perceived as reserving money for a potential investment but also as *not*-consuming, borrowing not only as making debts, but also as enabling extra consumption or investment, and in which government intervention to prime the pump is no longer necessarily taboo. With increasing wealth it, moreover, becomes less and less obvious that extra produce will indeed be bought, so the question of what drives and determines consumption becomes ever more pressing. Even more so as one of the striking characteristics of modern economic growth consist in the fact that an ever-growing number of *new* products are entering the market literally in search for consumers. As Michael Piore aptly put it: “The central growth problem in a capitalist economy becomes that of how to organize demand so that the required expansion is assured.”<sup>277</sup> Contemporary Western society is not by accident often described as a ‘consumer society’, a label that suits an increasing number of non-Western societies too. Considering this essential role of consumption in contemporary society, it was more or less unavoidable, that the role of demand as compared to that of supply in the *emergence* of the modern economy would also begin to attract more attention in modern economics. An increasing number of scholars are now convinced that changes in demand played a role in steering production (the key word is here ‘consumer revolution’) and the supply of labour (the key word is here ‘industrious revolution’) just before and during take-off.<sup>278</sup> It is no use to enter here into a chicken or egg debate: The importance of consumption for growth and innovation is obvious. But here too, one must be aware of the limits of a strategy: as many people and countries are finding out for themselves now, there is a limit to the extent to which one can build an edifice of growth on the basement of consuming and borrowing.

## 6. Capital and capital accumulation

Producing means combining land, labour and capital goods. Amongst economists who theorise about growth and want to model it, capital has always received privileged attention. Full well aware of other ways to generate growth, e. g. via specialisation, most of them have long been convinced that the most effective

276 For this law named after the French economist Jean-Baptiste Say (1767–1832), although he did not really invent it, see [http://en.wikipedia.org/wiki/Jean-Baptiste\\_Say](http://en.wikipedia.org/wiki/Jean-Baptiste_Say).

277 Michael J. Piore, *The theory of macro-economic regulation and the current crisis in the United States*, MIT Working Paper Cambridge Mass. 1981, page 20. I found this quote in Schlefer, *Assumptions economists make*, 229.

278 See for these concepts the Register.

way to create and sustain growth would be via investment in extra capital goods so that per unit of labour more capital goods become available. Those capital goods of course have to be paid for out of money one does not use for consumption. It is not by accident that classical growth theories that put such an emphasis on investment emphasised the importance of accumulation and saving. We all know the story of the fisherman saving some of his earnings to then buy a new net and catch more fish.

In the so-called Harrod-Domar growth model named after the economists Henry Roy Forbes Harrod (1900 – 1978) and Evsey Domar (1914 – 1997), a direct link between an increasing input of factors of production and increasing output was postulated. In this model, the rate of growth of national income is determined by the capital-output ratio, which in turn is determined by the savings ratio. Growth in that way becomes a function of capital formation. What is striking and not without consequences, considering the enormous importance of that sector, is that in many input-output models based on this model, the service sector (public as well as private) is simply not taken into account. In classical growth theories, there can only be diminishing returns to capital; that means that the returns of simply adding extra inputs decrease. If adding extra inputs is all one does, the economy will be heading for a ‘steady state’. This tendency for growth to decrease as the capital stock increases implies that *ceteris paribus* countries with a small capital stock (i.e. poorer countries) can expect higher growth rates when they invest than countries that already have a large capital stock (i.e. richer countries). That being the case global economic *convergence* would be much more likely than global economic *divergence*. In reality however, catching up is not at all easy and is the exception rather than the rule because, as so many economists claim, of the existence of *increasing* returns in many sectors of production, among other reasons.

The fact that according to neo-classical standard theory there, in principle, are limits to promoting growth by simply increasing investment has not prevented many people, in particular economists working outside Academia, politicians, but also economic historians, to act like ‘capital-fundamentalists’, even though their position has in theory been rejected. According to capital fundamentalism, which is a practical attitude and assumption rather than an explicit theory, capital is the key to development, which makes differences in national stocks of capital the primary determinants of differences in levels of national product.<sup>279</sup> A famous example of a rejection of capital fundamentalism that is quite interesting for our analysis and might with time provide a good macro-economic test of it, are Krugman’s comments from 1994 on the impressive

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279 See for a first introduction the many references to capital fundamentalism on Wikipedia, the English version.

growth of Asia's new industrialising countries at the time. Krugman claimed that this growth to a very large extent was a matter of simply increasing inputs, i. e. capital and labour. In his view it therefore was primarily a matter of "perspiration, not inspiration" and would therefore *ceteris paribus*, as in the Soviet Union during its industrialisation, simply peter out.<sup>280</sup>

A sustained piling up of capital goods simply *cannot* be the main explanation for growth as we have seen it in the West over the last two centuries. One simply cannot explain all the growth that has taken place in wealthy countries since the first Industrial Revolution and the gap this caused between rich and poor by referring to extra capital investment. That would leave a lot of increased output simply unaccounted for. Empirical research has shown that increases in so-called total-factor productivity in developed countries contain an enormous residual of growth that cannot be explained by increases in input: a 'residual' that economist Moses Abramovitz (1912–2000), correctly characterised as 'a measure of our ignorance' and that of course continued to be a major irritant to all scholars who really wanted to understand growth.<sup>281</sup> All this is common knowledge amongst economists but one of course has to realise that even if *in the long run* piling up capital stocks is a dead-end street, it may very well in the short and medium term have positive effects. All countries that industrialised in any case went through a substantial increase in total capital investment during the first stages of their industrialisation. Capital accumulation certainly is not the key to all growth and it certainly was not, like capital fundamentalism wants us to believe, the major problem for developing countries. But adding extra capital certainly played a role when countries took off. How much is an empirical matter. There are good reasons, and data, to expect that sheer accumulation will have been rather small but more important in the beginning of the process of taking-off than in economies that have already entered the post-industrial stage of their development.

Notwithstanding all these qualifications of the importance of added capital input for growth, in thinking about industrialisation and modernization and even more in efforts to actually promote them, the role of capital accumulation has always been very prominent up until fairly recently. Marx, who more than most economists of his age was aware of the fundamental importance of technology and technological innovation for (capitalist) development was not only

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280 Krugman, 'The myth of Asia's miracle', page 66. For other critiques, see e.g. Easterly, *Elusive quest for growth*, chapter 3, and McCloskey, *Bourgeois dignity*, chapter 15. For similar comments see Acemoglu and Robinson, *Why nations fail*, 124–132, where they write that growth in the former Soviet Union was not caused by innovation but by larger inputs and moving production into more productive sectors.

281 See e.g. his *Resource and output trends in the United States since 1870*, 10 and his 'Search for the sources of growth'.

convinced that the emergence of capitalist production presupposed “the pre-existence of considerable masses of capital.”<sup>282</sup> He also claimed that accumulation would be its very essence: ‘Accumulate! Accumulate! That is Moses and the Prophets!’<sup>283</sup> In his view, it got a kind of kick-start with ‘primitive accumulation’ or ‘original accumulation’, which means ‘accumulation by dis-possession’. This is what he writes about the process in Great Britain:

The spoliation of the Church’s property, the fraudulent alienation of the state domains, the theft of the common lands, the usurpation of feudal and clan property and its transformation into modern private property under circumstances of ruthless terrorism, all these things were just so many idyllic methods of primitive accumulation.<sup>284</sup>

Primitive ‘accumulation’ of Western capitalism, however, never was just a domestic process. This is how Marx describes its global dimensions:

The discovery of gold and silver in America, the extirpation, enslavement and entombment in mines of the indigenous population of that continent, the beginnings of the conquest and plunder of India, and the conversion of Africa into a preserve for the commercial hunting of blackskins, are all things which characterize the dawn of the era of capitalist production. These idyllic proceedings are the chief moments of primitive accumulation.<sup>285</sup>

For both quotes, but that of course is an aside, one may wonder how exactly the facts described can be sensibly connected to Britain’s take-off in the late 1700’s. Notwithstanding its repeated references to ‘imperialist’ exploitation, in classical Marxism capitalism is assumed basically and primarily to feed on its *internal* logic of exploiting free labour with a structurally weak position on the labour market. Over time, however, the importance of colonialism, imperialism and unequal exchange has come more to the fore in Marxist or ‘Marxist’ thinking. In dependency theory and world-systems analysis, it has even become fundamental. In these approaches capitalism is an economic system that by definition is not confined to specific states but a ‘world-system’ in which the focus is so much on exchange that some classic Marxists worry that Marx’s emphasis on modes of production gets neglected.<sup>286</sup> In theories on imperialism and advanced capitalism, in dependency-theories, theories about unequal exchange, modern world-systems theory, and the like, one encounters a similar line of reasoning time and again: The development of the West has been paid for by the Rest. That claim clearly starts from the assumption that amassing sufficient capital is the

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282 *MEW*, 23, page 741.

283 *MEW*, 23, page 621.

284 *MEW*, 23, pages 760–761.

285 *MEW*, 23, page 779.

286 See notes 1042 and 1045.

main bottleneck of development and that when this problem is solved, economic modernisation will more or less take care of itself.

Quite surprisingly to many readers, I guess, is the fact that Keynes too, in a comment that was very much an aside, thought it all began with ‘primitive accumulation’:

The modern age opened, I think, with the accumulation of capital, which began in the sixteenth century. I believe – for reasons with which I must not encumber the present argument – that this was initially due to the rise of prices, and the profits to which that led, which resulted from the treasure of gold and silver which Spain brought from the New World into the Old. From that time until today, the power of accumulation by compound interest, which seems to have been sleeping for many generations, was re-born and renewed its strength. And the power of compound interest over two hundred years is such as to stagger the imagination. ... Thus, every £1 which Drake brought home in 1580 has now become £100,000. Such is the power of compound interest!<sup>287</sup>

So in a way did Walt Rostow. He may have set out to write a *non-communist manifesto*, but in his book dealing with the stages of economic growth he too nevertheless considered accumulation as fundamental. The quintessence of the take-off into self-sustained growth in his view would consist in a sharp increase in the savings and investment rate. W.A. Lewis thought the central problem of taking-off was where to find the huge extra savings to pay for it.<sup>288</sup> Alexander Gerschenkron in his equally influential analyses of catching-up always focused on capital goods, heavy industry producing capital goods, forced savings, the role of banks, in brief, on *investment*.<sup>289</sup> The overriding problem to be solved for industrializing nations was presented as that of saving and investing so much that one could make a ‘great spurt’, preferably by massive investment in heavy industry. The conviction that industrialisation equals investment in capital goods, that big is beautiful and that history shows no pity for those who are slow was at the core of most communist, fascist and authoritarian schemes and ‘plans’ to industrialise. The idea that poverty is basically the main problem of underdeveloped countries and that providing them with money thus is basic solution to their predicament their development continued to be the motivation behind much of Western ‘development aid’ for decades. It still is prominent in the thinking of, for example, Jeffrey Sachs in his *The end of poverty*.<sup>290</sup>

I already pointed out that, in classic Marxism, primitive accumulation at home and abroad but also more regular exploitation via colonialism and im-

287 Keynes, ‘Economic possibilities for our grandchildren’, 359–360. What holds for every £1 that Drake brought home, of course also holds for any pound from 1580 earned in, let us say, milking cows. Why Drake’s pounds would be unique escapes me.

288 See for a fine quote, McCloskey, *Bourgeois dignity*, 136.

289 See e.g. his *Economic backwardness in historical perspective*.

290 Sachs, *End of poverty*, in particular chapters 13 and 15.

perialism certainly played a role in the development of capitalist economies, but that systematic exploitation of labour at home long figured as its essence and driving force. In the classic Marxist model, accumulation primarily occurs on the labour market where ‘free’ labour has a weak position and capitalists can – and *have* to – accumulate profits, invest and innovate to not be wiped out by competitors. In this perspective, the path to capitalist development is through changes in production instigated by producers. I, however, also pointed out that in a flood of ‘neo-Marxist’ studies, discussing imperialism and later dependency and the logic of world-systems, accumulation via international exchange became so prominent and the rise of the West so much connected to exploitation abroad and the *negative* effects for underdeveloped countries of (unequal) exchange that several classical Marxists who, in line with the original Marx interpretation, like to focus on production (and innovation!), began to look at it as ‘neo-Smithian’ rather than Marxist<sup>291</sup>, this notwithstanding the fact that those approaches were clearly conceived from a left-wing perspective and elaborated on elements present in Marx’s work. In the bulk of that work, however, capitalist accumulation and innovation are considered essential for understanding development and growth in terms of increased total production. The classic Smithian growth model is based on different assumptions and focuses primarily on (*positive* effects of) exchange and only in the second instance on modes of production and their effects in terms of accumulation and innovation. It is time to briefly introduce the very influential growth models that base themselves on the main ideas of Adam Smith.

## 7. Specialisation and exchange

In Adam Smith’s original model, growth basically was a consequence of an increasing division of labour and specialisation, ideally occurring in a context of free and fair, or as it is called in economists’ jargon, ‘perfect competition’.<sup>292</sup> He illustrated the effect of specialisation on production in his rather fanciful example of the famous pin factory, where, according to him, the same number of workers made 240 or maybe even 4800 (!) times as many pins as they had been producing before the introduction of labour division.<sup>293</sup> Smith of course did not deny the fundamental importance of accumulation to the division of labour – in his words it was “previously necessary”<sup>294</sup> – in the sense that the money invested

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291 See Brenner, ‘Origins of capitalist development’.

292 For an explanation of this term see [http://en.wikipedia.org/wiki/Perfect\\_competition](http://en.wikipedia.org/wiki/Perfect_competition).

293 Smith, *Inquiry into the nature and causes*, 14–15.

294 Smith, *Inquiry into the nature and causes*, 277.

in productive entities like pin factories, had to come from somewhere. But where it actually came from is not discussed as a really major problem, presumably as Smith still primarily thought in terms of rather small 'pre-industrial' private enterprises that could be paid out of what entrepreneurs had saved or borrowed from family, banks and current profits. Those profits generated in exchange, still in Smith's view, would always tend to an 'average' or 'natural' level because of the fierce open competition that he considered essential for a well-functioning economy. This of course also implies that growth actually would not need enormous investments. Smith never really focused on technological innovation in production processes and was unaware of any industrial revolution take-off during his own lifetime. Nor did he apparently expect the enormous increases in scale and investment costs that would characterise progressing industrialisation. The increases in productivity he referred to in his example are quite impressive – and not very probable – but in his perception there were fairly tight limits to growth because even in a context of free and fair competition, transportation and information costs set fairly tight limits to the division of labour and the extent of the market, and because it would be 'eaten up' by increasing population. In brief, one might say that for Smith, division of labour and the working and extension of the market were more fundamental sources of growth than accumulation, investment and innovation: the latter, in as far as they developed to a higher level, were driven by exchange and competition.

For his neo-classical successors, the fundamental importance of technological innovation including those technological breakthroughs in transportation and communication that made the emergence of a really global mass market possible, was obvious and undeniable. That, however, did not mean their approach changed fundamentally. The market mechanism continued to be fundamental for them. In their view, innovation would be the 'logical' outcome of open i.e. free and fair competition. In such a situation, the alternative is basically to innovate or to perish. William Baumol, for example, describes capitalism as "the free-market innovation machine" that generates "a flow of innovation" and "the consequent rise of productivity and per capita gross domestic product".<sup>295</sup> Innovation seems guaranteed even if it is a kind of 'manna from heaven' whose exact provenance is not fully understood. Exchange relations in terms of open competition – domestically and internationally – so provide the main key to the 'riddle of growth'.

Smith wrote his *magnum opus* as an attack on the mercantile system because he thought that restrictions on fair and free trade in whatever form would be bad for the wealth of the nation, i.e. for the consumer and therefore needed to be abolished. Domestically his focus lay on all sorts of monopolies and rents, but

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295 Baumol, *Free-market innovation machine*, 2.

not surprisingly international trade, the favourite subject of so much mercantilist writing, also attracted his attention. Here, too, he plead for the abolishment not only of monopolies, but also tariffs, banns, subsidies and other interferences in free trade, although not, surprisingly enough, of the Navigations Acts as such.<sup>296</sup> It was David Ricardo who would become known as the real theorist of free international trade. According to most mainstream economists, his explanation of the ‘law’ of comparative advantage would for once and for all have proved that free trade has a positive effect on all parties involved. According to him, international trade should not be seen as a zero-sum game where one party’s gain is another party’s loss but – at least when the exchange is free and fair – one in which all parties can profit. The best policy therefore would be to put as few obstacles in the way of international exchange as possible. Free trade via efficient specialisation increases “the general mass of productions” and thus creates, as we would now say, greater wealth in the trading countries.<sup>297</sup> Ricardo’s logic became extremely influential and for most mainstream economists a kind of article of faith but also Paul Krugman describes it as “truly, madly, deeply difficult. But ... also utterly true, immensely sophisticated – and extremely relevant to the modern world.”<sup>298</sup> It provided an enormously influential perspective on growth also in the context of global economic history.<sup>299</sup> The wealth and poverty of nations like those of individual people in the end are supposed to depend on the right specialisation and competitiveness.

Ricardo’s law, however, never got generally accepted as a basis for actual trade policies and is not unproblematic as an explanation or predictor of developments in the real world where increasing returns are quite common, as Krugman is fully aware.<sup>300</sup> It, in any case, is ominous that Ricardo’s own example to illustrate his law, the trade between Great Britain and Portugal, does not seem to really confirm it. One cannot help to get the firm impression that the Portuguese for whatever reason profited less from their trade with the British than the British did from their trade with the Portuguese. As Adam Smith already pointed out, the British managed to collect several tens of thousands of pounds worth of gold weekly in their exchanges with the Portuguese, which they then sent back to London by packet boat.<sup>301</sup> In circles of economists the ‘theoretical’ debate about the value of openness versus protectionism never ceased. Friedrich List (1789–1846) is just one, albeit a fairly early one, example of the many scholars who also

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296 See note 1165.

297 See Ricardo, *On the principles of political economy, and taxation*, 152.

298 Paul Krugman <http://www.pkarchive.org/trade/ricardo.html> the last sentence.

299 See for a historical implementation of these ideas e.g. Bernstein, *Splendid exchange*.

300 See his text on increasing returns in a comparative advantage world <http://www.princeton.edu/~pkrugman/deardorff.pdf>

301 Smith, *Inquiry into the nature and causes*, 546–548.

saw clear *disadvantages* in free trade and favoured protectionism, in any case of ‘infant industries’.<sup>302</sup> Many others economists, some of them forgotten now but very influential in their times, had major problems with free trade. The debate never stopped even though in mainstream economics the conviction that freeing trade in principle was a good policy always tended to prevail.<sup>303</sup> What is more important for actual economic development, which is what really interests us here, of course is what happened in *practice*. There, protectionism was rule rather than the exception and strikingly enough very often that apparently did not hurt development and growth.<sup>304</sup> Economists and economic historians are still fiercely discussing the advantages and disadvantages of free and fair trade for development and growth and still disagree about whether the West rose because of free and fair trade or not – to my view a not very helpful, because completely ‘decontextualising’ way of looking at the matter.

Our brief explanation of the (neo)classical thinking about the growth-enhancing effects of exchange focused on exchange as a means of increasing production – and thus the possibility of accumulation – via reallocation. But trade can, of course, also have effects on productivity and accumulation as it stimulates or even necessitates innovation, as the quote by Baumol suggests. That is yet another reason to now start discussing innovation, according to most modern economists the most important motor of modern economic growth.

## 8. Innovation

For scholars who looked at growth from a more theoretical angle, it has always been obvious that in the long run ‘capital fundamentalism’ could not work and that growth could only be sustained when it was propelled by innovation. As far as I can see, innovation has universally come to be regarded as the essence of modern economic growth and Joseph Alois Schumpeter (1883–1950), as its prophet.<sup>305</sup> In his broad – and also somewhat vague – definition, innovation is the impulse that comes from “the new consumers’ goods, the new methods of production or transportation, the new markets, the new forms of industrial organization” or as he puts it one page later, “the new commodity, the new technology, the new source of supply, the new type of organization”.<sup>306</sup> Developing economies do not so much *grow*: they *evolve* in the sense that they do not

302 For an introduction into List’s ideas see Bachinger and Matis, *Entwicklungsdimensionen des Kapitalismus*, chapter 3.1

303 For the many intellectual debates about it, see Irwin, *Against the tide*.

304 Ha-joon Chang, *Kicking away the ladder*.

305 For the expression ‘prophet of innovation’, see McCraw, *Prophet of innovation*.

306 Schumpeter, *Capitalism, socialism and democracy*, 83 and 84.

produce more of the same but more *and* in particular more *new* things. Capitalism in his famous words is a “perennial gale of creative destruction.”<sup>307</sup> In that process saving certainly is important but its importance is completely overshadowed by the fact that development consists primarily in employing existing resources in a *different* way.<sup>308</sup>

What drives modern economies is not so much competition over who is most efficient in producing what is already known but over who is most effective in producing something new. Only by such permanent innovation can one escape the decreasing returns that in the end set in when one simply combines more of the existing factors of production in a similar way. This, of course, does not contradict the fact that for individual enterprises, being good at copying is at least as important as being innovative.<sup>309</sup> It is not by accident that in many publications modern economic growth is referred to as ‘Schumpeterian’ or more figuratively ‘Promethean’ as opposed to Solovian growth – created by increasing input and named after Robert Solow – and Smithian growth – created by extending markets and maximizing specialisation and of course named after Adam Smith. As a matter of fact, capital accumulation in the fiercely competitive setting that characterises *modern, developed* economies actually implies innovation as Solow already pointed out in his neoclassical growth model.<sup>310</sup> To maintain profitability, entrepreneurs will in any case buy capital goods that, compared to the old ones, produce more per unit of time. Otherwise, they would end up with just more of the same old product at, sooner or later, lower prices and lower profits for each additional unit. They will preferably make ‘new’ products, though, because in that way they have better chances to ‘monopolise’ a market for some time and make higher profits. That is actually the central point in Schumpeter’s analysis of capitalism. According to him, the real entrepreneur, the driving force behind development, does not try to make the best of the existing situation but wants to change it and create new markets rather than adapting to old ones. That, however, as Schumpeter adamantly insists, means that the dynamism of capitalism implies the existence of “monopolistic practices”<sup>311</sup>. In his words: “The introduction of new methods of production and new commodities is hardly conceivable with perfect – and perfectly prompt – competition from the start. And this means that the bulk of what we call economic progress is incompatible with it.”<sup>312</sup> This is an extremely important

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307 Schumpeter, *Capitalism, socialism and democracy*, 84.

308 Schumpeter, *Theory of economic development*, 68.

309 *The Economist* May 12, 2012, page 60.

310 Actually, the Australian economist Trevor Swan (1918–1989) came up with a quite similar model at about the same time.

311 Schumpeter, *Capitalism, socialism and democracy*, chapter 8.

312 Schumpeter, *Capitalism, socialism and democracy*, 105.

conclusion considering the free market-fetishism of many economists, but of course also one that many more mainstream economists, however much they are convinced of the importance of innovation, do not (wholeheartedly) support.

The impact of innovations and inventions that create those new markets can be very different. It has become common practice to distinguish between macro-inventions (that provide new paradigms, entirely new ways of thinking about production in the form of workable and improvable techniques) and micro-inventions (incremental extensions of knowledge in a field that is basically known). Such macro-inventions can be at the basis of macro-innovations, so-called general-purpose technologies; completely new general ways of carrying out production with effects that spread over on an entire economy. Examples would be the steam engine, the railway, electricity, the automobile, the computer or the internet. Such macro-innovations, in turn, entail lots of micro-innovations, i. e. incremental improvements. Without innovation the growth that occurred in the wealthiest parts of the world over roughly the last two centuries would simply be inexplicable as Deirdre McCloskey very convincingly shows. The developed parts of the world in her words have entered the ‘age of innovism’ or the ‘age of innovation’.<sup>313</sup>

Obviously, giving a different definition of the Great Divergence in terms of its proximate causes – by characterising it, for example, as the beginning of permanent innovation instead of the beginning of a phase of higher investment – has major implications for determining its ultimate causes. Explanations are always explanations in terms of descriptions, i. e. one explains what one thinks is *actually* going on. Many discussions about explanations in history in fact are discussions about interpretations. Gregory Clark succinctly and effectively illustrates this fundamental point that is also ignored far too often in debates on the Great Divergence. In his *Farewell to alms*, in a paragraph under the headline “Innovation explains all modern growth”, he explicitly claims: “...the efficiency growth from innovation is actually the true source of all growth, and it also explains growth of physical capital. The apparently independent contribution of physical capital to modern growth is illusory.”<sup>314</sup> Investment in capital goods, as a rule, will be investment in the best available capital goods. If that indeed is the case – which I think it is – that of course has its consequences for what can count as an explanation of the Great Divergence. Clark would certainly agree: “All we need explain [sic] is why in the millennia before 1800 there was in all societies – warlike, peaceful, monotheist, polytheist – such limited investment in the ex-

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313 See, for that argumentation, McCloskey, *Bourgeois dignity*, and for that claim *ibidem*, 76.

314 Clark, *Farewell to alms*, 204.

pansion of useful knowledge, and why this circumstance changed for the first time in Britain some time around 1800.”<sup>315</sup>

Clark’s claim may be rather extreme. But most economists do realise that growth, as we know it since industrialisation, has primarily become a matter of innovation as described by Schumpeter. They acknowledge that in trying to explain the increase of total production via the increase in input, one is left with that famous and enormous ‘residual’ that at least to a very substantial extent must be due to innovation, in particular new technologies. In the nineteenth century, growth may still have had a physical-capital using bias, but in the twentieth century the importance of human capital and of knowledge increased beyond recognition. The question, however, of what brings about all those new technologies has long been considered as ‘exogenous’ to economics, i.e. not something for the economist to explain or even not something the economist as economist *can* explain, indeed ‘mana from heaven’ as the expression went. The best one could do was to, for example, *measure* investment in research and development and use that as a kind of proxy for innovation and more or less take innovation for granted. That, of course, was and is a rather unsatisfactory approach for a social science not exactly known for its modesty. Unsurprisingly economists tried to remedy the situation and to ‘endogenise’ innovation as the application of (new) knowledge in their thinking about growth. That is how ‘new growth theory’ or ‘endogenous growth theory’ emerged in which the central role of knowledge is acknowledged and economists try to figure out where it comes from and how it can be ‘produced’ and ‘applied’.<sup>316</sup> The focus on knowledge is not confined to new growth theory. People who are not considered new-growth economists such as Douglass North also recognize its fundamental role in modern economic growth as shows in the following quotations: “... the driving force in the modern world is the growth in the stock of knowledge” and, “The rise of the Western world was ultimately a consequence of the kinds of skills and knowledge ... that were deemed valuable to the political and economic organization of the medieval [sic!] Western world.”<sup>317</sup>

If the essence of growth and of the ‘new economy’ is (applied) knowledge, so much so that many people all it ‘the knowledge economy’, then the kind of product that knowledge actually is becomes a paramount question. It turns out to be something special. To begin with, it is a non-rival good. It consists of ideas, not things. It therefore has *increasing* returns, which means *sinking costs* per

315 Clark, *Farewell to alms*, 207.

316 Texts that explained new growth theory to me were Cortright, ‘New growth theory, technology and learning; Helpman, *Mystery of economic growth* and in particular Warsh, *Knowledge and the wealth of nations*. I also profited from reading Beinhocker, *Origin of wealth*, although that author has a somewhat different approach and terminology.

317 North, *Understanding the process of economic change*, 44 and 63.

entity produced with it. An idea can be used simultaneously by a number of people without any diminution of its usefulness, and normally without much or even any compensation. The cost of inventing a new technology is independent of the number of people who will later use it. The increasing returns to knowledge contrast with the decreasing returns associated with land, labour and capital. The fact that knowledge is so fundamental for modern growth has at least two major consequences: if knowledge is or has indeed become the prime motor of growth, and if it indeed has increasing returns, economics would no longer have to be the 'dismal science' obsessed with scarcity. Accumulating more of it would mean faster growth, in particular when technological progress no longer, as in a Malthusian world, leads to increased population. And it then of course becomes essential to know how one can increase the amount of available and useful knowledge and turn innovation into something endogenous and 'normal'.

In that context, one has to consider another characteristic that makes knowledge special: much of it in principle can be fairly easily and cheaply copied. It has a tendency to spill over. It is partly excludable, which means that access to it can to some extent be controlled i.e. monopolized, at least in principle with intellectual property rights, and in practice in the form of 'tacit knowledge' or 'trade secrets'. But still, one can actually easily lose it. The public benefits of research and development tend to be fundamentally higher than the private benefits they generate: new inventions diffuse so that copycats and competitors can benefit. This 'non-appropriability' can easily make investors hesitant to invest in it because, as with investments in infrastructure, they will not be able to capture the return on their investment. Fixed costs of new technology, moreover, can be very high for private investors. This suggests that there is an important role to play for government in any case in education and according to many new growth theorists also in research and development, although in that respect opinions are divided. On the one hand, there are scholars such as David Warsh who point out that Western governments understood that it was in their interest to subsidise the production and diffusion of knowledge, endorsing Bacon's motto that knowledge is power. In his view, the nations that did best were those that did something fundamental about education. Because of the public character of knowledge, so he claims, public policies are necessary to support the production and diffusion of ideas. Human and technological resources require a degree of active management by the state.<sup>318</sup> Tyler Cowen, who is afraid innovation will peter out, also thinks governments should help and

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318 Warsh, *Knowledge and the wealth of nations*, 'Conclusion'. I paraphrase comments on pages 405–409.

hopes they could do so by raising the social status of scientists.<sup>319</sup> As compared to their enormous importance for the modern economy and for most people's wealth, their status and remuneration are indeed striking, that is, strikingly low.

Other scholars are far less convinced, to put it mildly, that governments in particular when it comes to research and development can play an important positive role in promoting knowledge. For Ridley, development is a bottom-up process, technology-driven by competition and not a top-down, collective and planned process, propelled by scientific research. All research for him is a matter of openness, exchange, competition and synergy. Innovation and growth are normal in an open, competitive context. With the extension of the market for ideas, fertile specialisation can emerge and 'the collective brain' will grow accordingly.<sup>320</sup> The historian of science Terence Kealey is convinced that the free market has proved by far the most successful institution in promoting science, innovation, wealth and happiness. State-funded research in his view has always been a waste of money, energy and resources.<sup>321</sup> For him, government by nature is a monopoly and "Humanity's great battle over the last 10,000 years has been the battle against monopoly." Matt Ridley agrees.<sup>322</sup> Robert Wright, to give one final example, never refers to government and only to competition and synergy in his book about the 'non zero-sumness' of the development of knowledge. All these ideas – and that of course is the reason to refer to them – might be helpful in focusing attention to the role of knowledge in the Great Divergence and to figure out whether Great Britain had an advantage in this respect. What is striking is how much we hear about competition as a motor for innovation and how little about co-operation, which, as it seems to me, is fundamental when it comes to creating synergy and innovation.<sup>323</sup>

That, of course, is also the case with ideas that economists have developed regarding what could make innovation *stop* or under what conditions it would not even emerge to begin with. Schumpeter himself foresaw an end to capitalist innovation because of what he described as the obsolescence of the entrepreneurial function and the destruction of capitalism's protective strata and institutional framework. In his view, capitalism is confronted with an increasingly hostile environment for capitalists.<sup>324</sup> It in this context, is interesting that, according to William Baumol, large firms basically take care of the improvement of already existing technology, whereas it is small entrepreneurs who currently

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319 Cowen, *Great Stagnation*, 83–86.

320 Ridley, *Rational optimist*, chapter 8, in particular pages 275–277.

321 Kealey, *Economic laws of scientific research* and Wright, *Nonzero*.

322 The quote is from Kealey, *Sex, science and profits*. Matt Ridley cites him approvingly in his *Rational optimist*, 396. For his economic laws of scientific research, see the previous note.

323 See the comments Dudley as I synthesize them on pages 225–226.

324 Schumpeter, *Capitalism, socialism and democracy*, chapters XII and XIII.

produce most of the 'real' innovations. Large corporations are not likely to take risk and they tend to be run by managers, not entrepreneurs. Although there are always exceptions, the degree of the division between those two approaches in his view is striking. It would then be the combination of corporate R&D and entrepreneurial activity by more or less independent individuals that keeps the economy going ahead.<sup>325</sup> Economists may well be fond of innovation in their theories, but many people definitely are not in practice. What about opposition to innovation? Acemoglu and Robinson are quite adamant about the importance of that opposition: "The fear of creative destruction is the main reason why there was no sustained increase in living standards between the Neolithic and Industrial revolutions."<sup>326</sup> They turn this fear into a major theme in their highly acclaimed latest book and focus on opposition to innovation by elites, but as a matter of fact such opposition is far more widespread.<sup>327</sup> The very pertinent, more analytical approach of Joel Mokyr in this respect would deserve more attention and follow-up.<sup>328</sup>

What about the possibility that innovation per se stops or in any case no longer brings about higher productivity? In his fiercely debated *The Great Stagnation*, which appeared in print as a book in 2011, Tyler Cowen claimed that the United States at the time was running out of innovations and low-hanging fruits and that the latest and most sensational innovations brought only very slight benefits in terms of increasing productivity. Relative to national income or expenditures on education, there is now less innovation in the United States than there was in the nineteenth century. It was easier for the average person to produce an important innovation in the nineteenth than in the twentieth century. According to him, the rate of innovation in terms of economic impact has been slowing down.<sup>329</sup> The most advanced economies in the world have overwhelmingly become service economies and in his view it is anything but obvious that productivity increases in the service sector are comparable to those in other sectors. Is the 'growth' we see in sectors such as telecom, internet and finance really growth, i. e. increasing production or only a matter of higher wages?<sup>330</sup> His

325 William Baumol, Education for innovation: entrepreneurial breakthroughs vs. corporate incremental improvements. National Bureau of Economic Research. Working Paper 8651. <http://www.nber.org/papers/w10578>. (June 2004).

326 Acemoglu and Robinson, *Why nations fail*, 183.

327 See the comments in my review in *Tijdschrift voor Sociale en Economische Geschiedenis* and on, [http://technologygovernance.eu/eng/the\\_core\\_faculty/working\\_papers/](http://technologygovernance.eu/eng/the_core_faculty/working_papers/)

328 Mokyr, 'Innovation and its enemies', 61–91.

329 Cowen, *Great Stagnation*. The claims I make here are quite explicitly made in the text there on pages 18–20. See also *The Economist* January 12<sup>th</sup> -18<sup>th</sup> 2013: The great innovation debate, page 9 and pages 19–22.

330 In the Netherlands, my home country, between 2000 and 2010 somewhat over half a million new jobs were created, 385,000 of them in the health sector. In 2010 there were 1.4 million

comments remind of ‘Baumol’s cost disease’ named after William Baumol, who, together with William Bowen, discussed the causes and consequences of the phenomenon that in response to rising salaries in jobs that *did* experience labour productivity growth, salaries of jobs that *did not* experience such a productivity growth nevertheless also rise. In that context, particular reference is made to the situation in (public) services in which labour productivity hardly grows, if at all, as they are very labour-intensive and provide little opportunity for technological innovation but nevertheless have to pay competitive salaries. With the increasing relative importance of the service sector for modern economies, this can clearly have a dampening effect on overall growth and lead to steadily increasing taxation to find the money to pay all those working in the service sector.<sup>331</sup> In any case, Cowen’s comments stimulate discussion on whether innovation actually will always continue and, more importantly, whether it will always be really productive. What innovations matter? How can innovation stop or peter out? And, what I believe is very important for debates on the Great Divergence: what is the economic importance of innovations in services and how do we measure productivity there?

My comments in the previous paragraph focused on innovation but similar questions of course might be asked with regard to inventions. There are several well-known examples of societies that were very inventive but where for one reason or another that inventive fervour disappeared or at least sharply diminished; think e.g. of China after the Song, of the Arabic-Islamic world after the twelfth century, of Italy after the Renaissance, or of the Dutch Republic after its Golden Age. There is even a law (or rather an empirical generalization) referring to this phenomenon, to wit Cardwell’s Law, named after the historian of technology Donald Cardwell: “No nation has been (technologically) very creative for more than a historically short period.”<sup>332</sup> What causes such efflorescences of creativity and, consequently, their withering away? Why do there tend to be shifts in the places that are most inventive? Is it in this respect an advantage to be an empire, with all the advantages of economies of size, scale and scope or rather to be part of a state-system, with all the advantages of difference, diversity and competition?

Such questions bring us to the way in which economies and the societies of

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full-time jobs in that sector, 38 per cent more than 10 years ago. In trade there were 1.5 million jobs in 2010. Government employed about 1.1 million people in 2010, some 100,000 more than it did in 2000. That increase took place in particular in education, but also in bureaucracy. The increase in the number of jobs in the private sector over the period was negligible. In the 1990s, the private sector had still been the main job creator in the Dutch economy with 1.3 million new jobs. In the first ten years of this century that number amounted to only 30,000.

331 For Baumol’s cost disease see [http://en.wikipedia.org/wiki/Baumol%27\\_s\\_cost\\_disease](http://en.wikipedia.org/wiki/Baumol%27_s_cost_disease)

332 Cardwell, *Turning points in Western technology*, 210.

which they are part are structured. To organise economic life as efficiently as possible and to turn innovation into something permanent and normal or at least something that is not random and *ad hoc*, certain societal arrangements, i. e. certain institutions are required. Without the ‘right’ institutional setting, the ‘right’ allocation, combination and development of factors will not be possible or at least easily be endangered. If land, labour, capital and knowledge are the proximate causes of growth, institutions must be amongst its ultimate causes.

## 9. Institutions: property rights, markets and states

It has become very fashionable for economists to refer to ‘institutions’, although it is not entirely clear what the term means – indeed, this ambiguity may in part explain why it is so fashionable. Many of them, for example Douglass North and Daron Acemoglu (and their co-authors) or Avner Greif and Dani Rodrik, who are amongst the most influential economists at the moment, explicitly regard them as *a* or even *the* fundamental cause of long-run economic growth.<sup>333</sup> There are many, differing definitions. Avner Greif describes an institution as “a system of rules, beliefs, norms, and organizations that together generate a regularity of (social) behaviour”.<sup>334</sup> In all likelihood, the definition that is used most – probably because it was provided by a Nobel-Prize winning institutional economist, Douglass North – is this one: “Institutions are the rules of the game in a society, or, more formally, the humanly devised constraints that shape human interaction. ... In consequence they structure incentives in human exchange, whether political, social or economic.”<sup>335</sup> Geoffrey Hodgson describes

333 The most influential institutionalist economist /economic historian at the moment might well be Douglass North. It is not much use to list his entire oeuvre here, so I only refer to his latest book at the moment, written with his colleagues Wallis and Weingast, *Violence and social orders*. I further refer to: Acemoglu, Johnson, and Robinson, ‘Institutions as a fundamental cause of long-run growth’; *ibidem*, ‘Colonial origins of comparative development’; *ibidem*, ‘Reversal of fortune’ and *ibidem*, ‘Rise of Europe’; Acemoglu and Robinson, *Why nations fail* a recent monograph in which the authors time and again refer to the decisive importance of institutions for growth; Greif, *Institutions and the path to the modern economy*, to only refer to his latest major publication; Hall and Jones, ‘Why do some countries produce so much more output per worker than others?’; Helpman, *Mystery of economic growth*; Helpman, *Institutions and economic performance*: Olson, ‘Big bills left on the sidewalk’; Rodrik, *One economics, many recipes*; Rodrik, Subramanian, Trebbi, ‘Institutions rule’, originally published as NBER Working Paper Series 9305, 2002.

334 Greif, *Institutions and the path to the modern economy*, 30.

335 North, *Institutions, institutional change and economic performance*, 3. As indicated in the introduction, this text is not an encyclopedic historical overview and it has no intention to show the entire intellectual itinerary of scholars it refers to. In this case though it has to be pointed out that North’s points of view have gone through quite radical changes. In his first major book, *The rise of the Western world*, that he wrote with Robert Thomas, his approach

institutions as follows: “Institutions are durable systems of established and embedded social rules that structure social interactions.”<sup>336</sup> He emphasizes that ‘structuring’ in this context means ‘constraining’ as well as ‘enabling’, which to my mind implies a fundamental and necessary broadening of the concept. Institutions predispose people to do behave in a certain way in certain circumstances. When I use the term in this text I will, unless otherwise indicated, do so in his sense. North’s conceptualization is too one-sidedly focused on the constraining element of institutions and neglects their enabling function, which in my view is at least as important when it comes to explaining actual growth. Property rights, for example, on the one hand indeed constrain other people from taking what belongs to an owner but on the other hand they enable that owner to do what he wants to do with what is his. Greif’s phrase ‘regularity of behaviour’ in principle can include structural constraints as well as well as structured agency, just as it in principle might include both formal and informal aspects, which North explicitly distinguishes, referring, which I think is quite helpful, to two kinds of constraints, those in terms of formal rules (laws, constitutions, rules) and informal constraints (conventions, codes of conduct, norms of behaviour) and the effectiveness of their enforcement. Enforcement of the rules is carried out either by third parties (law enforcement, social ostracism), second parties (retaliation) or the first party (self-imposed codes of conduct).<sup>337</sup> North distinguishes institutions, the rules of the game, from organisations, the players, although in his view organisations also are institutions, be it of a specific kind. Those organisations “consist of specific groups of individuals pursuing a mix of common and individual goals through partially coordinated behaviour.”<sup>338</sup> Whatever exact definition one starts from, it is only

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basically still was neoclassical. In *Institutions, institutional change and economic performance*, he put more emphasis on persistent inefficiency, uncertainty, bounded rationality, social norms, and institutional change. Then his focus increasingly turned to ‘real’ institutionalist topics like the role of transactions cost and formal institutions. Next there was a phase in his career when he very much emphasized the role of culture and ‘mental models’ as the ultimate basis of economic order, for example in his *Understanding the process of economic growth*. In his latest publications e.g. *Violence and social orders*, formal institutions like the state, law and rulings, and violence hold center stage. One now no longer finds explicit references to transactions costs whereas the role of culture and mental models has become far less prominent. For North’s intellectual itinerary and his major and changes of opinion, see Brownlow, ‘Structure and change’; Ménard and Shirley, ‘The contribution of Douglass North to new institutional economics’ to be published in: Galiani and Sened, *Economic institutions, rights, growth, and sustainability* but already in draft available at [http://hal.archives-ouvertes.fr/docs/00/62/42/97/PDF/2011-Ménard\\_Shirley\\_North\\_and\\_NIE-CUP.pdf](http://hal.archives-ouvertes.fr/docs/00/62/42/97/PDF/2011-Ménard_Shirley_North_and_NIE-CUP.pdf), and Milonakis and Fine, ‘Douglass North’s re-making of economic history’.

336 Hodgson, ‘Institutions and economic development’, 86.

337 North, ‘Prologue’, in particular page 6.

338 North, Wallis and Weingast, *Violence and social orders*, 15.

logical to regard the state as an institution or rather as the super-institution that, even in “minimalistic” interpretations of its tasks, functions as an/the arena of collective action, with government providing infrastructure, formulating the rules and acting as referee when it comes to applying them. Greif, North and Hodgson all consider institutions as a kind of outgrowth or ‘coagulation’ of the dominant culture, which means that the rules of the game in the last instance depend on the values and interpretations of the players. I, personally, endorse the following claims by Claudia Williamson that argue against a strict distinction between formal and informal institutions (and thus between institutions and culture) and that emphasize the importance of culture:

The findings suggest that the presence of informal institutions is a strong determinant of development. In contrast, formal institutions are only successful when embedded in informal constraints, and codifying informal rules can lead to negative unintended consequences. This suggests that institutions cannot be easily transplanted in order to spur economic development. ... My findings suggest that the success of formal institutions depends on the ability to map onto informal rules.<sup>339</sup>

But, and here I would agree with Hodgson, here too agency and structure are interacting:

... institutions are simultaneously both objective structures ‘out there’ and subjective springs of human agency ‘in the human head’. Actor and structure, although distinct, are connected in a circle of mutual interaction and interdependence. However, the relationship is not symmetrical: structures and institutions typically precede individuals. ... We are all born into a world of pre-existing institutions, bestowed by history.<sup>340</sup>

When it comes to this (inter-)relation between agency and structure, culture and institutions, however, not all institutionalists agree.<sup>341</sup>

That institutions matter is, to me at least, is quite obvious. How could the “durable systems of established and embedded social rules that structure social interactions” *not* have a fundamental impact on the economy? Unsurprisingly though, opinions here are also divided in sense that there are several quite different views when it comes to their relative importance and their relative ‘autonomy’. Several economists, the best-known amongst them Jeffrey Sachs, do not so much want to claim that institutions are unimportant as to demonstrate that at times other factors, such as ‘geography’ in their case, might predominate. We will see that several social scientists such as Daron Acemoglu, Simon Johnson and James Robinson as well as economic historians such as Stanley Engerman

339 Williamson, ‘Dignity and development’. The quotations are from the Abstract and the Conclusion.

340 Hodgson, ‘Institutions and economic development’, 92.

341 For further information see pages 141 ff.

and Ken Sokoloff with different points of emphasis want to accentuate the connections and interactions that might exist between institutions and geography, even though for them too, in the end, institutions rule. Others would claim that in the end culture or knowledge would be fundamental. We will encounter examples of this line of thinking later on in the book.<sup>342</sup> The popularity of institutionalist approaches clearly does not mean that all economists have made an ‘institutionalist turn’. Many of them take the existence of markets and supply and demand mechanisms for granted and focus on proximate causes in their explanations. Jeffrey Williamson, for example, to whom we already referred, tries to provide an explanation of the Great Divergence in which he only refers to proximate causes.<sup>343</sup> Andre Gunder Frank seems to think likewise and as usual is quite outspoken. This is what he wrote in his *ReOrient*: “... a major thesis of this book is precisely that institutions are *not* so much determinant of, as they are derivative from, the economic process and its exigencies, which are only institutionally instrumentalized rather than determined.”<sup>344</sup> He too and all those who think likewise, apparently assume the existence of markets and supply and demand ‘mechanisms’ as fairly natural. But as Hodgson rightly emphasises, the market is not a ‘spontaneous’, ‘natural’ order, but a social institution that is created and has to be maintained. It cannot work without certain institutional (pre-)arrangements. Any attempt to remove *all* constraints and regulations from a market system would be dysfunctional.<sup>345</sup>

‘Classic’ Marxists would defend the thesis that institutions *in the end* depend on technology. That, for example, is the case in William Shaw’s book on Marx’s theory of history in which he claims that, according to Marx, the ‘productive forces’ determine the ‘relations of production’, and, again basing himself on his interpretation of Marx’s oeuvre, defends a certain technological determinism.<sup>346</sup> Douglas Allen, in his book on the institutional revolution, thinks along similar lines, claiming that technological change was the motor of industrialisation in Britain and that institutions had to adapt. That took time and explains why that ‘revolution’ actually progressed so slowly and took so long. He refers to “...the

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342 From the perspective of a global historian it is striking that institutionalists tend to almost exclusively focus on situation *in* states, in the sense of their internal institutions and organization. There is hardly any attention to international contexts and how those impinge on domestic affairs. The recent books by Acemoglu and Robinson and by North and his co-authors are clear examples of that exclusive focus.

343 See his *Trade and poverty*.

344 Frank, *ReOrient*, 206. Much, of course, depends on what he means by the expression “the economic process and its exigencies”. I guess he means that economic developments can be explained entirely according to the logic of economic variables and their proximate causation.

345 Hodgson, ‘Institutions and economic development’, 89–91.

346 Shaw, *Marx’s theory of history*.

time it takes institutions to catch up to technological advances and the subsequent spill-overs that result from institutional change” and to a mismatch between technological breakthroughs and the existing institutional framework that acted “as a brake” on economic growth.<sup>347</sup> Andre Gunder Frank, as indicated earlier on, thinks likewise. But that of course in the end does not rob institutions of their major importance. If they do not ‘adapt’, technological innovation cannot have its optimal effect. New growth theory as preached by Oded Galor does not consider institutions to be really independent variables either.<sup>348</sup> Julian Simon, who thinks they in the very long run are not very important, has a similar view.<sup>349</sup> Erik Reinert, to give one last example, is fairly reticent about giving institutions too much ‘independence’ for similar reasons: “...institutions are moulded and determined by the mode of production more than the other way around, and it is not really constructive to attempt to reverse the arrows of causality.”<sup>350</sup>

The really interesting question of course is: *how* exactly do *what* institutions matter and, most important of all for the topic discussed in this book: what are *good* institutions, i.e. institutions promoting or at least facilitating modern economic growth? Surprisingly enough, even amongst self-professed institutionalist economists, explicit statements in this respect are not easy to find. North, Wallis and Weingast do explicitly deal with the question of good institutions in their *Violence and social orders* of 2009. In their view, modern economic growth can only prevail in an institutional setting that they characterise as an ‘open access order’ and that has the following specific characteristics:

A widely held set of beliefs about the inclusion of and equality for all citizens

Entry into economic, political, religious and educational activities without restraint  
Support for organizational forms in each activity that is open to all (for example, contract enforcement)

Rule of law enforced impartially for all citizens.

Impersonal exchange<sup>351</sup>

347 These quotations are from Allen, *Institutional revolution*, 221 – 222.

348 See the interview with him by Brian Snowdon, ‘Towards a unified theory of economic growth’.

349 Simon, *Great Breakthrough*, chapter 4.

350 Reinert, *How rich countries got rich*, 223.

351 North, Wallis and Weingast, *Violence and social orders*, 114. The term “open access order’-societies’ in my view is just an abstract term to refer to modern Western capitalist democracies, or rather even more narrowly, capitalist democracies of the – idealized! – Anglo-Saxon variety. Societies of the open-access-order type are characterized as developed democracies, with perpetually lived organizations including the state, diverse elite groups, impersonal interaction, a homogenous belief system, equal property rights, an encom-

For a society to enter that stage of impersonal and standardised treatment and leave that of a ‘natural state’ of differences and privileges for the elites behind, three ‘doorstep conditions’ must be met:

A rule of law for elites must be introduced

There must exist perpetual forms of organization in public and private spheres

There must exist consolidated political control of the military.<sup>352</sup>

In his previous work North had always put a heavy and explicit emphasis on property rights. He still does, but his approach seems to have clearly broadened. We also find that emphasis on property rights in Hernando De Soto’s bestseller of 2000, *The mystery of capital*, a book that in particular focused on the insufficient definition of property rights in non-capitalist countries.<sup>353</sup>

In the many extremely influential co-authored publications of Daron Acemoglu, Simon Johnson and James Robinson, property rights, markets and growth, always go together. When property rights are well defined and protected, some kind of representation exists for the propertied groups, markets are functioning, and the state promotes their functioning, economic growth will take care of itself; this seems to, in a nutshell, be their credo. They permanently insist that institutions are a fundamental cause of long-run growth but surprisingly enough as yet never got very concrete when it comes to what institutions and what policies they exactly they were talking about: “... we think of good economic institutions as those that provide security of property rights and relatively equal access to economic resources to a broad cross-section of society.”<sup>354</sup> In their *Why nations fail*, however, Daron Acemoglu and James Robinson have become far more explicit though not much more concrete. It is fairly obvious what they consider *not* the way to become rich for a country. In their view, the main cause for the poverty of so many countries is that they are badly governed by rent-seeking elites that back up extractive institutions.<sup>355</sup> The point of departure in their analysis is the distinction between political and economic institutions that are inclusive and political and economic institutions that are extractive, concepts they already used in earlier publications but that in this book have been made the very cornerstones of their analysis. The former, so they repeat over and over again, create prosperity. Without inclusive institutions that can only emerge in a centralised state that provides order and enforces rules and

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passing rule of law, high and enduring provision of public goods, a very high quantity and complexity of organizations, high wealth, and a low level of violence.

352 North, Wallis and Weingast, *Violence and social orders*, chapter 5. The chances that these conditions would be met in Qing China clearly were extremely slight.

353 De Soto, *Mystery of capital*.

354 Acemoglu, Johnson and Robinson, ‘Institutions as a fundamental cause of long-run growth’, 395.

355 See e.g. their *Why nations fail*.

that first evolved in the West, sustainable growth is impossible. Extractive institutions – though they do not make all growth impossible – *in the long run* are incompatible with modern economic growth because such growth implies permanent innovation, something elites in extractive societies fear and will try to obstruct. The absence of growth also clearly is a matter of (having the wrong) institutions.

So one would expect ample attention to the question what exactly inclusive or extractive institutions are and how they can be defined in a way that lends itself to solid empirical research. Surprisingly enough, however, their description is quite open and general. They never give an explicit, operational, definition. Several elements, though, clearly are essential: the enforcement of property rights and the existence of representative institutions that treat all people equally enable as many of them as possible to participate on their own terms in economic and political life and share power and wealth amongst wide segments of society; and, finally, policies that combat rent seeking. In societies with inclusive institutions, power and wealth are less concentrated than in societies with exclusive institutions where the political system is such that it tries to keep the rich and extracting elites in power. Inclusive institutions tend to lead to virtuous circles of increasing inclusiveness and rising wealth as they create a level playing field and so enable a society to mobilise all its talents. Extractive institutions tend to lead to vicious circles, as they tend to enrich small elites who can then shore up their extractive power, which exacerbates political strife over the spoils of extraction. Extractive economies can succeed for a time, but their growth will not sustain as too many people are shut out and as there will not be enough innovation. Sustained economic growth requires innovation, which implies creative destruction. Those who profit from the existing extractive system will as a rule not allow changes that might jeopardize their position.<sup>356</sup> Acemoglu and Robinson clearly assume that inequality is bad for growth and development, a claim that is less obvious and more contested amongst economists than they suggest. We will briefly comment on the connections between inequality and the Great Divergence later on.

What is striking in the work of North and co-authors as well as that of Acemoglu and co-authors is that they start from the unspoken and never-discussed assumption that the market-mechanism assures economic growth. They therefore *must* assume that good institutions are those that allow the market to function optimally or if need be make it work optimally. In the modern world that means, first and foremost, a specific kind of state with specific state policies. Sustained growth in the view of North, Wallis and Weingast as presented in their common book is only possible in a society with private property and capitalist

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356 Acemoglu and Robinson, *Why nations fail*.

decentralized assignment of production factors. Their ‘metanarrative’, just like the one presented in Acemoglu’s and Robinson’s *Why nations fail*, is a stylized generalization of a very specific, positive interpretation of the modern history of Great Britain and the USA. Other routes to development are never discussed in depth or even suggested, even though many societies that have crossed the 20,000 dollars real income per capita threshold – in their view an indication that a country has entered the open-access stage – have very different histories and structures.<sup>357</sup>

Although Acemoglu and Robinson in particular are convinced that politics is extremely important, they actually have a quite restrictive view on it. They do not believe that the state should do that much to actively promote growth. It suffices when government policies support and uphold the market, which as indicated in their view implies that they involve as many citizens as possible as active participants in public and economic life, give them a fair share of what is produced and provide them with the right incentives. They clearly do *not* mean that the state itself should act as an active party on that market, regulate it or even actively implement developmental policies of its own.

Dani Rodrik dedicates an entire chapter of his *One economics, many recipes* to institutions for high-quality growth which he all characterises as “market supporting institutions.”<sup>358</sup> He refers to property rights, not so much in terms of actual ownership but *control*; to regulatory institutions (that redress or prevent market failures), institutions for macroeconomic stabilisation (that implement Keynesian anti-cyclical policies), institutions for social insurance, and institutions for conflict management. Adding all this up, one gets a fairly extensive package of government tasks, none of which, however, seems to imply an *active* and *direct* policy of growth. What institutions would be best suited to implement such policies remains rather open. Elsewhere in his book he points out that there is “no unique correspondence between the *functions* that good institutions perform and the *form* that such institutions take.”<sup>359</sup> Colin White, in his *Understanding economic performance*, dedicates an entire chapter (chapter 8) to the institutional setting of growth, focusing on the role of government, market and civil society. On page 159 he suggests that the relationship between institutions and economic performance may well be “kaleidoscopic” and does not exclude the possibility that Rick Szostak was right in claiming that the key difference in terms of the prospects for economic growth is between “countries that can manage / enforce any institutions well, and countries that can manage

357 For those countries see *Violence and social orders*, 4.

358 Rodrik, *One economics, many recipes*, chapter five. For the expression “market-supporting institutions”, see page 156. In my view, only very rich and developed states can afford the policies and institutions Rodrik recommends. See also chapter 6 of his book.

359 Rodrik, *One economics, many recipes*, 15. It is all, in his terms “context specific”!

/enforce no economic institutions well”.<sup>360</sup> Sokoloff and Engerman, in their *Economic development in the Americas since 1500*, devote an entire chapter (chapter 10: ‘Institutional and non-institutional explanations of economic development’) and the ‘Epilogue: ‘Institutions in political and economic development’, to the question of what good institutions would look like. Their main thesis is:

Institutions matter, but our thinking of how they matter recognizes that they are profoundly influenced by the political and economic environment, and that if any aspect of institutions is crucial for growth, it may be that institutions will change over time as circumstances change.<sup>361</sup>

In their view, “no single institutional solution is crucial”. Societies with good institutions for growth are those with “greater institutional flexibility”, where institutions “make it easier for private or public agents to take advantage of new opportunities” and have a “capability for adaptation”<sup>362</sup> Joel Mokyr, to give one last example, in an entirely different context comes to a similar conclusion. What one needs, is “institutional agility”.<sup>363</sup> Britain had quite informal – and flexible – institutions that were very adequate and helpful during its first industrialisation but were far less suited to enable it to hold primacy during the so-called ‘second industrial revolution’. The idea of ‘creative destruction’ should be extended to the realm of institutions. Those too have to be innovated permanently.

There are numerous institutions that might, one way or another, have an impact on economic development and that might have played a role in the emergence of the Great Divergence. There have been numerous debates in this respect. Debates for example on what kind of organisation of economic life would be preferable in terms of efficiency: a formal one or an informal one? In classic stories about modernisation, the emphasis has always been on the advantages of formal structures. For Max Weber and many other theorists, rationalisation, which implies formalisation, was at the very heart of economic modernisation. We have seen that formalisation also figures quite prominently in the definition that North, Wallis and Weingast give of open-access societies. They clearly consider impersonal and rational institutions, organisations and procedures as positive for development and growth. Wong and Rosenthal in

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360 White, *Understanding economic development*, 159. He quotes Rick Szostak from an unpublished paper from 2006 called ‘A growth agenda for economic history’.

361 See for this quotation page 318 of that book.

362 See for these quotations, Engerman and Sokoloff, *Economic development in the Americas since 1500*, 326 – 327, 340, 325 and 326.

363 Mokyr, *Enlightened economy*, 486.

contrast are not so sure that formal institutions would be more efficient than informal ones.<sup>364</sup>

Many studies have pointed at the positive impact of having a highly developed civil society for economic development. The existence of such a civil society has often been presented as ‘typically Western’ and as an important explanation of its economic success. The widely acclaimed study by Robert Putnam, with Robert Leonardi and Raffaella Nanetti, *Making democracy work*, in which they compare the flourishing civil society of Northern Italy and its wealth with the lack of ‘civility’ of Southern Italy and its relative poverty, is regarded by many as a clear proof – in the words of Aaron Wildavski – that it is the “capacity for self-organization that makes a people richer and freer, and their governments more effective”.<sup>365</sup> A flourishing civil society is an indicator of the existence of trust as a form of social capital, which tends to be regarded as positive for economic development, amongst other reasons because it lowers transactions costs.<sup>366</sup> Acemoglu and Robinson, with their emphasis on inclusive institutions and broad participation, clearly think along the same lines. But here too, it all depends on the context. Mancur Olson (1932–1998), a very influential political scientist, amongst other things, has become famous for his thesis about ‘institutional sclerosis’ that suggests, that societies with greater numbers of interest groups (And how many collectives do not sooner or later turn into *interest* groups?) grow more slowly, accumulate less capital, and experience reduced productivity growth relative to others.<sup>367</sup> The idea that a well developed ‘civil society would be a necessary condition for economic development sounds quite plausible and has found ample support from scholars who think that in this respect the West had an advantage and therefore developed much faster.

Considering these assumptions it need not come as a surprise that it has become almost a truism amongst mainstream economists and in particular amongst institutionalists that ‘despotism’ is incompatible with ‘development’ and that representation, the sharing of power (and wealth!), and the inclusion of as many citizens as possible, amounting to, in the end, democracy, are good for development. Rodrik calls democracy “a metainstitution for building good institutions”.<sup>368</sup> In practice, however, the connection between democracy and growth is fairly complex. Countries that were democracies *during take-off* in any

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364 See the introduction and chapter 3 of their *Before and beyond divergence*.

365 Putnam, *Making democracy work*. The claim by Wildavski is on the flap of this book.

366 For a couple of well-known publications dealing with the subject of trust, see note 1250.

367 See for that thesis e. g. his *Rise and decline of nations*. North, Wallis and Weingast do not endorse Olson’s view when it comes to institutional sclerosis. They think that in open-access-order societies as they define them, rent-seeking interest groups cannot play their pernicious games. See the references to Olson in their *Violence and social orders*.

368 Rodrik, *One economics, many recipes*, 8.

case are extremely rare. There certainly is no empirical backing for the thesis that a country has to be democratic to be able to take off, rather the contrary.<sup>369</sup> Nor is being democratic a guarantee of sustained growth once countries have taken off. Let me just quote the abstract of an article by Robert Barro, the major expert in the field, on the connection between democracy and growth:

Growth and democracy (subjective indexes of political freedom) are analysed for a panel of about 100 countries from 1960 to 1990. The favourable effects on growth include maintenance of the rule of law, free markets, small government consumption, and high human capital. Once these kinds of variables and the initial level of real per capita GDP are held constant, the overall effect of democracy on growth is weakly negative. There is a suggestion of a nonlinear relationship in which more democracy enhances growth at low levels of political freedom but depresses growth when a moderate level has already been attained. Improvements in the standard of living – measured by GDP, health status, and education – substantially raise the probability that political freedoms will grow. These results allow predictions about which countries will become more or less democratic over time.<sup>370</sup>

Sustained growth means innovation and there will always be those who, rightly or wrongly, fear that they personally will experience the destructive rather than the creative side of innovation. It definitely is not the case that only ruling, extractive elites would prefer to perpetuate the *status quo* as Acemoglu and Robinson reiterate time and again in their *Why nations fail*. You do not even need quite outspoken and obstructive interest groups to block change as Olson suggests. It is not at all hard to imagine that an obstructive majority of sorts can be found in a democratic or, as Acemoglu and Robinson would call it ‘an inclusive society’, even if that might be economically irrational. Western Europe at the moment would provide several perfect examples. If industrialisation had been made subject of a nationwide general referendum in industrialising Britain, it in all probability would have been voted down, as it would have been in many if not most industrialising countries. It is easy to argue (and find examples!) that democratic institutions in specific circumstances can be bad for growth whereas authoritarian institutions in specific circumstances might be good for it. When it comes to the debate whether democracy causes growth or the other way around, North, Wallis and Weingast hold the view that the two are mutually reinforcing. They do not think in terms of a one-way causality. They may not be very concrete about the actual emergence of the Great Divergence but clearly think, like

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369 Ha-joon Chang, *Kicking away the ladder*, 71–76.

370 Barrow, ‘Democracy and growth’. Compare, however, Rodrik, *Globalization paradox*, 311–312, note 3 of chapter 11, where reference is made to literature that is somewhat more positive about the relationship between democracy and growth.

Acemoglu and Robinson that sustained growth is only possible in a democratic setting.<sup>371</sup> This at the moment seems to be the majority-view.

Many other institutions and their potential impact on growth might be and have been discussed. There is the debate instigated by the Hungarian-British scholar John Hajnal (1926–2008), that a specific Western European marriage pattern existed – actually confined to parts of Western Europe to the West of a virtual Trieste-Saint Petersburg line with specific implications not just for household economics but also for the economy as a whole.<sup>372</sup> There are the influential ideas of Emmanuel Todd about the connection between family structures, ideology and development.<sup>373</sup> There are numerous references to Western individualism.<sup>374</sup> There is, of course, law.<sup>375</sup> A specific debate about whether civil law would be more rational and general and therefore better for economic growth than common law that is more case-based and leaves more room for interpretation has emerged.<sup>376</sup> Here we see a strong focus on property and property rights. The amount of literature on these topics is staggering. In institutionalist literature with a historical bend, property rights undoubtedly are the main issue as institutional economists and all those inspired by them regard the existence of well-described and well-secured property rights as a necessary if not sufficient condition for economic growth. We will discuss them – and the specific variety of property right that often gets specific attention, to wit intellectual property rights as described in patents – briefly later on. Considering their importance and the big differences in this respect between early modern Britain and China, rules governing inheritance, for example whether primogeniture or partible inheritance prevails and whether entail or all sorts of conditional sales exist, would also deserve more attention than they can be given here. Amongst historians, an interesting debate has flared up about whether guilds and the guilds-system would have had a positive or a negative effect on economic development in pre-industrial Europe.<sup>377</sup>

371 See North, Wallis and Weingast, *Violence and social orders* under ‘democracy’.

372 I just refer to two relevant publications: Engelen and Wolf, *Marriage and the family in Eurasia* and De Moor and Van Zanden, ‘Girl power’.

373 See for a selection of his publications [http://en.wikipedia.org/wiki/Emmanuel\\_Todd](http://en.wikipedia.org/wiki/Emmanuel_Todd)

374 See e.g. in particular for the English case Macfarlane, *Origins of English individualism* and idem, *Invention of the modern world*, in particular chapter 8.

375 For connections between law and economic growth in general see Cooter and Schäfer, *Solomon's knot*. For a focus on the role of law in the Great Divergence see Debin Ma and Van Zanden, *Law and long-term economic change*. For the situation in Britain see Macfarlane, *Invention of the modern world*, chapter 11.

376 Helpman, *Mystery of economic growth*, 119–122.

377 See for the most recent texts Epstein, ‘Craft guilds in the premodern economy’; Epstein and Prak, *Guilds, innovation and the European economy*, and Ogilvie, *Institutions and European trade*. In my view, their overall impact was negative, which means I would side with Ogilvie. See for some very recent comments that would endorse Ogilvie's views, Dudley, *Mothers of*

It would simply lead too far afield to discuss all these and related topics so I will focus on those institutions that receive most attention in debates amongst economists about growth and that I consider the most relevant ones for the debates on the Great Divergence. That means I will focus on the role of the market and of the state. They will be discussed together, since in reality as well as in those scholarly debates, they are so entangled that it is not helpful to discuss them separately. It, again, is striking and for the unsuspecting outsider probably even shocking how widely opinions amongst economists differ even when it comes to the not exactly irrelevant question of what a growth-promoting system of allocation and a growth-promoting polity would look like. Every position imaginable, from perfect competition to monopoly and from total *laissez-faire* to complete central planning, – and everything in between – has enthusiastically been defended by some economist. Everyone seems to agree – and rightly so – on the importance of the rule of law, the monopolisation of violence and some centralisation of public power – but apart from that disagreement is rife.

Mainstream, i. e. classical and many neo-classical economists, still claim that the market mechanism, i. e. free and fair competition, is a necessary and many would even say sufficient condition for growth. Adam Smith already formulated quite explicitly what is still their dogma, even though what we call ‘modern economic growth’ in his eyes was impossible: “Little else is required to carry a state to the highest degree of opulence from the lowest barbarism, but peace, easy taxes, and a tolerable administration of justice; all the rest being brought about by the natural course of things.”<sup>378</sup> Explaining modern economic growth as a rule is not regarded as fundamentally distinct from explaining growth in general. Or as Sir John Hicks (1904–1989) put it: “Industrialization ... is a continuation of the process of mercantile development.”<sup>379</sup> For him, the essence of the history of economic development would be the rise of the market as a formal institution. Many economists would agree. Monetarist economists à la the late Milton Friedman (1912–2006), as far as they still exist, also emphasise “the power of the market”, fiercely oppose “the tyranny of controls”, and think that “interventionist governments, no matter how well-intentioned, have almost

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*innovation*, passim, e. g. 128–129 and 191. When it comes to training and quality control, their role was, in my view, positive.

378 This is claimed by Adam Smith’s friend Dugald Stewart. See Hall, ‘States and economic development’, 154. Neo-classical and institutionalist economists have become much more optimistic when it comes to the possibility of sustained and substantial economic growth than Smith was.

379 Hicks, *Theory of economic history*, 143 and 145. To be fair, Hicks also explicitly points at the fact that without science growth as we know it since the Industrial Revolution would have been impossible.

invariably done more harm than good".<sup>380</sup> In their eyes, the sole interventionist policy that is allowed government would be to take care of the money supply. The heydays of the so-called Washington Consensus, especially when it, in my view incorrectly, is interpreted as a kind of neo-liberal fundamentalism, are over.<sup>381</sup> But most mainstream economists still simply cannot imagine economics to be a serious 'scientific' endeavour if it does not take the market mechanism as its point of departure, which in practice often leads to a situation in which they continue to work with assumptions they know to be unrealistic and with postulates they can never prove. Institutionalists economists, in particular those who are referred to in debates on the Great Divergence or actually themselves participate in them, basically still are all neo-classical economists even though, for example, Douglass North, to refer to the most well known of them, later in his career explicitly pointed at weaknesses and blind spots in (neo)classical thinking.<sup>382</sup> Institutionalists' analyses of markets, their functions, preconditions and embedding have become very sophisticated and they have become very influential in particular in development economics.<sup>383</sup> But in the end they too consider the market as the essence of a well-functioning economy and the motor of growth. The state should be no less and no more than an efficient provider of public goods. 'Good institutions' are market-supportive institutions and 'good governance' in essence is market-supportive governance.

For champions of the market, monopoly and government – insofar as government is not regarded as just another form of monopoly – primarily are threats to growth. They mistrust them as a matter of principle and their entire theoretical scaffolding is built on clear dichotomies: rents versus profits, monopoly versus competition, and bureaucrats versus entrepreneurs. In the 1980s, political scientist Margaret Levi formulated the 'postulate' that states are predatory and will always try to maximise revenue extraction.<sup>384</sup> For political scientist Mancur Olson too, unless 'tamed', the state would be predatory, or as he describes it, act as a 'stationary bandit', with a natural tendency to maximise revenue and expenditure and to interfere with property rights.<sup>385</sup> Douglass North

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380 See e.g. Milton and Rose Friedman, *Free to choose*. See for the quotations the titles of its first two chapters and the back-flap of the book.

381 See for an introduction [http://en.wikipedia.org/wiki/Washington\\_Consensus](http://en.wikipedia.org/wiki/Washington_Consensus)

382 See e.g. North, *Understanding the process of economic change*, 84–85.

383 For the institutionalists who are particularly relevant in the context of this book see under note 333. For a general introduction into institutionalist economics see – amongst tens of introductions – e.g. van den Berg, Spithoven and Groenewegen, *Institutional economics*; Brousseau and Glachant, *New institutional economics: a guidebook* and Ménard and Shirley, *Handbook of new institutional economics*.

384 Levi, 'Predatory theory of rule'.

385 See e.g. his 'Dictatorship, democracy, and development' in: Olson and Kähkönen, *A not-so-dismal science*, 119–137.

basically holds the same view. In his *Understanding the process of economic change* he writes: “The government is not a disinterested party in the economy. ... *In rare cases* [it (PV, Italics mine)] designs and enforces a set of rules of the game that encourage productive activity.”<sup>386</sup> The so-called ‘natural state’, that according to him and his colleagues Wallis and Weingast for most of the last ten thousand years has virtually been the only form of society larger than a few hundred people and that only in very specific conditions in a small part of the world has been succeeded by an open access order, is depicted by them as a rent-seeking, predatory state with a privileged elite monopolising power and creaming off wealth.<sup>387</sup> In institutional and mainstream economics, such assumptions have become all but undisputed.<sup>388</sup> For Daron Acemoglu and James Robinson, as already indicated, extractive government clearly has been the main impediment to growth in world history. They are convinced of the fundamental importance of political transformations to do something about poverty and claim that their book *Why nations fail* is about “the politics of poverty and prosperity” and that “... politics determines what institutions a nation has.”<sup>389</sup> They, like many other institutionalists, are willing to consider the existence of market failures and to admit that government intervention can have positive effects. But, in the end, for them, the best the state can do is to support the market and to ‘get the prices right’ as the expression goes – which is complicated and rare enough.<sup>390</sup> They are very explicit: “... prosperity and poverty are determined by the incentives created by institutions.”<sup>391</sup> References to “shaping the incentives”, creating “incentive structures” abound. There are no less than eighty references to incentives in the text. The message is clear: When the right incentives are in place, the economy can and should take care of itself: “You can’t engineer prosperity.”<sup>392</sup> This is the way in which the World Bank in 1991 summarized its ‘market friendly’ view: “The appropriate role of government in a market-friendly strategy is to ensure adequate investments in people, provision of a competitive climate for enterprise, openness to international trade, and stable macroeconomic management. But beyond these roles, governments are

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386 North, *Understanding the process of economic change*, 67.

387 See e.g. their *Violence and social orders*, chapter 2.

388 For an analysis of Douglass North’s ideas when it comes to economics and economic history *and their reception* see note 335. For those of Mancur Olson, see e.g. his ‘Dictatorship, democracy, and development’, and *Power and prosperity*.

389 For the quotations see Acemoglu and Robinson, *Why nations fail*, 44, and the title of chapter 3.

390 The expression ‘getting the prices right’ refers to a policy in which governments do less in those areas where markets work or can be made to work reasonably well, to do more in those areas where markets cannot be relied upon.

391 Acemoglu and Robinson, *Why nations fail*, the title of chapter 3.

392 Acemoglu and Robinson, *Why nations fail*, 446 and 67.

likely to do more harm than good.”<sup>393</sup> Most of these famous economists would overall tend to agree with the not-so-famous economist Ronald Reagan when he said “(In this present crisis) ... government is not the solution to our problem; government is the problem.”<sup>394</sup> *The Economist* suggests one can look at economic development in terms of “markets versus misery.”<sup>395</sup> It would be hard to put it more succinctly than William Easterly did: “The poor have bureaucrats, the rich have markets.”<sup>396</sup>

For mainstream economists the state basically has to see to it that markets can function optimally and to redress the situation when they ‘fail’. For many non-mainstream economists that is not enough, but one should not forget that for many states even implementing this ‘minimum’ programme is too much. Many polities lack even those minimal requirements under which they could support the market, as they have no rule of law and no functioning system of infrastructure or education. The fact that such states are not developing would not surprise any economist. But their frequent failures point at the fact that it apparently is far from easy to create and maintain functioning states, let alone states with ‘good’ governance. There are and always have been many ‘failed states’, that is, states perceived as having failed at some of the basic conditions and responsibilities of a sovereign government that has centralised power and rule.<sup>397</sup> Before a state can implement all sorts of policies, it first has to be in good shape. Westerners living in countries where the process of state building took several centuries may have a tendency to underestimate its complexity and exceptionality.

What we, for the sake of convenience, call ‘mainstream’ has never had a monopoly in economics. For a couple of decades after World War Two, Keynes’ ideas about the role of state were quite popular and actually many of his ideas became part of a neo-classical-Keynesian mainstream synthesis, for example, in the extremely influential work of Paul Samuelson (1915–2009).<sup>398</sup> Keynes basically accepted the market mechanism and considered it too efficient to be rejected on principle. He clearly did not reject ‘capitalism’, but acknowledged that markets are not always self-adjusting and self-correcting and that structural crises are very well possible. He therefore pleaded for specific forms of state

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393 World Bank: World Development Report. The Challenge of Development (New York 1991) 84.

394 He said so in his inaugural address of 20–1-1984. See [http://www.reaganfoundation.org/pdf/Inaugural\\_Address\\_012081.pdf](http://www.reaganfoundation.org/pdf/Inaugural_Address_012081.pdf). Consulted 21–7-2013.

395 *The Economist* June 1<sup>st</sup> 2013, page 11

396 Easterly, *White man’s burden*, 165.

397 See, for a more theoretical overview dealing with the contemporary situation, Fukuyama, *State building* and idem, *Origins of political order* for a historical overview.

398 For the ideas and influence of this economist see e.g. Nasar, *Grand pursuit* under ‘Paul Samuelson’ in the Index.

intervention to directly or indirectly, over savings and investments, act upon consumption and suggested to build mechanisms into the economy that might dampen its undulations. In the 1960's his ideas were so popular that arch-monetarist Milton Friedman in 1965 claimed that in a sense "we are all Keynesians now."<sup>399</sup> They have never completely lost their appeal, for example to John Kenneth Galbraith (1908–2006) and Nobel-Prize winning economist Paul Krugman, and they are even experiencing a revival of sorts lately.<sup>400</sup> What is more relevant, of course, is the fact that the actual presence of the state in Western economies as it can, for example, be measured in terms of government income, expenditure and debt as a percentage of GDP, is still enormous and that governments are often expected to, at least in times of crisis, engage in Keynesian deficit spending. What Robert Solow said about computers: "You can see the computer age everywhere but in the productivity statistics" basically also goes for neo-liberalism: "You can see neo-liberalism everywhere but in the statistics of public revenue and spending."<sup>401</sup>

Table 23: Government\* spending, % of GDP 1870–2009

	1870	1913	1920	1937	1960	1980	1990	2000	2005	2009
Austria	10.5	17.0	14.7	20.6	35.7	48.1	38.6	52.1	50.2	52.3
Belgium	n.a.	13.8	22.1	21.8	30.3	58.6	54.8	49.1	52.0	54.0
Britain	9.4	12.7	26.2	30.0	32.2	43.0	39.9	36.6	40.6	47.2
Canada	n.a.	n.a.	16.7	25.0	28.6	38.8	46.0	40.6	39.2	43.8
France	12.6	17.0	27.6	29.0	34.6	46.1	49.8	51.6	53.4	56.0
Germany	10.0	14.8	25.0	34.1	32.4	47.9	45.1	45.1	46.8	47.6
Italy	13.7	17.1	30.1	31.1	30.1	42.1	53.4	46.2	48.2	51.9
Japan	8.8	8.3	14.8	25.4	17.5	32.0	31.3	37.3	34.2	39.7
Netherlands	9.1	9.0	13.5	19.0	33.7	55.8	54.1	44.2	44.8	50.0
Spain	n.a.	11.0	8.3	13.2	18.8	32.2	42.0	39.1	38.4	45.8
Sweden	5.7	10.4	10.9	16.5	31.0	60.1	59.1	52.7	51.8	52.7
Switzerland	16.5	14.0	17.0	24.1	17.2	32.8	33.5	33.7	37.3	36.7
United States	7.3	7.5	12.1	19.7	27.0	31.4	33.3	32.8	36.1	42.2
<b>Average</b>	<b>10.4</b>	<b>12.7</b>	<b>18.4</b>	<b>23.8</b>	<b>28.4</b>	<b>43.8</b>	<b>44.7</b>	<b>43.2</b>	<b>44.1</b>	<b>47.7</b>

\*1870–1937 central government; 1960–2009 general government

Source: *The Economist*, March 19<sup>th</sup> 2011, *Taming Leviathan. A special report on the future of the state*, 4.

399 See for this claim and President's Nixon's claim from 1971: "I am a Keynesian now in economics", [http://en.wikipedia.org/wiki/We\\_are\\_all\\_Keynesians\\_now](http://en.wikipedia.org/wiki/We_are_all_Keynesians_now)

400 For further information let me only refer to Skidelsky, *Keynes. Return of the master*.

401 See for that quotation, Robert Solow, 'We'd better watch out', *New York Times Book Review*, July 12 (1987) 36.

In practice, of course, the economy has always been and will always be too important to leave it to itself. Governments have always intervened in markets, whatever ideology they officially may have endorsed. Anyone with only the slightest knowledge of history can refer to innumerable examples of intervening, pro-active, 'pushing' governments that did not simply respond to crises or market-failures but as a matter of structural policy tried to set the economy on a certain course and, what is fundamental, pursued policies that were *not* bad for growth. I could of course give hundreds of references here to history books that would show that government policies to promote growth were not always failures, let alone always doomed to fail. According to Joe Studwell, founding editor of the *China Economic Quarterly* and a knowledgeable free-lance journalist, this fact would to most economists still be an "unspeakable reality", whereas economic historians consider it as fairly uncontroversial. When it comes to explaining how the developed countries in the world actually took-off, mainstream, neo-classical economics in his view is all but irrelevant.<sup>402</sup> A position I would fully endorse. The interesting thing is that an increasing number of professional academic economists have started to reflect on this fact.<sup>403</sup> Let me, to show how far opinions are apart, quote one of them: Erik Reinert, who pleads for "governing the market", "getting the prices wrong" and claims: "Perfect markets are for the poor".<sup>404</sup> Studwell in his analysis of development and non-development of Asian economies claims "... there is no significant economy that has developed successfully through policies of free trade and deregulation from the get-go. What has always been required are pro-active interventions ..."<sup>405</sup>

Recent developments in the global economy of course play their part in the emergence of more dissenting views on the role of government in promoting economic growth. The rise of Japan and later the Newly Industrialized Countries led several economists to coin and debate the concept of the 'developmental state', referring to a coordinating, pro-active state that does not eliminate the market but tries to steer and develop the economy and in order to do so does not refrain from price-manipulation, raising tariffs, infant industry protection and support for import substitution. In such a state, government takes on devel-

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402 See Studwell, *How Asia works*, Part Two, 'Manufacturing: The victory of the historians', and 'Epilogue: Learning to lie'. For the expression "unspeakable reality" see pages 64 – 66 of that book.

403 Two economists are very important in this respect and are becoming increasingly influential. One is Ha-joon Chang, whose most interesting study in the context of this book is his *Kicking away the ladder*. See further his personal website and his Cambridge University website. The other one is Erik Reinert, whose *How rich countries got rich*, gives a good overview of his ideas. For more, see [http://en.wikipedia.org/wiki/Erik\\_S.\\_Reinert](http://en.wikipedia.org/wiki/Erik_S._Reinert).

404 Reinert, *How rich countries got rich*, 18. See there for further references for the first two of these quotations.

405 Studwell, *How Asia works*, 226. The author means interventions by the government.

opmental functions.<sup>406</sup> Then there was the more recent, sensational rise of several other countries, in particular the co-called BRIC countries (Brazil, Russia, India and China), most of them not exactly shining examples of *laissez-faire* economies. There is apparently not only quite a lot of successful government interventionism: so many huge firms at the moment actually are state enterprises that one may well talk of a revival of a form of state capitalism.<sup>407</sup> But growth rates in many states with interventionist governments are so high and also so sustained that even the staunchest defender of *laissez-faire* has to one way or another deal with this stubborn ‘anomaly’. Centrally planned economies as ‘real existing socialism’ knew them, apart from some not exactly inspiring and successful remnants like North Korea, Cuba or Myanmar, have all but disappeared. But, as many economists love to forget, the idea that central planning would work was not without its supporters, also in the West. Many Western ‘experts’ there, up until at least the end of the sixties, believed that the Soviet Union would very soon catch-up with the United States, if it had not already done so.<sup>408</sup> Up to a certain point and in certain respects many planned economies indeed were successful.

All in all it would be hard to find a thesis about the role of the state in economic development that has *not* been wholeheartedly supported by some economist. Amongst the leading economists at the moment the night-watchman state and the ideas of the Washington Consensus are basically dead but of course top economists are not necessarily those who influence public opinion let alone economic policies. The idea that markets can fail has been widely accepted, as has the idea that there might be inefficient equilibriums and path-dependencies. A well-known economist like Paul Romer attributes a large role to the state in matters of research and development, although still not a single new growth theory model in his *Advanced Macroeconomics* textbook of 2006 makes any reference to industrial policies as a means of promoting development, investment and growth.<sup>409</sup> His colleague Paul Krugman admits that in international trade, state intervention might be needed and helpful. Dani Rodrik regards

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406 See for information in alphabetical order: Amsden, *Rise of “the Rest”*; Ha-joon Chang, see note 403; Johnson, *Japan. Who governs?*; Erik Reinert [http://en.wikipedia.org/wiki/Erik\\_S.\\_Reinert](http://en.wikipedia.org/wiki/Erik_S._Reinert); Wade, *Governing the market*; Weiss and Hobson, *States and economic development* and Woo-Cumings, *The developmental state*. For a general, first introduction see [http://en.wikipedia.org/wiki/Developmental\\_state](http://en.wikipedia.org/wiki/Developmental_state). Consulted 17–2-2012.

407 See for example on this subject Bremmer, *End of the free market* and *The Economist*, 21–27 January 2012, ‘Special Report: State capitalism. The visible hand.’

408 Acemoglu and Robinson, *Why nations fail*, 124–132, and Spufford, *Red plenty*. For fascinating examples of how Soviet growth and development were over-estimated, see Levy and Peart, ‘Soviet growth and American textbooks’. Electronic copy available at: <http://ssrn.com/abstract=1517983>. Consulted 28–3-2012.

409 Romer, *Advanced macroeconomics*. I found this comment in Schlefer, *Assumptions economists make*, 186.

himself as basically neo-classical but actually is convinced that the state has quite a broad range of tasks, including forms of industrial policy. What really matters of course is that is that, whatever economists may suggest, the actual role of the state in economic life of the wealthiest countries of the world simply is enormous and has already been enormous for many decades whatever way one might want to measure it.

When it comes to monopolies and oligopolies, there has also been a certain change of perspective. Their potentially positive effects are now taken more into consideration and it is also more recognised that it is almost impossible to fully do without them. Adam Smith was fiercely against monopolies for reasons one from the perspective of the consumer can easily reconstruct and understand, although his plea for maximising the division of labour because that would increase efficiency can only mean that bigger productive entities are more efficient. This of course means that the ones with the optimal size can wipe out all competitors and become monopolists. It is not only increasing returns that can make big beautiful. To cover the enormous fixed costs for many modern firms, they to some extent simply have to be price-makers, i. e. monopolists with supernormal profits for at least some time. As Schumpeter explained so forcefully and convincingly in his theories, the essence of capitalist development is not free competition but as it is now often called with an oxymoron ‘monopolistic competition’.<sup>410</sup>

Historians wanting to explain the Great Divergence with reference to the role of the state and the market thus have a confusingly wide range of theories at their disposal that they can choose from. Actually the bulk of them do not really choose. The majority of those who do prefer the current amended classical approach that is predominant under institutionalist economists or, and that is a growing group, a kind of neo-mercantilist approach in which Britain’s status as a mercantilist fiscal-military state – like most Western European states – is not seen as something by definition negative for development and growth, but as at least as a necessary precondition for take-off. The problem of that last approach up until now is how to exactly show the positive connections between growth and mercantilism.

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410 See for this concept [http://en.wikipedia.org/wiki/Monopolistic\\_competition](http://en.wikipedia.org/wiki/Monopolistic_competition).

## 10. Culture and economic growth

Institutions do not emerge out of the blue and their existence and permanence are not simple facts of life. In my view, they can only emerge, persist and disappear when a sufficiently large number of people with political clout wants them to. That means they need to find sufficient backing in the dominant culture of society, which in turn means that culture could also be an ultimate if not an even more ultimate cause of economic growth. The problem here resides in the fact that the concept is so notoriously hard to define. My point of departure is this definition by Eric Jones: “Culture is the pattern of beliefs, habits, and expectations, of values, ideals, and preferences, shared by groups of people, large and small.”<sup>411</sup> Jones himself immediately adds an element that is fundamental: those beliefs et cetera are learned. Mokyr’s definition also explicitly refers to the role of learning in this context: “Culture is a set of beliefs, values, and preferences, capable of affecting behaviour, that are socially (not genetically) transmitted and that are shared by some subset of society. It seems best to define culture as something entirely of the mind, which can differ from individual to individual and is, to some extent, a matter of individual choice.”<sup>412</sup> In a previous publication, I myself used the following definition: Culture refers to “the socially acquired set of dispositions of a group of people with regard to describing, interpreting and valuing the social and natural world.”<sup>413</sup> In the end, this means I endorse the view of Geert Hofstede who describes culture as “the collective programming of the mind”.<sup>414</sup> Whatever exact definition one wants to endorse: it would to my view be impossible to a) deny any connection between the institutions of a society as ‘the rules of the game in a society’ and its culture as defined in the above terms, and to b) deny culture any importance in economic life, even though that is exactly what many economists and global historians would want to do. Most economists since at least the 1960s or 1970s ignored culture.<sup>415</sup> These are the opening words of Eric Jones’s book *Cultures merging* from 2006: “Economists agree about many things – contrary to popular opinion – but the majority agree about culture only in the sense that they no longer give it much thought.” He quotes the economist Mark Casson saying “...the professional culture [sic!] of economists prevents most of them from seeing that

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411 Jones, *Cultures merging*, IX.

412 This is a view defended by Joel Mokyr in his, ‘Culture, institutions, and modern growth’, prepared for the Conference: Understanding institutions and development economics: the legacy and work of Douglass C. North, St. Louis, November 4–6, 2010, <http://cniss.wustl.edu/files/cniss/mokyrpaper.pdf>, page 3.

413 See my ‘Role of culture and institutions in economic history’.

414 Hofstede, *Culture and organizations*, 150.

415 There of course were exceptions.

culture matters at all.” They tend to adopt the position of “cultural nullity”. These quotes, however, are from a chapter called ‘Revival of cultural explanation’ in a book devoted to the relation between culture and the economy.<sup>416</sup>

Apparently, things are changing. According to Deepak Lal “‘culture’ is in the air” and becoming rather popular as an ultimate cause of economic growth.<sup>417</sup> Peter Temin is right on target when he claims that in economics it has become kosher again to talk about culture.<sup>418</sup> Robert Lucas, Nobel-Prize winning economist, claims that modern economic growth requires what he refers to as “a million mutinies”. Societies and their citizens must be open to the new possibilities that development creates as the key to economic development consists in the invention of new ways of doing things.<sup>419</sup> An increasing number of publications, some of which I just referred to, is being devoted to the role of culture in economics, although I guess not many people would want to go as far as the American scholar Lawrence Harrison who simply states: “Underdevelopment is a state of mind.”<sup>420</sup> Actually, the ever increasing group of economists who think economic growth is a matter of innovation and consider innovation in the last instance as a matter of knowledge and institutions, whether they explicitly admit it or not – most would *not* as they don’t like to talk about culture – do give an essential role to culture.

The role of culture here is discussed separately from that of institutions. Scholars have somewhat differing opinions when it comes to how distinct they actually are. Can institutions function as ultimate causes in economic analysis or must one take that analysis to a ‘deeper’ level and indicate what in turn causes them? The relations between institutions and culture and between institutions and factor endowments have been widely and fiercely debated. The second connection has already been discussed extensively, so let us now briefly comment on the first. Several influential scholars think it does not make much sense to sharply distinguish between culture and institutions in the sense that institutions are somehow epiphenomena of culture. Douglass North in most of his

416 Jones, *Cultures merging*, chapter 1. The quotations are on pages 3 and 5. For the expression ‘cultural nullity’ that is coined by Jones, see the Index.

417 Lal, *Unintended consequences*, 2.

418 Temin, ‘Is it kosher to talk about culture?’

419 Lucas, *Lectures on economic growth*, ‘Introduction’. The expression ‘a million mutinies’ is from V.S. Naipaul’s book *India, a million mutinies now*.

420 See for this revival of cultural explanations in economics the many references in Harrison and Huntington, *Culture matters*; Jones, *Cultures merging*; Nunn, ‘Culture and the historical process’. The text is also on Nunn’s website; Guiso, Sapienza and Zingales, ‘Does culture affect economic outcomes?’ and in my ‘Role of culture and institutions in economic history.’ For Harrison’s quotation, see Harrison, *Underdevelopment is a state of mind*. Recent and interesting publications in German are Abelshauser, Gilgen and Leutzsch, *Kulturen der Weltwirtschaft*, and Berghoff and Vogel, *Wirtschaftsgeschichte als Kulturgeschichte*.

work gives ample attention to culture in wide sense of the word referring to belief systems, cognition, consciousness and human intentionality.<sup>421</sup> He does so because he thinks its role in development is fundamental. In his words, human evolution is guided by the perceptions of the players, and those perceptions come from beliefs about the consequences of human actions, typically blended with preferences.<sup>422</sup> The following statement makes his position clear:

Culture not only determines societal performance at a moment of time, but through the way, in which its scaffolding constrains the players, contributes to the process of change through time. The focus of our attention [In a book about understanding the process of economic change PV] therefore must be on human learning – on what is learned and how it is shared amongst members of a society and on the incremental process by which beliefs and preference change, and on the way in which they shape the performance of economies through time.<sup>423</sup>

As indicated, North has changed his mind several times in his career, but even in the book he wrote with Wallis and Weingast, in which culture as such is hardly discussed, causality in processes of macro change runs like this beliefs => institutions => organizations => policies => outcomes.<sup>424</sup> Avner Greif holds a similar position and puts “beliefs and norms at the centre of the analysis of institutions” and regards “motivation provided by beliefs and norms ... [as] the[ir] linchpin”.<sup>425</sup> Geoffrey Hodgson thinks institutions only work because the rules involved are embedded in shared habits of thought and behaviour. In his view they are conditioned by and dependent upon individuals and their habits, though not reducible to them.<sup>426</sup> David Landes, as expected, thinks culture forms the determinant of institutions and regards them “as expressions of the values and needs of a given population, more derivatives and consequences than as drivers and determinants.” They in his view matter, but he thinks that, “over time, with adjustment and adaptation, people have got the institutions they need and deserve.”<sup>427</sup> I could give more examples, such as that of Masahiko Aoki who describes an institution as “... a self-sustaining system of shared beliefs about a salient way in which the game is repeatedly played”.<sup>428</sup> Just to show how broad the range of opinion is amongst economists also in this respect, I can refer to

421 See e.g. North, *Understanding the process of economic change*, chapters 3 and 4.

422 North, *Understanding the process of economic change*, VIII.

423 North, *Understanding the process of economic change*, VIII. See also, written together with Wallis and Weingast, *Violence and social orders*, 27–29, where he indicates that culture is very important *for*, but to a large extent *exogenous to* economics.

424 This claim is central in North’s *Understanding the process of economic change* and still endorsed in *Violence and social orders*. See e.g. page 28.

425 Greif, *Institutions and the path to the modern economy*, 39 and 45.

426 Hodgson, ‘Institutions and economic development’, 91–94.

427 See Landes in his reply to Om Prakash and me on page 8.

428 Aoki, *Toward a comparative institutional analysis*, 10.

Acemoglu and Robinson two institutionalists who explicitly *reject* cultural explanations of major economic developments.<sup>429</sup> They regard cultural differences as “consequences of ... different institutions and institutional histories” and on that basis claim – not entirely convincing in my view – that culture is mostly irrelevant to explaining the wealth and poverty of nations. Cultural differences at best are effects rather than causes. In their view ‘culture’ clearly cannot explain the Great Divergence or in their words “how we got here and why the inequalities in the world persist.”<sup>430</sup>

Whatever the exact relation may be between the dominant culture in a society and its institutions, if it at all makes sense to try and determine their exact relationship, it will in any case be a fairly close one. Institutions without any cultural underpinning in my view are bound to lose relevance, but on the other hand there are plenty of examples that show that when you introduce different institutions in countries with fairly similar cultures you get very different outcomes. Just think of the examples of East and West Germany, North and South Korea and Mainland China and Taiwan.<sup>431</sup> It is not at all probable that in China with Deng’s reforms in 1978, the beliefs, habits, expectations, values, ideals and preferences of the Chinese suddenly changed. What did change was the structure of incentives and sanctions they were confronted with. Different ‘carrots and sticks’, i. e. different institutions can *ceteris paribus* lead to quite different outcomes.

But for analytical reasons, I agree with Jones when he claims that the “conflation of culture and institutions is a ready source of confusion”. He describes institutions as “political and power-based choices” whereas culture consists “mainly of rules and practices learned fairly informally...” Institutions tend to be “conscious, even political constructs ... organized networks of formal, embodied rules. Culture, though often able to bind, is relatively intangibly; institutions have a more rule-bound existence.” And, so he adds, “...institutions are in principle always open to being renegotiated.”<sup>432</sup> He is not the only one to make this distinction. Mokyr describes institutions as socially determined conditional incentives and consequences to actions. They are a given to every individual and therefore create the structure of incentives in society. Institutions as rules specify certain behaviour to be proper and legal, but also specify the penalties for

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429 Acemoglu and Robinson, *Why nations fail*, chapter 2, 56–63.

430 Acemoglu and Robinson, *Why nations fail*, 63 and 57.

431 These three cases are referred to in Niall Ferguson, *Civilization*, 11. See for a similar line of reasoning Acemoglu, a.o., ‘Institutions as a fundamental cause of long-run growth’, 404–420, where they point at the enormous impact of introducing differing institutions in North and South Korea in the 1950s, and Acemoglu and Robinson, *Why nations fail*, 56–63.

432 The quotations are all from Jones, *Cultures merging*, 259, 17–18, 109 and 110.

breaking them and the rewards for meeting them.<sup>433</sup> For him institutions are more formal and in that respect more binding. The same goes for Niall Ferguson, who regards them as in some sense formalised products of culture.<sup>434</sup> My view would be that institutions are hardly ever a *direct* and *unequivocal* reflection of culture. As a rule they and the cultural setting in which they exist are so strongly intertwined that it is extremely difficult, as well as not very enlightening, to try and completely disentangle them. Institutions do have dynamics and logic of their own that cannot directly be reduced to the culture of the individual participants involved. But on the other hand, they simply cannot be understood nor explained without reference to that culture. It would be best to regard culture as the software of institutional arrangements that, in turn, play a big part in determining culture. Institutions as structures and culture as their software in the end are two sides to the same coin.

But let us return to culture: what about its actual impact on economic development? Jones with whose definition we started our brief discussion on the role of culture in economics himself endorses an approach in which culture and economy continually react on one another, not one of “cultural nullity”, where culture is largely irrelevant nor one of “cultural fixity”, where culture is all-inclusive and static. He harbours no doubt that culture in the form of preferences and behavioural routines can hold implications for the economy. For economic development, it may act as a brake or filter but it in his view is seldom likely to be the original source of change. One should therefore only treat it as the active ingredient with caution.<sup>435</sup> I think this is a sensible position and would suggest prudence in using the concept because it is very hard to turn it into a useful operational category in social scientific research and because just about everything one would want to claim about values, beliefs et cetera and their impact, can be said without introducing a mega, all-encompassing concept of culture.

What, of course, is striking about economics that often likes to pass as a hard-nosed science, especially in the eyes of economists themselves, is that it actually is full of all sorts of ‘cultural’ assumptions when it comes to how economies function and develop. Mainstream economics is built around the concept of the *homo economicus* – of unspecified gender – who is supposed to be rational, calculating in terms of pleasure and pain, benefits and costs. He is supposed to act on his own as an individual whose nature it is in Adam Smith’s famous words

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433 Mokyr, ‘Culture, institutions, and modern growth’.

434 Ferguson, *Civilization*, 11: “Institutions are, of course, in some sense the products of culture. But, because they formalize a set of norms, institutions are often the things that keep a culture honest, determining how far it is conducive to good behaviour rather than bad.”

435 See for these claims e.g. Jones, *Cultures merging*, 212, 259 and 270.

“to truck, barter and exchange one thing for another”.<sup>436</sup> As economic agent he is supposed to have no family and separate his household from his firm to be able to be as rational and efficient as possible on an ‘anonymous’ market. Firms, in this perception, are no more than a collection of individuals who are connected to each other via formal contracts. Neither does our *homo economicus* belong in any consequential sense to a class, social group or nation. If he wants to be successful he is hardworking, thrifty and innovative. He is disciplined and engaged in non-violent competition via supply and demand, not using any extra-economic pressure. Very important, of course, is the fact that ever since the so-called subjective or marginal revolution in economics, the core concept of the entire discipline of economics, i.e. value, as a rule is defined as something subjective, that is a matter of value judgements. What matters is what something is worth *to someone*, not some ‘intrinsic’ objective value per se. The *primum movens* in economics, the *reason* people want to acquire goods or produce them in the first place, is outside economics. The much-discussed rationality of the *homo economicus*, and of the economist, normally only considers the ordering of the means, not of the ends. We will not, however, further discuss the implications of that fact.<sup>437</sup>

It is already quite intriguing per se that such a broad range of ‘cultural pre-suppositions’ is so important in a supposedly ‘hard’ social science. It, in practice, also turns out to be quite problematic. It does not take an awful lot of imagination or technical economic schooling to think of situations in which one or more of the character traits mentioned above indeed foster economic growth. But, and that is the problem, it does not take much imagination either to think of circumstances in which they *don’t*. Many of them tend to be regarded as positive because they are considered good from a *moral* point of view – somehow we like people to work hard, to save, to be individualistic, et cetera – and we tend to think that behaviour of that kind ought to be rewarded. But that does not necessarily mean that these private, moral virtues would be public, *economic* virtues too. It, moreover, is far from obvious how the cultural traits that are supposed to have set the West on its specific trajectory can be combined into one consistent storyline.

Again it is fundamental to realise what it is we want to explain here: modern economic growth. In that growth, the role of innovation is fundamental. Actually no economist would deny that, but innovation is *not* a matter of rationality and calculation, and not an individual affair either. The *homo economicus* of classical economics is *prudent*: calculating how to make the best of what is. In the end he

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436 Smith, *Inquiry into the nature and causes of the wealth of nations*, 25.

437 For a very brief comment on the marginal or subjective revolution in economics see [http://en.wikipedia.org/wiki/Neoclassical\\_economics#The\\_Marginal\\_Revolution](http://en.wikipedia.org/wiki/Neoclassical_economics#The_Marginal_Revolution).

is *adaptive*.<sup>438</sup> That certainly may yield some growth, some progress, some profits, via specialisation and being more efficient in what is known. But it does not carry sustained and substantial growth. It is not by accident that Adam Smith did not think in terms of such growth. The actual driving force of capitalism, the economic system that up until now has been most successful in producing modern-growth, however, the real entrepreneur, is *creative* and *changes* his environment. That requires a completely different mind-set. Innovation means risk-taking and uncertainty, not prudence and calculation. It requires creative people, not bookkeepers. It by definition cannot be rational – apart from the fact that it can be considered rational in the sense of ‘necessary’ because one otherwise is driven off the market – because the impact of doing something new *cannot* be calculated and predicted. The prudent, saving bourgeois is not exactly the most likely source of the gale of perennial creative destruction that Schumpeter regards as the essence of capitalism. Ideally, one can insure oneself to make risk less risky, but one cannot insure oneself against uncertainty, and innovating is by definition uncertain.<sup>439</sup> As he wrote in *Capitalism, socialism and democracy*:

Any existing structures and all the conditions of doing business are always in a process of change. Every situation is being upset before it has had time to work itself out. Economic progress, in a capitalist society, means turmoil.<sup>440</sup>

James Watt (1736–1819) spent ten years and all his wealth, and became very heavily indebted, in order to invent the steam engine. It took him two partnerships to finally sell his first steam engine. He wrote to a friend: “Of all things in life there is nothing more foolish than inventing and probably the majority of inventors have been led to the same opinion by their own experiences”<sup>441</sup> Many inventors and innovators during the first industrial revolution in Britain were not very successful and did not really profit from their efforts.<sup>442</sup> For me this would be yet another reason to be very reticent when it comes to explaining

438 For the ideas of Adam Smith in this respect see, e.g. the brief comments in Milgate and Stimson, *After Adam Smith*, 83–84. Smith’s rational *homo oeconomicus* is supposed to be calm, calculating, self-conscious and the like: in brief he is prudent. The essence of his rationality is the systematic *adjustment* of means to ends.

439 For the ‘irrationality’ of risk taking and especially of acting in a context of uncertainty see Brenner, *History. The human gamble* and Goldstone, ‘Cultural orthodoxy, risk, and innovation’. For the classic suggestion by the economist Frank Knight (1885–1972) that the word ‘risk’ should only be used to refer to measurable uncertainty with known probabilities whereas the word ‘uncertainty’ should only be used to refer to non-measurable, qualitative uncertainty with unknown probabilities, see Knight, *Risk, uncertainty, and profit*.

440 Schumpeter, *Capitalism, socialism and democracy*, 31–32.

441 See for this quotation [http://inventors.about.com/od/wstartinventors/a/james\\_watt\\_4.htm](http://inventors.about.com/od/wstartinventors/a/james_watt_4.htm)

442 See for some striking examples of famous innovators who did not exactly profit from their work Clark, *Farewell to alms*, 235–237

innovations in terms of ‘challenges and responses’. Uncertainty not only confronts the innovator: Every economic agent has to deal with it. Actually the entire economy is fundamentally unpredictable as it depends on the interplay of interpretations, expectations and actions by so many people and on so many occurrences, that no one can really know what the outcome will be. Macroeconomics is at best informed guessing. In daily life the concept ‘rational expectations’ so dear to many economists, means nothing as already shows in the fact that economists themselves hold so many different ‘rational’ expectations about the future. The future is unknown and unpredictable. Most economic decisions as Keynes puts it probably are the result of “animal spirits – of a spontaneous urge to action rather than inaction.” If, for example, investments were based on “cold calculation” there would not be much of it. Much of what is going on in economic life is an effect of the “temptation to take a chance.”<sup>443</sup>

When it comes to the ‘rationality’ of individuals, it is anything but certain that this will lead to macro-economic growth. Individuals usually work for personal net income, however defined, *not* for gross national product and that is what we are discussing. Activities that are economically rational from a personal point of view and increase or even maximise a private person’s income *can* be socially inefficient. Smith’s optimistic interpretation of the working of the invisible hand is over-optimistic, even in the best of all markets. It is very rational and from an individualistic perspective perfectly rational to be a free rider and not pay for public goods but widespread free riding can easily lead to situations that hamper development. Institutional economists have not by accident begun to focus on the question how co-operation of economic actors can be accomplished where it might, at least in the short run, often be more rational to be a free rider. Individual competitiveness, mobility and dynamism, all rational, are not always easy to combine with confidence, trust and stability, which in many contexts are (regarded as) fundamental ingredients of development.

Besides, all the focusing on rational individuals notwithstanding, the main players in economic life are not individuals but firms that simply cannot be fully identified with collectives of individuals connected only via a formal contract. What does it tell us about economics as a social science that it was not until 1937 that an economist seriously wondered why firms exist?<sup>444</sup> Economists may have ‘proven’ that the family firm is inefficient and doomed, but millions of such firms still exist and many of them are very successful. Capital and labour are supposed to have no nation, which of course in reality they do. The history of Western economic development simply *cannot* be written without ample ref-

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443 I took these quotations from Keynes from Schlefer, *Assumptions economists make*, 150 and 159. See there for the original sources.

444 Coase, ‘Nature of the firm’.

erence to nations and states. Their mutual competition and emulation was the very essence of mercantilism but did certainly not disappear when mercantilism officially was no longer *en vogue*. In my view – and not only in my view – competition between states still is one of the main driving forces of economic development whatever Paul Krugman, who considers the idea nonsense that states could actually compete economically, might say about it.<sup>445</sup> All the talking about individual rational choice notwithstanding, public debate dealing with economics tends to be about *national* or *domestic* income and product, *national* debt, *national* unemployment and inflation rates, and so on and so forth. Whereas classical economists tended to think in terms of classes and groups, neo-classical mainstream economics simply abolished ‘society’ in its analyses and began to only refer to individuals and firms.

Economic life in reality is very much about collectives. In real life, such collectives often are in open conflict. Mainstream economics assumes economic agents to be competitors engaged in free and fair competition on open markets abstaining from all sorts of extra-economic pressure and violence. That of course is quite optimistic, if not plainly silly. For the period we are discussing here it is utterly un-realistic as the recent book by Ronald Findlay and Kevin O’Rourke on trade, war, and the world economy in the second millennium, that is not accidentally titled *Power and plenty*, conclusively shows: “...no history of international trade can ignore the causes or the implications of military exploits.”<sup>446</sup> The greatest expansions of world trade, so they write, have tended “to come ...from the barrel of a Maxim gun, the edge of a scimitar, or the ferocity of nomadic horsemen”, adding that “For much of our period the pattern of trade can *only* [italics in original] be understood as being the outcome of some military or political equilibrium between contending powers.”<sup>447</sup> Actually, especially on open seas outside Europe, the role of violence was so fundamental that the distinction between peaceful, consensual trade and simple piracy was often very thin if not simply non-existent. Let me again just give a couple of examples. For ‘the East’ Jan Pieterszoon Coen, one of the founders of Dutch power in what we nowadays call Indonesia and a person who can be assumed to have known what he was talking about, claimed “... trade cannot be maintained without war, nor war without trade”. He wrote these words in 1614 but they

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445 I refer to the literature under note 144 and to Max Weber’s quotation on pages 337 – 338. For Krugman’s claim, that states do not and cannot compete like firms, that competitiveness is a meaningless word when applied to national economies and that the obsession with competitiveness is both wrong and dangerous, see e.g. his ‘The illusion of conflict in international trade’, chapter 5 in his *Pop internationalism*. ■

446 Findlay and O’Rourke, *Power and plenty*, XIX.

447 Findlay and O’Rourke, *Power and plenty*, XVIII and XIX.

continued to be valid during the entire early modern period.<sup>448</sup> In the Caribbean things were not really different according to John Elliott: “Trade and piracy were liable to be synonymous in this lawless Caribbean world of the later seventeenth and early eighteenth centuries.”<sup>449</sup> For the Dutch West Indies Company in the 1620s and 1630s, the costs and income from war and privateering far exceeded those of actual trade.<sup>450</sup> To just give another example from a different context: The total amount of prize money taken by the British at sea during the Napoleonic Wars has been estimated at thirty million pounds sterling. That is more than the yearly national income of the Dutch Republic at the time.<sup>451</sup> The distinction between trade and robbery was often as unclear as that between public and private as of course perfectly shows in the activities and structure of the existing chartered companies that traded as well as (in some cases increasingly) ruled. In various places in their book, Findlay and O’Rourke actually come quite close to Rapp’s thesis that “... the state, not the individual firm was the relevant unit of competition in early modern international competition.”<sup>452</sup> Again, context and intensity matter: as we will see, one of the main debates when it comes to the role of the state in economic development is whether, when, and how that development and growth were promoted by economic nationalism and protectionism. Their disadvantages may be obvious, but no one would want to claim that countries that economically succeeded refrained from them.

In those debates about the role of state and nation in economic development, the thesis that cultural-ethnic homogeneity would be better for economic development than cultural-ethnic diversity because such diversity can easily lead to divisions, tensions and misunderstandings that increase transactions costs has emerged. That sounds quite convincing and would mean that culture does matter.<sup>453</sup> So too, however, does Amy Chua’s thesis that may not be claiming the exact opposite but does start from quite differing assumptions. According to her, each of the hyper-powers in world history (defined as those “remarkably few societies ... that amassed such extraordinary military and economic might that they essentially dominated the world.”) was “... at least by the standards of its time, extraordinarily pluralistic and tolerant.” Each of them, so she claims “... ”

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448 I found this quotation, which pops up in almost every publication on the topic, in Parker, *Cambridge Illustrated History of Warfare* in the introduction on page 9.

449 Elliott, *Empires of the Atlantic world*, 224.

450 See for figures Brandon, *Masters of War*, table 2.5 page 110.

451 Allen, *Institutional revolution*, 121.

452 Rapp, ‘Unmaking of the Mediterranean trade hegemony’, 515.

453 For an overview of a huge amount of literature, see Alesina, with Eliana La Ferrara, ‘Ethnic diversity and economic performance’. Douglass North e.g. is quite convinced of the advantages of cultural homogeneity in the sense of shared beliefs. See the references to beliefs and belief formation in North, Wallis and Weingast, *Violence and social orders*. The potential disadvantages of such uniformity apparently are considered less relevant.

succeeded by harnessing the skills and energies of individuals from very different backgrounds, and by attracting and exploiting highly talented groups that were excluded in other societies".<sup>454</sup> The father of modern world history William McNeill agrees and claims that: "... the principal factor promoting historically significant social change is contact with strangers possessing new and unfamiliar skills".<sup>455</sup> So would, in principle, proponents of new growth theory who focus on the role of knowledge and information in societal development and emphasize the advantages in this respect of 'open' societies over 'closed' ones. The broad historical overviews of Matt Ridley and Robert Wright and that of Leonard Dudley, who focuses on Britain, France and the United States, bear clear testimony to that.<sup>456</sup> But – and that is the point I want to make here – collectives whether based on kinship, interests, identities or a combination of them and force and violence clearly matter in economic life and they can do so in quite different ways and to quite differing effects.

The connection between working hard and getting rich that one comes across so often in cultural explanations of differences in wealth looks so self-evident that it usually is not even put up for debate. It should, however. One might think of situations where working hard can delay mechanisation and economic innovation. It can become irrational, as Weber already knew. It is not very rational, economically speaking, for people who have accumulated more than they can ever spend, to continue working or for (would be) inventors and entrepreneurs to keep on working without any assurance that their efforts will pay. But more importantly; can differences in 'working hard' – if for simplicity's sake we assume that it can be determined what working hard actually means and be measured in such a way that a ranking of industriousness would be possible – really explain differences in wealth between countries with modern economic growth and countries without such growth? At the moment Austrians per capita are some twenty-five times as wealthy as the inhabitants of Kenya.<sup>457</sup> I guess no one would want to impute that entire difference to differences in industriousness. But then how important are they? Few if any people worldwide could claim to work as hard as rural African women. It has not exactly made them rich.<sup>458</sup> When hard work is praised, references to thrift as a rule follow suit. It seems quite obvious that thrift is good for growth. But is it really? What we praise as

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454 See, for these quotations, page XXI and the flap-text of Chua, *Day of empire*. For a more extensive definition of the concept of hyperpower, see pages XXI–XXII.

455 William McNeill, *Rise of the West*, XVI.

456 See Ridley, *Rational optimist*; Wright, *Nonzero*, e.g. 163–167 and Dudley, *Mothers of innovation*.

457 *The Economist*. *Pocket World in Figures 2013 Edition*, 116 and 172.

458 I found this claim in Mills, *Why Africa is poor*, 11.

thrift today we may deplore as under-consumption tomorrow. And can one really save oneself into modern economic growth? The answer must be no.

As I hope to have shown in my critical comments in the previous paragraphs, the role of culture simply must be very important for economic growth, however much mainstream economists have tended to ignore, simplify or misrepresent it. How could it be otherwise? The economy is about making choices and those choices in the end are always influenced by one's interpretations and values. My position would be that those interpretations and values have their major and structural effect when they actually 'solidify' in institutions with their enabling and enforcing mechanisms. As long as they are only in the realm of ideas they definitely still have an impact, but that impact will be less and in any case less easy to 'measure'. But even if problems of measurement and operationalisation would be much less daunting, that still would not lead to a generally accepted and convincing theory about relations between culture and modern economic growth. Even if one could imagine many of the traits referred to above as good for (some) growth, what about modern economic growth with its enormous scale, scope and permanence and its relatively sudden emergence and what about the fact that cultures normally show a combination of the various traits referred to earlier on?



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## Part two: Actual explanations of the Great Divergence

### 1. The Great Divergence and geography

Amongst global historians and all those writing about the Great Divergence, references to geography in the widest sense of the word not only are extremely popular, which would surprise most economists, they also set quite different accents than economists would.<sup>459</sup> Not surprisingly, there is a lot of negative ‘Malthusian’ reasoning in which poverty in particular in the pre-industrial world is blamed on limited resources. According to this perspective, which has always been extremely influential amongst historians who study the pre-industrial world, ‘geography’ primarily refers to constraints. In his highly influential trilogy on the global history of material civilization and capitalism in the early modern era, Fernand Braudel brilliantly illustrated “the limits of the possible” that determine what he calls “the structures of everyday life”.<sup>460</sup> The emphasis in his oeuvre usually lay on the constraints to which human agency was subjected and he has, correctly, mainly become known to hold views that come close to geographical determinism. At times, though, he also pointed at ways in which nature *enabled* agency. To some extent, so he claimed, Europe’s dynamism can be traced back to its geography. Europeans in a sense were almost forced to go out to the sea if they wanted to develop their economies. According to him, they turned this necessity into a challenge to which they responded very successfully: Europe’s global dominance began at sea.<sup>461</sup> In that respect too, Immanuel Wallerstein followed in the footsteps of France’s most influential historian and gave Europe’s expansion a specific geographical twist. Let me just give a couple of quotes: “Europe needed to expand geographically more than did China.”<sup>462</sup> Portugal,

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459 For this popularity, see Bentley, ‘Web browsing’.

460 Braudel, *Civilization and capitalism, 15th-18th century, I*.

461 Braudel, *History of Civilizations*; idem in: Braudel, *L’Europe*.

462 Wallerstein, *Modern world-system. Capitalist agriculture and the origins of the European world-economy in the sixteenth century*, 63. From now on referred to as *Modern world-system I*.

Europe's first intercontinental overseas coloniser, according to him *had* to expand overseas as it "... because of its geography, had no choice."<sup>463</sup> He also provides a more concrete reason: "Europe's 'internal Americas' in the fifteenth century were quickly exhausted, given an agronomy that depended on more space."<sup>464</sup>

The claim that Western Europe in one way or another was blessed by nature was pushed more emphatically by Eric Jones in his book on the European miracle, originally published in 1981, that not by accident referred to environment in its subtitle and had a major impact on ensuing debates.<sup>465</sup> Jones described Europe as a continent with a dispersed resource portfolio that was very varied geologically, geographically, and in terms of climate. He then claims: "Fruitful political variety, capital accumulation, and trade all seem partly explicable as adjustments to Europe's particular site and endowments."<sup>466</sup> It had a good location from which it was relatively easy to discover and exploit the New World with its huge 'ghost acreage'.<sup>467</sup> Disasters hit capital relatively less hard than people, which gave the continent a bias in favour of capital accumulation already before industrialization. The fact that Europe was never absorbed in one empire, a characteristic that is referred to in almost every text on the rise of the West as a major explanation, according to Jones also, at least partly, was due to geography. Its larger core areas were, as he calls it, 'much of a muchness' and the occupants of any one of them found it hard to dominate the others. On top of that, distance offered some protection against Asian invasions, as did the forested landscape unsuited to cavalry warfare.<sup>468</sup> On page 226 of the book it reads:

The topographical structure of the continent, its mountain chains, coast and major marshes, formed boundaries at which states expanding from the core-areas could meet and pause. These natural barriers helped to hold the ring between the varied ethnic and linguistic groups making up the European peoples. They helped to define the nation-states which filled up the matrix so formed and because they were expensive to cross they helped a little in reducing conflict between neighbouring states.

Another point that Jones wants to bring home is that "What happened to distinguish Europe was the swollen emergence of bulk trade over quite long distances, multilaterally, in everyday commodities, and not simply in the luxuries

463 Wallerstein, *Modern world-system I*, 47.

464 Wallerstein, *Modern world-system I*, 57. This suggests a quite peculiar interpretation of the history of Western Europe's population. The fifteenth century was not exactly a period when Western Europe was suffering from 'over-population'.

465 Jones, *European Miracle*. There exist various editions. I quote from the second edition, Cambridge 1987.

466 Jones, *European Miracle*, 226.

467 For that term see 290 – 298.

468 Jones, *European Miracle*, XXV and XXVII.

that had always dominated long-distance trade.”<sup>469</sup> Britain as an island in this context was particularly fortunate. It was even more protected against diseases and enemies. It was amply provided with water for agriculture and waterpower, and for domestic and overseas transport. Its location, moreover, was favourable as to other continents in particular the New World. Whereas it was relatively close to the enormous ghost acreages of that New World, it was quite a long journey from the Central Asian steppes with its conquering nomads.

Probably the most influential example of a global economic analysis in which geography holds the key is the book by Jared Diamond, *Guns, germs and steel*. Diamond is quite explicit: “History followed different courses for different peoples because of differences among peoples’ environments, not because of biological differences among peoples themselves.”<sup>470</sup> The book overwhelmingly – a fact that many people tend to overlook – is about *Eurasia* versus ‘the Rest’. The contrast between Western Europe and China that up until now is at the core of the Great Divergence-debate actually is only discussed on some five pages. Diamond focuses on refuting the assumption that Eurasian hegemony is due to any form of Eurasian intellectual, moral or inherent genetic superiority and argues that the gaps in power and technology between human societies originate in environmental differences. When cultural or genetic differences have favoured Eurasians (for example, written language or the development among Eurasians of resistance to endemic diseases), he asserts that these advantages occurred because of the influence of geography on societies and cultures, and were not inherent in the Eurasian genome.<sup>471</sup> Specifically for Europe, he, like Jones, thinks that its geography favoured balkanization into smaller, closer, nation-states, as its many natural barriers (mountains and rivers) provide defensible borders. As a result, governments that suppressed economic and technological progress soon corrected their mistakes or were out-competed relatively quickly.<sup>472</sup> The advantages that Eurasians had in development were primarily due to a fortuitous mixture of climate, crops, and animals. They had a favourable environmental endowment and location in which geography trumped culture.

Ian Morris may not yet be as famous as Jared Diamond, but he, if possible, is

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469 Jones, *European Miracle*, XIV. This fact too, so he suggests, was connected to its specific geographical diversity.

470 Diamond, *Guns, germs and steel*, 25.

471 I refer the reader to the excellent synthesis and analysis of the book by McNeill, ‘The world according to Jared Diamond’, *The History Teacher* 34, 2 (2001) 21 pars. 7 Aug. 2011 <<http://www.historycooperative.org/journals/ht/34.2/mcneill.html>>. My words paraphrase his text.

472 Diamond, *Guns, germs and steel*, ‘Epilogue’.

even more outspoken when it comes to the role of geography in answering the question why the West rules. He summarizes his findings as follows:

The West rules because of geography. Biology tells us why humans push social development upward; sociology tells us how they do this (except when they don't); and geography tells us why the West, rather than some other region, has for the last two hundred years dominated the globe. Biology and sociology provide universal laws, applying to all humans in all times and places; geography explains differences.<sup>473</sup>

This boils down to the thesis that, in his words, “maps” make history and not “chaps”. Let me again give some quotations. In a paragraph in the introduction, entitled: “Location, location, location”, it reads: “Once we recognize that chaps ... are all much the same ... all that is left is maps.”<sup>474</sup> In his view “latitudes” explain history and not “attitudes.”<sup>475</sup>

Robert Marks summarizes his explanation of Britain's industrialisation in terms of the ‘contingent’ availability for Britain of colonies and coal.<sup>476</sup> Basically what Marks presents in his book on the origins of the modern world is a (over-simplified) synthesis of Pomeranz's *Great Divergence*. But although the author of that book argues with more sophistication than Marks suggests, he too likes to refer to “fortunate location of coal”, “geographic good luck”, “fortunate geographic accidents”, “crucial accidents of geography” and “massive windfalls of fuel, fibre and perhaps even food” and does attach great importance to them.<sup>477</sup> Deepak Lal is much more nuanced than Diamond and Morris but he too claims that geographical endowments built the foundation for the rise of the West. In his view, Western material culture had its basis in relative factor endowments and its institutional set-up was “ecologically determined.” Like Jones, he claims that because of ecological constraints, European states could not be as predatory as the imperial states of Eurasia.<sup>478</sup>

I could refer to several other examples. Michael Mann in the first volume of his books on the sources of social power – that primarily deals with the sources of Europe's unique dynamism – also accords a big role to ecology, at times in ways quite similar to Jones. He describes the modern West as heir to a civilization that

473 Morris, *Why the West rules*, 557. See also, for example, page 30.

474 Morris, *Why the West rules*, 29. See also pages 331, 427 and 430.

475 Morris, ‘Latitudes not attitudes’, also on <http://www.historytoday.com/ian-morris/latitudes-not-attitudes-how-geography-explains-history>

476 Marks, *Origins of the modern world*, 118, where he writes “...British manufacturers and inventors rose to the challenges they faced, especially with regard to coal mining and the development of the steam engine. But there is no reason to think that the Chinese or Indians (or other people with advanced old regime economies, like the Japanese, for instance) would not also have been able to solve those problems in similar ways. They simply didn't have colonies or coal.”

477 Pomeranz, *Great Divergence*, flap text, pages 12, 16, 68 and 241.

478 Lal, *Unintended consequences*, 70–71 and 79.

was “geopolitically multi-centred, cosmopolitan and non-hegemonic”. It had “three ecological roots: irrigated river valleys and confined plowlands, the core of the land empires of the Near East; more open, extended plowlands in Europe; and the inland seas that connected them. The juxtaposition of such ecologies was unique in the world; therefore, in world-historical terms, so was the civilization to which it gave rise.”<sup>479</sup> Its population density was less than in the Far East because its agriculture was less productive. It had rain-watered agriculture, not one based on irrigation. It therefore, according to Mann, gave rise to less centralised, despotic states, more autonomous but cooperating individual peasant-households and a very energy-intensive mode of production. All this strengthened local and medium-distance trade in ordinary goods.<sup>480</sup>

In books by David Cosandey and Hubert Kiesewetter, geography, too, plays a pivotal role in explaining Western Europe’s peculiar path.<sup>481</sup> David Landes focuses on culture, but his *magnum opus* also contains a chapter on geography, in particular dealing with the negative effects of bad geography.<sup>482</sup> Bairoch in his economic and social history of the world from the sixteenth century onwards points at the fact that the agricultural revolution that took place in the West could not easily be transferred to much of ‘the Rest’ and claims that factors like climate, soil type and population density go a long way in explaining that fact.<sup>483</sup> We already pointed out the huge implications of the dependency on nature as Douglas Allen highlights them in his book on the institutional revolution. But at least overall that dependency and the ensuing variance and unpredictability were facts of life for all those living before the Industrial Revolution. It might, of course, be the case that some were hit harder than others, as is often suggested. But I have never come across an analysis in which that was actually and convincingly shown.

It is quite obvious that nature can make a difference. Who would deny that, for example, location (or for that matter climate, soil and so on) is important and can have negative but also quite positive effects? We already referred to Jones, Diamond and Morris who all make claims in this respect and will later on briefly discuss Pomeranz’s comments on the different location of British and Chinese coalfields. Before the existence of modern means of transportation in particular, landlocked countries indeed had a real disadvantage, although that has not prevented landlocked Switzerland and Austria to in the end become quite wealthy. South America was further from Europe than the Northern half of the New World, which certainly had effects on its development. Just like the fact that

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479 Mann, *Sources of social power*, I, 189.

480 Mann, *Sources of social power*, I, pages 184 – 189 and 399 – 409.

481 See Cosandey, *Le secret de l’Occident* and Kiesewetter, *Das einzigartige Europa*.

482 Landes, *Wealth and poverty of nations*, chapters 1 and 2.

483 Bairoch, *Victoires et déboires*, II, 648 – 661.

it was internally less well connected via rivers and canals than, for example, Western Europe was. Roman Studer has convincingly shown the importance of geography as an explanation for differences in market integration between parts of Europe and the advantages of Europe's low lands in this respect as compared to parts of the continent with fewer waterways and more relief.<sup>484</sup> High transportation costs in Africa, worsened by low population density, had an impact on economic potential. Something as prosaic as the direction of winds could have major effects. This is what Felipe Fernández-Armesto writes about the Indian Ocean: "The frustration of the Indian Ocean and the fulfilment of global ambitions in the Atlantic have to be explained in part with reference to the inescapable facts of geographical determinism: the tyranny of the winds."<sup>485</sup> Obviously natural endowment in terms of the fertility of land, the availability of certain natural resources, flora, fauna, diseases and *changes* in them mattered. In regard to these changes, there is the enormous global impact of the 'Columbian Exchange' and of 'European ecological imperialism.'<sup>486</sup>

Very important factors that to a certain extent can be regarded as geographical and that in my view have not been sufficiently taken on board in the Great-Divergence debate are size and population density in connection to administrative unities or polities and their implications for effective rule. Let me only point at one quite recent and very interesting effort to figure out its possible implications: the book by David Stasavage, *States of credit. Size, power and the development of European polities*. In this book Stasavage, to quote from the flap text "...shows that active representative assemblies were more likely to be sustained in geographically small polities. These assemblies dominated by mercantile groups that lent to governments, were in turn more likely to preserve access to credit."<sup>487</sup> That, in turn, to pursue the line of reasoning further than Stasavage does, at least explicitly, made those states stronger in terms of infrastructural power.<sup>488</sup> States that are infrastructurally weak in my view, will never be able to industrialise and experience modern economic growth. In the pre-industrial world, effective and efficient rule, whether it was tried via bureaucracy, patronage or the selling of offices, in the end was only possible when an effective and efficient system of monitoring could be put in place. That, at the

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484 Studer, Does trade explain Europe's rise? <http://www2.lse.ac.uk/economicHistory/pdf/WP129.pdf>.

485 Fernández-Armesto, *Civilizations*, 483.

486 See Crosby, *Columbian exchange*; idem, *Ecological imperialism*; Nunn and Qian, 'Columbian Exchange' and idem, 'Potato's contribution to population and urbanization'; Mann, 1491, and idem, 1493. For the role of disease in economic development see, as an introduction, McGuire and Coelho, *Parasites, pathogens and progress*.

487 Stasavage, *States of credit*. This comment is on the inner flap of the book.

488 For that concept see pages 378 – 379.

time, was only possible over a certain area given the limitations of transport and communication. Britain, which also happened to be an island with very good internal communications, a set of circumstances it used very effectively, here had a huge advantage over China.<sup>489</sup> I would consider the disadvantage with respect to China as compared to Britain as of fundamental importance in any explanation of why China did not industrialise. More generally, it cannot be purely accidental that in the nineteenth century as a rule it was not small city-states or huge empires that modernised their economies most successfully, but medium-sized, territorial nation-states. Those apparently had an optimal size to rationalise and modernise their economies and state-apparatuses.

In my view, giving a central role to geography in explaining the Great Divergence by claiming it 'favoured' the West is not very helpful and in the end rather misleading. Not because I would principally want to deny that some things in history are more important than others. I consider as exaggerated the following claim by Felipe Fernández-Armesto in a book in which he presents a comparative history of civilizations "arranged environment by environment": "... I am not aware of any evidence that any of the human experience we lump together under the heading of 'history' is determined by anything."<sup>490</sup> My critique is twofold: part of it is fundamental and concerns the general relevance of geography to the question at hand; part of it is specific and concerns certain concrete geographical explanations. Let me start with some comments on specific explanations and begin with Jones's claims. Studying the maps of Europe and China and judging by my extended travelling in both parts of the world, I am not convinced that Europe's geography would indeed encourage and support greater fragmentation than China's. Without the Grand Canal, for example, the digging and maintaining of which cost an enormous amount of effort, the connection between Southern and Northern China would have been quite tenuous. In my view, one could come up with many more examples that China actually was only loosely integrated by nature.<sup>491</sup> The claim that Europe's trade in bulky goods was unique also is hard to defend in any case in regard to *quantities*. Long-distance grain trade in eighteenth-century China dwarfed that over the

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489 See e.g. Guldi, *Roads to power*. For a very interesting text connecting much of the weaknesses and problems of the state in Qing China to its size that made it all but impossible to really monitor officials, see Tuan-Hwee Sng, 'Size and dynastic decline. The principal-agent problem in late imperial China, 1700 – 1850', <http://apebhconference.files.wordpress.com/2009/08/sng.pdf>, November 10, 2010.

490 Fernández-Armesto, *Civilizations*, VIII and XI. Compare his comments on page 158.

491 See, for example, also McNeill, 'China's environmental history in world perspective', 35: "...China was probably the most ecologically diverse polity in the history of the world before Britain assembled its far-flung overseas empire ... it remained for more than eleven centuries (from about A.D. 650 to 1800, PV) the state with the greatest ecological complementarity."

Baltic, the biggest example of such trade in Europe.<sup>492</sup> When it comes to the *variety* of ordinary goods that were traded, my hunch is that Jones is correct. There are also good reasons to doubt whether diversity and the fact that there were so many core areas actually was favourable to Europe's growth. It in any case is far from obvious. Jones's comments on potentially positive peculiarities of Europe's climate are too vague to be really put to the test and looking at agricultural yields in regions with other climates, for example Central and Southern China, does not exactly suggest Europe had an advantage here. His comments on disasters that in Europe would have the specific effect of making labour more expensive which would advance innovation and along with it growth seem fairly farfetched, the more so as wages in Europe varied strongly according to time and place, and he does not come up with clear significant relations between disasters, labour supply and innovation.

Jared Diamond's comments on the geographical differences between Eurasia and other parts of the world certainly are very relevant and may indeed go a long way in explaining their differing development, but when it comes to explaining the Great Divergence, they are irrelevant. The characteristics of Eurasia *in its entirety* of course cannot explain why modern economic growth would emerge in a specific *part* of it.<sup>493</sup> The book tells us next to nothing about why Western Europe grew rich and China or India didn't. He simply repeats the often heard argument that Europe was privileged because it had more and better access to water transport and because it – thanks to its geography – consisted of a large number of competing entities, but that cannot 'geographically' explain sustained growth. I have already extensively published my critique on Morris elsewhere.<sup>494</sup> So there is no use to repeat myself here. The ideas of Pomeranz will be dealt with quite extensively at various occasions in this book. For critique on Mann's geographical approach, I can for example refer to an analysis by James Blaut.<sup>495</sup>

It would not be very useful, and it is in any case is not my intention, to deal here with each and every claim and each and every comment. I want to focus on the one fundamental critique that applies to all geographical explanations of growth, in particular modern growth. What we want to explain in our analysis is not just some growth and some difference in wealth but (the emergence of) modern economic growth, i. e. substantial growth over consecutive decades and (the emergence of) an enormous gap between those whose economies grow and those whose economies do not. Considering this specific explanandum, which is

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492 See for some examples Pomeranz, *Great Divergence*, 34–35. For comments on European and Chinese market integration see Shiue and Keller, 'Markets in China and Europe'.

493 Comments can be found, for example, in Blaut, *Eight Eurocentric historians*, chapter 8, and in Acemoglu and Robinson, *Why nations fail*, chapter 2.

494 See *Journal of Global History* 7, 1 (2012) 143–147.

495 Blaut, *Eight Eurocentric historians*, chapter 6.

characterised by continuous change and continuous increases in production and productivity, we simply cannot not expect very much from references to geographical conditions that by definition are rather static. Their direct relevance in explaining the Great Divergence, a relatively sudden and quick process, is anything but obvious. One may well doubt whether one can explain a temporary phenomenon, such as the economic primacy of Western Europe during certain centuries (or of China in earlier ones) by referring to virtually permanent conditions, such as the topography of Europe and China. The following quotes by none other than Eric Jones indicate why references to geography can certainly be useful in explaining (modern) economic growth as long as one realizes their limitations: "...resource endowment is not very helpful in explaining change. Resources are a function of the available technology and have no economic meaning until a technology has been invented to employ them."<sup>496</sup> According to Jones, "By itself geography explains nothing. ... Yet geography may not be altogether dismissed. The layout of the world does affect the relative costs of economic activity under any one technology."<sup>497</sup> He defines the role of environmental factors as "to sketch out least-cost paths of human action *Ceteris paribus* we should expect them to have been followed."<sup>498</sup> He then for the case of Europe adds: "An environment of relatively cheap capital may well have influenced the rate of innovation."<sup>499</sup> One must, moreover, realise that even if all the geographical conditions referred to had played an important role in the economic history of Western Europe and provided certain benefits and advantages, they apparently up until the eighteenth century did *not* create a significant gap in wealth, growth and development between (Western) Europe and the most advanced other economies of the world. So one may well ask why they would do so from then onwards. In that respect, it is not very helpful that most references to geography, just like those to 'culture' are so broad and under-specified. A nice example of how to try to make connections that are more concrete and direct would be Terje Tvedt's systematic comparative analysis of water systems in Britain, China and India, in which he analyses how differences in those systems might in concrete terms explain that Britain industrialized and China and India did not.<sup>500</sup>

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496 Jones, *European Miracle*, XXVI. Referring to Pomeranz's work and his explanation of Britain's take-off via coal and colonies, he writes in his *Cultures merging* on pages 115 – 116: "Resources do not guarantee their own development." One has to deal with them "productively and accumulatively."

497 Jones, *European Miracle*, XXVII.

498 Jones, *European Miracle*, 228.

499 Jones, *European Miracle*, 228.

500 Tvedt, 'Why England and not China and India?.'

## 2. Geography, factor endowments and institutions

My previous comments, of course, do not exclude the possibility that natural conditions set societies on a certain path, or as Jones put it, sketch out least-cost paths of human action, which then do or do not lead to economic development and growth. That means one might look at geography as setting limits and providing challenges. To argue in terms of geographical challenges or possibilities and ensuing responses has become quite popular, particularly with scholars who discuss the connection between geography and institutions. Probably the connection that is most frequently assumed in global economic history is the one that leads from geography to ‘dispersion’ to (political) competition and from there to wealth. Despite its popularity, this argumentation is not very convincing. Apart from the fact that it is not at all evident that geography indeed led to political fragmentation, the connection between competition amongst polities and economic growth that one comes across in almost all publications on the rise of the West is far less clear and unequivocal than is usually assumed. Even when it comes to determining the exact advantages of competition – and the best type of competition – between *economic* actors, economists are not exactly of one mind. When it comes to the quite different logic and structure of competition between *political* actors, opinions are even more divided. My hunch would be that most economists at least are rather negative about the economic impact of the way in which polities in Europe – and elsewhere – competed with each other before the Great Divergence. In Europe, that competition normally was played out according to mercantilist rules and amongst the majority of economists mercantilism still has a very bad name. We will return to that topic later on in this text.

Let us elaborate some more on the challenge-response line of reasoning. Jared Diamond, to whom we have already repeatedly referred, claims: “All human societies contain inventive people. It’s just that some environments provide more starting materials, and more favourable conditions for utilizing inventions, than do other environments.”<sup>501</sup> Morris’s perspective is quite similar. He departs from what he calls ‘the Morris theorem’. That reads: “Change is caused by lazy, greedy, frightened people looking for easier, more profitable, and safer ways to do things”<sup>502</sup> and thinks geography sets the stage for human activity providing people with challenges, to which they (have to) respond. This ‘adaptive’ view transpires in his favourite quote: “Each age gets the thought it

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501 Diamond, *Guns, germs and steel*, 408.

502 Morris, *Why the West rules*, 28. Strikingly enough, this mega-generalization is presented without *any* empirical underpinning or reference to empirical studies by others.

needs.”<sup>503</sup> If other people would have been located and challenged like the inhabitants of Western Europe, they would have developed and thought like them.<sup>504</sup> For him history is a “single grand and relentless process of adaptations to the world that always generate new problems that call for further adaptations”.<sup>505</sup> Geography functions as the necessity that is to become the mother of invention. Confronted with similar situations, people will respond in similar ways. He comes up with an explanation of the Great Divergence of the eighteenth and nineteenth centuries *à la Pomeranz*, claiming that it resides in the Atlantic economy and its ghost acreage in combination with coal and steam, and then quite consistently claims that if Asia had had an Atlantic economy and coal, it would also have had an industrial revolution.<sup>506</sup> That Western Europe became the centre of the Atlantic economy, again, at least according to Morris, is due to geography. It was simply a matter of location: it was relatively easy for Europeans to discover and exploit America.<sup>507</sup> He does acknowledge the importance of science and technology in economic development but interprets their development in the West too as a simple consequence of the ways in which Western scholars were challenged to tackle particular problems, in particular practical concerns raised by the emergence of the Atlantic economy. In his view that economy generated “new challenges, stimulating the whole package of scientific thought, mechanical tinkering, and cheap power”.<sup>508</sup> Prasannan Parthasarathi also thinks in terms of challenges and responses. According to him, India, to only focus on the Asian country that is central to his analysis, did not industrialise because it was not challenged as Britain was by foreign competition as textiles producer nor, what is relevant here in our discussion of geography, by scarcity of wood. Let me just give two quotations: “Europe followed an exceptional path because it faced a set of pressures which were absent in India and only partly found in China. Therefore, India and China had no need to forge the economic and technological responses that emerged in Europe”,<sup>509</sup> and “What was exceptional about Europe was not its economic and political institutions or cultural makeup but the pressures that it faced, which were different from those in India and China.”<sup>510</sup> In industrialising Britain, solutions were concocted for

503 See e.g. Morris, *Why the West rules*, 423, 476, 481, 506 and 568.

504 Morris, *Why the West rules*, 565 and 500.

505 Morris, *Why the West rules*, 560.

506 Morris, *Why the West rules*, 502 and 573.

507 Morris, *Why the West rules*, e.g. 421. See for a similar line of reasoning Blaut, *Colonizer's model of the world*, 181: “If the Western Hemisphere had been more accessible, say, to South Indian centers than to European centers, then very likely India would have become the home of capitalism, the site of the bourgeois revolution, and the ruler of the world.”

508 The quotation is from Morris, *Why the West rules*, 502. See further *ibidem*, 500 and 570.

509 Parthasarathi, *Why Europe grew rich*, 10.

510 Parthasarathi, *Why Europe grew rich*, 12.

problems that simply did not exist in India and to a much lesser extent in China. Let me just give one final example, a quotation by Wallerstein referring to the invention of the steam engine in Britain: “A new technology was needed that would change a high-cost industry [iron making that was expensive because of an existing lack of wood according to Wallerstein] into a low-cost one. The efficient use of coal, along with the steam engine to convert the energy, was the solution.” This is just about all he has to say about innovation.<sup>511</sup>

To be honest, I am quite surprised at the extremely straightforward way in which these renowned scholars – and others – jump from challenges to responses. Morris’s claims about geography’s challenging role in explaining the Great Divergence are far too mechanistic. When it comes to Europe’s advantage in terms of location – as highlighted by him – one can only be brief. Leaving aside the question whether, as he suggests, ‘the Americas’ explain Western Europe’s take-off: is not Western Africa even closer to the Americas? To pretend like he does, for example, that maintaining and exploiting the Atlantic economy would have provided Europe with the fundamental challenges for science and technology is very far-fetched and as a general statement simply untenable. The often-repeated claim that every time gets the thought it deserves, sounds hollow and quite meaningless upon closer inspection.

The thesis that the exploration and exploitation of the Atlantic would have been a challenge, as Morris implies – apart of course from the fact that as he himself indicates, Columbus never *meant* to discover America and never knew he did – is rather exaggerated and in any case one-sided. Adam Smith already wrote: “The establishment of the European colonies in America and the West Indies came from no necessity.”<sup>512</sup> This line of reasoning would, moreover, at least suggest that for a country like China, challenges to explore and colonize would have been lacking. That thesis has for example been defended in many stories about the ending of Zheng He’s voyages in fifteenth century (1368 – 1644). China would simply lack economic reasons for exploring the world. This would also apply to Qing China. Did not the Qianlong Emperor in his famous letter to George III King of England in 1793 write the following?

As your Ambassador can see for himself, we possess all things. I set no value on objects strange or ingenious, and have no use for your country’s manufactures. . . . our Celestial Empire possesses all things in prolific abundance and lacks no product within its own borders. There was therefore no need to import the manufactures of outside barbarians in exchange for our own produce.<sup>513</sup>

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511 Wallerstein, *Modern World-System III*, 26.

512 Smith, *Inquiry into the nature and causes of the wealth of nations*, II, page 558.

513 <http://academic.brooklyn.cuny.edu/core9/phalsall/texts/qianlong.html> Emperor Qianlong: Letter to George III, 1793. One can easily find many other similar quotations.

That emperor may have fought many wars, like his father and grandfather, but those in the end were only to secure borders, not to extract resources from colonies. Very recently, Pomeranz again and succinctly made this point: "... there was no mercantilist colonialism there (i. e. in Qing China PV) ... because such activities quite reasonably did not seem worth it."<sup>514</sup> Actually there were more than enough good reasons for the Qing rulers in the very long eighteenth century to more intensely exploit China's peripheral regions such as the border regions in the Southwest, Tibet, Xinjiang, Mongolia, or Manchuria. No pre-industrial society was so wealthy that its rulers could really afford to be complacent and not try and increase available resources. China's rulers were not 'colonialists' like their counterparts in Western Europe for a mixture of reasons: lack of strength or resources, lack of motivation, and, at times, because they explicitly did not want to, as can be seen in the particular case of Manchuria. That region, about twice the size of France, could have provided far larger amounts of bean cake, grains, and wood than it did and also huge amounts of coal, and it could have accepted far more immigrants. All that would have been good for China's economy. The country's rulers simply were not interested and had other priorities.<sup>515</sup> Their country, from the last decades of the eighteenth century onwards, was not exactly lacking challenges of all sorts but hardly any of them received an adequate response.<sup>516</sup> As *general* statements, claims about challenges and responses do not explain anything at all.

Geography, moreover, and therefore its challenges and possible responses, in many respects does not need to be stable. I already referred to the Columbian Exchange and to Western ecological imperialism. But there are other relevant examples. Britain in the High Middle Ages was an outlier: the heart of Europe's economy was still in the Mediterranean that, however, with the 'rise of the Atlantic' became much more peripheral. With the 'opening' of China, its coastal regions became more important, whereas several core regions of the country turned into hinterlands.<sup>517</sup> Politics of course can also determine geography. Peking and Madrid, for example, were capitals and therefore economically very important although, geographically speaking, their location was anything but ideal. But the rulers of China and Spain simply wanted it that way. What is more, neither 'challenges' nor 'responses' – geographical or otherwise – are actually 'objective facts'. Problems, to a large extent, are in the eye of the beholder. Up until the 1830s, for example, the Chinese basically ignored the presence of the British at their doorstep. They did not see a problem. When it comes to solutions,

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514 Pomeranz, 'Ten years after', 20.

515 Yong Xue, 'A "fertiliser revolution"?'

516 See for an overview Rowe, *China's last empire*.

517 Pomeranz, *Making of a hinterland*.

these are not ‘objective’, unequivocal either, with each problem having ‘its’ solution. In the eighteenth century, the increasing scarcity of wood was dealt with differently in China, Japan and Britain. Such scarcity itself, moreover, is never simply a matter of geography. It depends on supply *and* demand. In Britain, e.g. it to a large extent was a consequence of huge demand by the navy and the iron industry.<sup>518</sup> In brief, geography, the assumed ‘ultimate explanation’, is not itself a hard ‘fact’.

Let us expand a little on ‘the challenge’ of wood scarcity and ‘the response’ of coal that figures so prominently in the analyses of Pomeranz and Parthasarathi, among others, and that holds centre stage in so many debates on the Great Divergence. Like Britain, China faced wood shortages. But hardly anything was done to substantially increase coal production, either by private entrepreneurs or by government. Pomeranz’s *Great Divergence* argues that the biggest coal deposits in China lay in the Northwest, too far away from the fuel users in the economic heart of the country.<sup>519</sup> Several scholars rightly claim that the problems involved in transporting coal from there to places where it was needed could have been solved. The weakness of the Chinese state and the fact that it had other priorities are important reasons why they weren’t.<sup>520</sup> Moreover, even if the Northwestern province of Shanxi had been the only place with large known coal fields, this province happened to be home to the famous Shanxi bankers and for many decades into the nineteenth century actually was a fairly wealthy and capital-rich region, not a backwater, as Pomeranz wants to suggest. As a matter of fact there was coal, and there were coal mines in several other parts of the country.<sup>521</sup> It apparently has been claimed that “...coal had been much more used than wood as energy resource by the Chinese since the end of the Ming Dynasty”.<sup>522</sup> To make things even worse for the Californian position, Loren

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518 For demand by the Navy, see Patrick Melby, ‘Insatiable shipyards: The impact of the Royal Navy on the world’s forests, 1200–1850’, <http://www.wou.edu/las/socsci/history/Senior%20Seminar%20Thesis%20Papers%20HST%20499/2012/Melby,%20Patrick.pdf>

519 Pomeranz, *Great Divergence*, 64–67.

520 See e.g. Li Bozhong, *Development of agriculture and industry in Jiangnan*, 59 and Perdue, *China marches West*, 539–542.

521 See for some examples Parthasarathi, *Why Europe grew rich*, in the Index under ‘Coal, in China’ and for a contemporaneous comment Abel, *Narrative of a journey in the interior of China*, 194: “The missionaries inform us that coal mines are so abundant in every province of China that there is, perhaps, no country in the world in which they are so common.” Abel refers to a publication by Jean-Baptiste Grosier, 1743–1823, a French abbot, who in 1788 published his *General Description of China*. He refers to Volume One of this book.

522 Xiang CHI, master candidate at the Department of History of Tsinghua University Beijing, referred me to an article by Professor Zhonglin Qiu, ‘Population growth, deforestation and the living fuels transition of Ming Beijing’, *The Journal of the Historical Language Institute of Academia Sinica* Volume 74, 2003 in which this claim is made. I could not consult the article myself.

Brandt, Debin Ma and Thomas G. Rawski have come up with data that throw very serious doubts on the Californian claim that China lacked cheap coal.<sup>523</sup> The reason Pomeranz gives for explaining why China did not develop steam pumps and steam engines is questionable too. In Britain, those pumps were first developed and used to drain mines. According to Pomeranz, Chinese coal mines had much less of a water problem.<sup>524</sup> That is not true: the Chinese encountered serious problems of drainage in their mines too.<sup>525</sup> Such problems also existed in many copper mines that were of enormous importance for China's economy and China's state, since they provided the country with its daily money.<sup>526</sup> But it looks as if "the Chinese avoided mines with the underground flooding problem altogether."<sup>527</sup> Steam engines could have been put to good use in Chinese mines for ventilation or fire prevention.<sup>528</sup> There would, moreover, have been plenty of room for inventions in early modern China to save labour or resources *outside* the mining sector, for example in irrigated agriculture. As long as humans' material desires are not satiated, there always is a potential demand for new, better, and more cost-effective technologies. Yet for half a millennium almost nothing was done to improve on the methods inherited from the past.<sup>529</sup> In brief, there existed several very good reasons to invent pumps and steam engines in China. The challenge was not taken up. China's mining technology when it came to mining coal, gold or silver was and continued to be very primitive as com-

523 See Loren Brandt, Debin Ma and Thomas G. Rawski, China's long-term economic growth: retrospect and prospect. Paper prepared for the Asia Historical Economics Conference Tsinghua University Beijing 19–21 May 2010 [http://ahes.ier.hit-u.ac.jp/ahec\\_beijing/papers/may21\\_no26.pdf](http://ahes.ier.hit-u.ac.jp/ahec_beijing/papers/may21_no26.pdf). Consulted 14–9-2012.

524 Pomeranz, *Great Divergence*, 64–67. Actually, James Watt primarily worked on his steam engines to solve drainage problems in tin mines in Cornwall, where labour was cheap and coal expensive.

525 See e.g. Golas, *Science and civilisation in China*, 186; Xu Dixin and Wu Chengming, *Chinese capitalism, 1522–1840*, 5, 13, 93, 266–267, 277, 280, 287, 289–291, 296–297 and Mark Elvin, 'Skills and resources in late traditional China' in: Elvin, *Another history*, 64–100, pages 90–93. Japanese mines, by the way, also suffered from serious drainage problems and there too no innovative response was found to this challenge.

526 For copper mining see Tsu-yu Chen, 'China's copper production in Yunnan province 1700–1800', the conclusion on page 117: "In the beginning of the nineteenth century, because of the perilous mineshafts that went deeper and deeper, the less rich copper lodes that had been exhausted, the serious flooding of mines, and the fuel shortages for smelting, copper mining became more expensive. To produce 100 catties of copper, 1,400 to 1,500 catties of charcoal was required and soon deforestation occurred in the areas of copper mining, so people must transport charcoal from afar. Copper production in Yunnan declined on account of failure to break through the bottleneck of mining techniques."

527 Deng, 'Why the Chinese failed to develop a steam engine', page 168. Compare Elvin, 'Skills and resources', pages 92–93, and Harrison, *Man awakened from dreams*, 114–115 and 132–133.

528 Deng, 'Why the Chinese failed to develop a steam engine', 168.

529 Elvin, 'Skills and resources', 90.

pared to Europe's in the early modern era.<sup>530</sup> In this context it, of course, is also striking that already the Frenchman Denis Papin (1647–1712) was experimenting with a rude kind of steam engine, i.e. at a time when problems of fuel scarcity were far less pinching than in Britain or China one century later. Apart from Britain, he also worked in France and Germany where conditions were quite different. Besides, the problems encountered in China's mines were not only technical. Mines often closed during parts of the year when peasants who worked in them had to tend their land.<sup>531</sup> Low wages made big investments risky as larger mines that might consider them had to compete with small operations where both investments and wages were very low.<sup>532</sup> Here, too, the challenge-and-response and necessity-is-the-mother-of-invention theories many scholars are so fond of actually often explain hardly anything.

The importance of geography is also emphasised in literature dealing with economic growth in the way in which certain environments would 'predispose' certain societies to develop certain social relations and certain modes of production with huge implications for their further economic development. Douglas Allen emphasizes that institutions in a pre-industrial societies could not ignore nature: "The institutions societies use depend on the role of nature, its variability and (the) ability to measure and separate out natural from human inputs in any activity."<sup>533</sup> That, of course, is a statement that is quite true but also so general as to be almost without substance: up until the end of the eighteenth century all societies in the world were pre-industrial and very dependent on nature's whims. The ways they dealt with that fact and more in general with factor endowments institutionally varied enormously. Let me refer to a couple of 'institutional responses' that are highly relevant in the context of this book.

A first example of a debate in which the role of institutions and their dependency on factor-endowments holds centre stage is the extensive and intensive discussion on the differences in economic development between Latin America and the Caribbean on the one hand and the United States and Canada

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530 This was shown beyond any reasonable doubt in a presentation by Professor Hans Ulrich Vogel from Tübingen University, with the title 'Books on Mining and Salt Production: Useful Knowledge in Late Imperial China' given at a Conference of the British Academy in London on 14 and 15 February 2013, called The Production and Circulation of Printed Books in the Occident and Orient, from the Accession of the Tang Dynasty (c. 618) to the First Industrial Revolution. The lecture will be published in a volume dedicated to the conference and its topic. For further publications, I refer to his website at Tübingen University.

531 Harrison, *Man awakened from dreams*, 114–115.

532 Harrison, *Man awakened from dreams*, 132–133. A fine example to show that economic historians are well-advised not to ignore labour-relations.

533 Allen, *Institutional revolution*, 219. See also *ibidem*, 227: "...institutions [in pre-industrial England] turn out to be ingenious solutions to the measurement problems of the day."

on the other, in which the first two are described in terms of 'failure' and the last two in terms of 'success'. This specific Great Divergence is at the heart of some very interesting analyses in particular by Acemoglu, Johnson and Robinson and by Engerman and Sokoloff. Their analyses have had a huge impact and are very interesting in terms of their methodological reflections on how to do long-term comparative research. As indicated, they start from certain increasingly disputed assumptions about the existence of huge differences between countries in terms of national wealth; their inequality of incomes and wealth; their colonial and postcolonial settlement patterns and labour systems, and the extent to which there was a drain of money and resources from colony to motherland.<sup>534</sup> If those views, now supposed to be true, turn out to be unacceptable, that would of course have major implications for the explanations that build on them. But that would still not detract from the value of learning about the positions in the debate as they exist now and how they are constructed and defended. I want to present an overview of where the debate is and where it might be going, not to predict it. The debate about connections between factor endowment and institutions is also waged for the case of Africa but up until now that has been done less explicitly and extensively. For the period that is discussed here, labour is regarded as relatively scarce for most of Africa – but also as relatively unproductive in agriculture – and land as relatively abundant. This would have created certain challenges and blockades that scholars are now beginning to analyse.<sup>535</sup>

But let us here focus on the American case to try and illustrate possible mechanisms behind growth and stagnation. As a rule, three blocks are distinguished in the New World: the North (Canada and the territories of the USA, with of course some major differences between North and South), the Caribbean and Latin America (for centuries almost entirely under Spanish and Portuguese rule). Let us begin by briefly discussing the famous efforts by Acemoglu, Johnson and Robinson to see a close connection between the environmental conditions and the emergence of a certain kind of economic institutions in regions

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534 Actually two further comments are in order here: It is only for the nineteenth century that historians have fairly 'solid' data. Much of what is claimed for the colonial era can very well have been tainted in a kind of backward projection by what is known about the situation in the first century after independence. On top of that there is the real danger of turning in particular Latin America into much more of a 'failure' than it actually was. As compared to the United States and Canada, its economies indeed fared badly during the nineteenth century. But as compared to those two exceptionally dynamic and growing economies, just about every region in the world 'failed'. From a global perspective what happened in Northern America was very exceptional whereas what happened in Southern America was fairly normal. See e.g. Prados de la Escosura, 'Lost decades'.

535 See e.g. the publications under notes 60, 61 and 597.

colonized by Europeans.<sup>536</sup> They make a fairly direct connection between factor endowments, institutions and then growth and regard the presence or absence of high mortality and diseases and the availability of specific resources as a kind of trigger for developments in which institutions then become crucial. Regions with high mortality because of diseases were not very attractive for Westerners who basically only went there to extract as much resources as possible but not to really settle. The wealthier those inhospitable regions were, the more they became characterised by extractive institutions with coercive labour relations. Regions with a less inhospitable environment – and less windfall profits from resources – attracted settlers who wanted to make a living there and who created their own favourable institutional environment with well-described and well-protected property rights and representational government, in brief a set of inclusive institutions, that according to Acemoglu and his colleagues make development and growth all but normal. When in place, those inclusive or extractive institutions tended to perpetuate themselves via virtuous or vicious circles.<sup>537</sup>

Engerman and Sokoloff in their many analyses of the divergent economic development of various regions of the New World pursue a similar strategy but pay far more attention to how path-dependency in this context actually worked and how resource-endowments exactly impacted economic development.<sup>538</sup> They emphasise, without in any way becoming mono-causal, the fundamental role of resource endowments in a broad sense of the word. For them, they cover quantity and quality of land, climate, the kind of crops that can be grown and the most profitable way to grow them considering the circumstances, and density of (the native) population. They claim that differences in these endowments predisposed different parts of the New World to focus on growing different crops or specialising in specific activities which then had major, long-lasting implications for the societies involved by setting them on certain trajectories. Those natural factor-endowments had a very strong impact on emerging institutions, which in turn could influence them. They do not claim the existence of some sort of ‘crop determinism’ but think in terms of path-dependencies. Their position comes close to the one Gareth Austin developed considering economic development in Africa when he pleads for a position that he refers to as ‘sophisticated geography’

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536 See Acemoglu, Johnson, and Robinson, ‘Colonial origins of comparative development’ and *idem*, ‘Reversal of fortune’.

537 See page 125 ff.

538 See for a synthesis of their ideas, Engerman and Sokoloff, *Economic development in the Americas since 1500*. See also Nathan Nunn, ‘Slavery, inequality and economic development in the Americas’.

and that claims that: "...institutions are very important for economic growth, but are themselves partly responses to specific environmental conditions."<sup>539</sup>

The resource-endowment approach of Engerman and Sokoloff is primarily meant as an alternative to the approach of scholars who focus on explaining those differing developmental routes in terms of the cultural or institutional *background* of the settlers.<sup>540</sup> What mattered according to them is not so much whether, as has often been emphasised, settlers came from an Anglo-Saxon or at least North-western European background or from Iberia, but where and under what conditions they settled. They too, point at a 'reversal of fortune'. For the first 200 to 250 years of settlement of the New World, the regions that in the end would become by far the wealthiest, the United States and Canada, were the poorest and did not attract many settlers. The Spanish settlements of Mexico and Peru with their still substantial native population, their large estates and their enormous supply of bullion, and even more the Caribbean, with its booming plantation economy over that period of time were far wealthier, looked more promising, and attracted more settlers. The West Indies were the region that attracted most immigrants from Europe from 1650s onwards till the beginning of the nineteenth century, many more white people went to the mainland of South America and the Caribbean than to Northern British colonies.<sup>541</sup> By 1790, on a per capita basis Haiti may have been the richest society in the world. In 1800 real income per capita in Barbados and Cuba was still somewhat higher than in the United States, where it was about equal to that in Argentina. In 1700, incomes in Barbados and Cuba had been 50 and 67 per cent higher than in the British colonies that would become the United States.<sup>542</sup> After the war of 1756 – 1763, the victorious British had a lively public debate over which territory should be taken

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539 Austin, 'The 'reversal of fortune' thesis', 1021. For the concept 'sophisticated geography', that was originally coined by Acemoglu, Johnson and Robinson, see their 'Reversal of fortune', paragraph 4.2.

540 See e.g. Douglass North, who claims that the different fates of the lands North and South of the Rio Grande were a matter of 'Iberian' versus 'Anglo-Saxon' institutional and cultural legacies in North, 'Institutions', 97 – 112, and more extensively in North, Summerhill and Weingast, 'Order, disorder and economic change: Latin America versus North America.' He thinks in terms of path dependency which here implies that you cannot simply transplant institutions to different settings or get rid of one's own institutional background. Compare Acemoglu and Robinson, *Why nations fail*, chapter I, 'So close and yet so different', where they juxtapose Nogales in Arizona in the United States and neighbouring Nogales in Sonora Mexico, show the big differences in wealth and development between these two towns and attribute them to institutions.

541 Engerman and Sokoloff, *Economic development*, 42 – 43. This seems to contradict the thesis by Acemoglu and colleagues who claim that in unhealthy regions Europeans could and would not settle. See Acemoglu, Johnson and Robinson, 'Colonial origins', Abstract. That many sugar barons in the Caribbean were absentees or returned home as soon as possible is another matter.

542 Engerman and Sokoloff, *Economic development*, 10 – 11.

from the French as reparations, the Caribbean Island of Guadeloupe, measuring 1705 km<sup>2</sup>, or Canada! The high GDP per capita of the slave societies referred to here, can be explained by the fact that a higher percentage of their population worked than was the case in 'normal' societies and that their production was highly capital intensive and commercialised and thus quite efficient. But apparently the long-run growth potential of the Northern part of the continent was higher than that of its Central and Southern parts.

The thirteen British colonies that were to become the United States after their revolution and 'Canada' only became attractive for settlers quite late. For many decades they attracted fewer migrants than the rest of America. As compared to that rest they in any case looked less promising for people who wanted to get rich quickly. The bulk of their immigrants came from Britain, France, and the Netherlands. The places where they settled were relatively empty – or emptied – and well suited for growing wheat and keeping livestock. As regions with a natural comparative advantage in factor endowment for pastoral agriculture they later on in the eighteenth and nineteenth century attracted Europeans who were interested in settling and taking up that agriculture. As a rule, they were more skilled than their Iberian counterparts.<sup>543</sup> Almost without exception, their mixed-husbandry farms tended to be relatively small. Experiments with large landholdings worked by wage labour and with tenancy invariably failed and, as a matter of fact, were rather half-hearted. Family farms owned by those who worked them came to be the norm. Around 1900, three quarters of the people in the United States owned land, in Canada that was even more. At times Engerman and Sokoloff suggest – quite consistently considering their focus on endowments – a fairly strict crop-determinist explanation for this state of affairs by claiming that in growing wheat or other grains possibilities to create increasing returns to scale were very limited if not entirely absent.<sup>544</sup> As a general statement, that claim is at the very least not very convincing, as the huge and profitable wheat farms in Britain at the time show. What could have been the rationale behind all the enclosing and consolidating of farms in Britain, if large grain-farms make no sense? If, in the United States and Canada in the pre-machine age, wheat farming had no increasing returns *to* or economies *of* scale, this must have been because of some local idiosyncrasies. What is also striking is that those regions of mixed husbandry knew no slavery or other forms of coerced labour. Considering their resource endowments, that is not at all obvious.<sup>545</sup> On the contrary, if we were to believe scholars like Nieboer and Domar, the existing situation of land abun-

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543 Fielding and Torres, 'Cows and conquistadors'.

544 See e.g. Engerman and Sokoloff, *Economic development*, page 42, note 14 and page 53.

545 We must, however, not forget that at least one third of the new settlers during the colonial period came as indentured labourers, and that the British banished many convicts to their North American colonies.

dance and shortage of people would – in the ‘right’ political context – have been almost ‘ideal’ for the emergence of some kind of coerced labour.<sup>546</sup> According to Engerman and Sokoloff, however, wheat productivity at the time was such that slaves, for whom there existed high demand on the world market, simply were too expensive.<sup>547</sup> The predominance of family farms thus actually was due to a mixture of factors. It was very easy to set up independent farms, even for people of small means. There was abundant free land and keeping people tied as wage labourers or tenants simply would have been all but impossible. In any case, this was not actually attempted.

To a very large extent, allowing free men to capture the economic surplus of free land was a political decision. Labour was scarce on the frontier. Authorities were very keen on attracting settlers who would develop the country and increase its wealth, realising and accepting that letting them go ever deeper into the country, made labour scarcer near the coast and drove up wages there – which would, like in Britain, act as a stimulus to develop labour-saving techniques. Governments actually supported the emergence of a very broad class of medium- and small-size landowners. Up until into the twentieth century, they overall allowed millions of immigrants to enter the country without, however, allowing the country to become ethnically ‘too’ diverse. In the United States around 1800, some eighty per cent of the population still was ‘white’, some twenty per cent ‘non-white’, mostly black slaves and a small number of Native Americans. Those black slaves were concentrated in the Southern part of the United States that resembled the slave societies of the Caribbean far more than the rest of the country. Slavery there in the end was abolished in the 1860s and the economy became more integrated with that of the rest of the country, which led to structural change, without, however, obliterating its legacy. At first with the official abolition of slavery in 1865, when slave owners did not receive any compensation, large plantation-like landholdings disappeared. For those products for which it made economic sense, they tended to re-appear using other cheap, often only semi-free labour.

So apart from the South, in the United States and in Canada a society emerged where the majority of people owned land and where inequality of income and wealth was relatively low. Moreover, an increasing number of the population,

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546 See page 190.

547 See Engerman and Sokoloff, *Economic development in the Americas*, 42–53. Robert Allen holds a similar view. According to him there was no slavery in the Northern parts of the USA because slaves would not have generated enough income to cover their costs. See Allen, *Global economic history*, 72. Compare, however, page 173 of this text and Moulrier-Boutang, *De l’esclavage au salariat*, 209, where the author refers to the use of slaves on farms producing wheat and vegetables in the Northeast of (what were to become) the United States.

beginning of course with those owning land, acquired the right to vote. With the passing of time, wealth-based restrictions on franchise were weakened or even removed entirely. Voters voted for fairly progressive tax systems in which the bulk of the – already low – taxation was on property.<sup>548</sup> They also voted for a very broad and open system of education. The white population of the United States in 1800 were the most literate people of the world. Apart from the South of the United States, both the United States and Canada were characterised by high economic participation and activity, and by a substantial mass-market, which facilitated economic development and the emergence of modern economic growth that to such a large extent depends on the ability to sell standardised mass products. The United States already started to industrialise quite early but did *not* do so via what has long been considered the ‘classic’ route i. e. via one or more leading sectors, massive use of new technologies and new power sources, and a substantial increase of capital-intensity. Scale effects were important but, as indicated, more in broadening and deepening the market, i. e. more via demand than supply. Development and growth occurred over a broad range of economic activities, often via incremental improvements in organisation, methods of producing and marketing. Less capital-intensive industries generated just as much growth as more capital-intensive ones. In the first decades of the nineteenth century, the United States and Canada clearly became the wealthiest regions of the Americas.

Resource endowments and trajectories of the Caribbean region, to a lesser extent Brazil and, as indicated to a lesser extent also the Southern parts of the United States, were quite different. Those regions were quite empty when settlers arrived. Their native population was small and declining as in the North. But in terms of soil and climate they were perfectly suited to grow cash crops like tobacco, coffee, cotton, sugar and rice, that in this region was not a local staple. The most cost-effective way to grow those products at the time – considering the enormous and growing global demand for them – was on large units. As not enough native labour was available for working on large farms and white settlers were simply unwilling to become wage labourers, another solution was looked for. The option chosen was to make slaves do the work. A plantation economy emerged specialising in cash crops and with slaves as the main labour force. The region may have been quite unhealthy for settlers from Europe but they could earn such huge incomes as planters that many people nevertheless left Europe to try their luck. No part of the Americas received more European immigrants before 1800 than the West Indies.

The societies that emerged here became characterised by the enormous

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548 In *all* these respects, strikingly enough, the United States in the first half of the nineteenth century were the exact *opposite* of industrialising Britain!

differences between the wealthy and ruling elite and the bulk of the population that consisted of poor slaves. In the West Indies, more than three quarter of the population consisted of imported slaves. The planters came to get rich, that is if they were not simply absentee landlords, spent and invested the bulk of their money abroad and as a rule went home when they had made their fortune. Amongst the imported slaves, mortality was very high so the slave population had to be constantly supplemented with new 'imports'. Inequality in terms of income and wealth was enormous. Many people were excluded from active economic life and no mass market for consumer goods existed. The small ruling elite used its economic and political power to try to perpetuate the status quo. Franchise remained very restricted and expenditure for mass education was tiny. Literacy and numeracy were low. The economies of the region would always be very vulnerable in their one-sided export-orientation and lack of general development. When their cash crops were hit by crisis, so were their entire economies. In the nineteenth century they all were poorer than the United States and Canada and had far less potential for development.

Mexico and Peru were the regions that first attracted larger group of immigrants, in this case Spaniards. The situation there, *still according to Engerman and Sokoloff*, can be described in the following terms. Notwithstanding the enormous mortality under native inhabitants as a consequence of diseases the Europeans brought with them to the New World, the number of original inhabitants surviving there still was substantial and it grew enough to provide labour force for incoming settlers. The happy few amongst the immigrants from Spain often received large tracts of land and the necessary labour force that goes with it. In agriculture, they more or less continued the old tribute system, now running their large estates, so-called *encomiendas*, with coerced labour. Apart from on large estates, labour was also coerced to work in gold and silver mines, which provided a source of easy money i.e. very high incomes for a privileged elite, without providing many workers with a – very poorly paid and very unhealthy – job. By and large, mining hardly had any backward and forward linkages for the rest of the economy apart from pushing up prices. It provided a textbook example of 'the curse of resources'. A very substantial part of the bullion of the colonies of Spain – and for that matter Portugal – was siphoned off as taxation to the mother country or redistributed between parts of the empire but here too local elites managed to use their leverage to pay little and receive a lot.<sup>549</sup> There was no need to allow many immigrants to enter. Immigration was actually opposed and restricted in an effort to not have to share the spoils and intermarriage between settlers and natives was not prohibited, which of course proves once again that one never can ignore the role of politics. In the Spanish

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549 See for this redistribution Grafe and Irigoin, 'Spanish Empire and its legacy'.

colonies in the Americas around 1800, less than twenty per cent of population could be considered white, in Brazil at the time that was some twenty-five per cent. In the end a situation emerged that in essence was not unlike that in the Caribbean with a very high inequality of income and wealth, elites that kept franchise restricted and did not bother with mass education, low economic participation or much mass consumption: in brief, here, too, a set of conditions emerged that were not exactly supportive for economic growth.

The reasons whether crops were grown on plantations or not, and whether this led to slavery or not, as Engerman and Sokoloff themselves show, actually were never simply geographical, far from it. They, with good reason, do not want to preach a kind of 'crop determinism'. The first crop that comes to mind when we think of plantations probably is sugar, a crop that in the eyes of Sidney Mintz almost automatically becomes associated with large-scale production by slaves.<sup>550</sup> That association is also often fairly automatically made with cotton and to a lesser extent tobacco, especially of course because of what happened in the Americas. But in China these crops almost without exception were grown on family plots, very tiny ones at that. Talking about China, there of course also is the example of tea; a plant that by most people is associated with plantations like those in India and Ceylon but that in China, the country that originally monopolized its export, was grown on family plots. That also goes for rice, which as a rule is typically regarded as a crop to grow on small plots, as indeed was the case in entire East Asia. There are even theories, e.g. by Francesca Bray, explaining why before the so-called Green Revolution this *had* to be the case.<sup>551</sup> That seems exaggerated as the availability of labour and its characteristics definitely also play their part. In what is now the United States, where land was relatively abundant and labour relatively scarce and expensive, rice was actually already grown on plantations from the eighteenth century onwards. In South Carolina, it was introduced on farms in the second half of that century. Many of those farms, e.g. those near Charlestown and Georgetown, used slave labour. In some rice-producing areas, slaves outnumbered whites by as much as eight to one.<sup>552</sup> In 1787, a farmer named Jonathan Lucas began to use a rice-mill powered by water, and in 1792 one driven by tides. Till 1850 some 150 large rice plantations were set up in the region. After 1805, rice also started to be grown in the South of the United States. In Louisiana and Texas machines were used for mowing and binding.<sup>553</sup> To come back to cotton, it was grown by slaves in the

550 See e.g. Mintz, *Sweetness and power* and Williams, *Capitalism & slavery*.

551 See e.g. Bray, *Rice economies* and Kang Chao, *Man and land in Chinese history*.

552 See e.g. Blackburn, *Making of New world slavery*, 476–477.

553 Already in 1869 the Southern States of the United States regained their pre-Civil War production-level of cotton. Over the years 1870–1879, they surpassed it by forty-two per cent. I found these data in McCloskey, *Bourgeois dignity*, 223. She refers to a study by Stanley

Southern half of what now is the United States. A ‘crop-deterministic’ explanation would be that slaves in cotton-growing regions could be employed usefully over the entire year. The reason why there were no plantations with slaves in the North would then be that this wasn’t the case in wheat-growing regions.<sup>554</sup> This variety of crop-determinism is quite dubious too. After the official end of slavery, cotton was grown on small farms, without any negative effect on total production.<sup>555</sup> Slaves could have been useful all year round in the North of the United States.<sup>556</sup> In the South, moreover, they had always done many other things apart from growing cotton for their boss.

### 3. Geography and institutions: Britain and China, wheat versus rice

In brief, geography did not per se determine crops and those did not per se determine and ‘fix’ institutions, as in naïve conclusions such as ‘sugar gives you the plantation’ or ‘rice gives you the peasant plot’ and all that goes with it through all eternity. One always has to consider factor endowment in its entirety, the relative prices of factors of production that entails plus the institutional arrangements that prevail in a certain region.<sup>557</sup> In my view, referring to geography, apart from obvious, i. e. very extreme, examples can never provide a sufficient explanation for long run economic growth or its absence. It can never be the sole or even the main explanation of the Great Divergence. This of course does not exclude the possibility and sometimes even the probability – to pursue that example further – that a combination of certain crops and certain institutions becomes ‘fixed’ and sets an economy on a trajectory that turns out to be a vicious or – much less often – virtuous cycle or at least a challenge to innovate. The analyses of Engerman and Sokoloff in particular for the Americas in my view clearly point that out, as does the following story about China’s rice

Lebergott. Interestingly enough Adam Smith thought the use of slaves in sugar and tobacco growing was only profitable in the British colonies because trade in those products was monopolised and protected. See Smith, *Inquiry into the nature and causes of the wealth of nations*, 388.

554 See e. g. Blackburn, *Making of new world slavery*, 476–477.

555 Already in 1869 the Southern States of the United States regained their pre-Civil War production-level of cotton. Over the years 1870–1879, they surpassed it by forty-two per cent. I found these data in McCloskey, *Bourgeois dignity*, 223. She refers to a study by Stanley Lebergott.

556 See e. g. Woodman, *Slavery and the Southern economy*, 7; Blackburn, *Making of New World slavery*, 476–479 and under note 547.

557 See for some comments Studwell, *How Asia works*, Part I. Land: The triumph of gardening, in particular pages 54–55.

economy and Britain's wheat-livestock economy, that brings us back to the heart of our analysis, the Great Divergence between Britain and China.

Britain's agriculture predominantly was a mixed agriculture with grains such as wheat, rye, oats and barley – for beer – as staple foods, whereas in those regions of China that were most advanced and where the majority of the Chinese lived, a type of agriculture predominated where rice was the staple food. For the sake of convenience, I will use the expression 'wheat agriculture' to refer to the kind of mixed husbandry we find in Britain and Western Europe. Following Francesca Bray I will use the term 'rice agriculture' for the agricultural system we find in those regions of China where rice was the staple food.<sup>558</sup> One then should think primarily of the economic and demographic heart of China in the South. I will here first introduce the way in which Francesca Bray contrasts these two types of agriculture and the implications of that contrast. After having done that, I will also point at some assumptions in her work that might be problematic.

What are the main characteristics of *pre-industrial* rice agriculture compared to *pre-industrial* wheat agriculture, and what do they imply for the economy?<sup>559</sup> Let us begin with rice agriculture. That has a very high yield per unit of land, far higher than wheat, with the extra advantage that in growing rice there is no need to let land lie fallow. On top of that, at least in the right climate, several varieties of rice can be inserted in all kinds of systems of multi-cropping and inter-cropping. One can have two or even more harvests per year of rice or, normally, of rice and some other crop. Yields react very positively to irrigation and fertiliser. The extra labour required for constructing, maintaining and using irrigation systems and collecting, preparing and spreading all kinds of fertiliser, pays off. Even tiny tracts of land can suffice to feed a family.

It is tempting to think that a type of cultivation that is as land-intensive as growing rice must also be labour-intensive. Preparing, manuring, irrigating and draining the fields, planting, transplanting, weeding, harvesting, husking and milling the rice, to mention the most obvious activities involved, involve a lot of hard work. But the labour-intensity of the crop must not be exaggerated.<sup>560</sup> An

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558 Bray, *Rice-economies*. For interesting comments on the specific requirements and characteristics of Western Europe 'grain-economies', that according to the author would have set Europe on a special path already in the Middle Ages, see Michael Mitterauer, *Why Europe?*

559 See for background information Bozhong Li, *Agricultural development in Jiangnan*, 'Conclusion'; Bray, *Rice economies*; Grigg, *Agricultural systems of the world*; Hayami and Tsubouchi, *Economic and demographic development in rice producing societies*, 6–20; King, *Farmers of forty centuries* and Oshima, *Economic growth in Monsoon Asia*. Some interesting comments can be found in Sigaut, 'La Chine, L'Europe et les techniques agricoles'.

560 If we compare the total amount of work that is required to provide subsistence in producing rice with the total amount of work that is required to provide subsistence in producing

average family, *double-cropping*, growing rice and wheat, on an average-sized farm in the Lower Yangzi, still only could be efficiently employed for about four months per year. In those months, they had to work very hard and often were short of labour. But during the rest of the year it was underemployed or even unemployed, if it did not take up other activities.<sup>561</sup> This is what most families did. In Southern China growing rice could easily be combined with growing and processing other crops like cotton, silk, sugar, tea or tobacco that can bring in extra money. Handicraft became an integral and fundamental part of almost every household-economy. Men tended to 'specialise' in agriculture, whereas for their wives handicraft often turned into practically a full-time job. One could also grow fruits and vegetables, keep livestock and fowl, and work as agricultural labourer. All these extra activities could become so important that labour was in short supply and not, as is often thought, abundant.<sup>562</sup>

In the pre-industrial context we are discussing here, there was comparatively little scope for labour-saving strategies in this kind of agriculture.<sup>563</sup> Although oxen and buffalo were employed, the ratio of men to draught animals was much lower in rice-growing regions than in regions where wheat was grown. There was not much employment for big draught animals, especially in paddy fields. They were too expensive. Considering the high yields of arable land, it was not profitable to reserve land for them and better to use human labour instead. There was no need to buy big expensive ploughs. Whenever possible, land was used for cultivation. Besides, growing rice was a matter of meticulous cultivation that requires constant attention of skilled human labour and not brute, repetitive, mechanical force. Using large implements and big draught animals in working the fields probably would have done more harm than good. Milling was normally done by hand and not in big mills, as was the case in Western Europe. When milled, rice could not be kept from decay for long, so it was only milled in small quantities. Increasing returns to scale or economies of scale were almost absent in growing rice in China, so it did not make sense to try and work large farms with large amounts of wage labour. It was more rational as a large land-owner to rent out your land in many small parcels than to try to exploit it as a manager in the form of big farms. In case you needed labour for special occasions, it normally was available. Members of the household could also do a lot of other things besides working their land and were willing to make sacrifices for

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wheat, which I think is the best way to compare labour-intensity, the differences between both kinds of cultivation are minimal.

561 See Bozhong Li, *Agricultural development in Jiangnan*, 151–155. This book contains an extensive analysis of the labour requirements of various agricultural tasks.

562 See for example Bozhong Li, *Agricultural development in Jiangnan*, 24–25, and Perkins, *Agricultural development in China*, 45–46 and 58–60.

563 In that sense rice economies indeed are labour-intensive as compared to the agricultural systems of Western Europe.

the sake of their co-workers. It therefore was not much use to try to kick them off the farm, even if from a strictly economic perspective their productivity was not optimal. As indicated, Bray's model starts from certain assumptions that need not be universally valid. She writes as if in rice agriculture before the 'green revolution' that set in after the Second World War, family-household production on small farms was the norm and increasing returns to scale or economies of scale were non-existent. The example of rice growing in certain parts of the United States shows this need not necessarily be the case.

The logic of wheat-cultivation according to Bray was almost the opposite. Yields per unit of land were relatively low. Methods to increase them by intensifying cultivation were not lacking. Land-use in early modern Britain became much more intensive with the reduction of fallow land, the introduction of all kinds of crop rotations and the extension of the arable land. But rice regions definitely have a wider range of possibilities. In wheat-agriculture, it took a relatively large plot of land to assure subsistence, according to various estimates at least five hectares for a normal five-person family. Without animals one could not mobilise the large amount of labour power that is needed in, for example, ploughing. As the yields of land were relatively low, it was relatively cheap to keep big draught animals on meadows or pasture lands. It was not only because of their power as draught animals that one must use livestock. They also were indispensable in transport and especially as providers of manure, without which one could not even maintain let alone increase the fertility of the soil.<sup>564</sup> On top of that, in wheat agriculture with its simple, repetitive activities, their labour force could be profitably combined with various implements. In contrast to growing rice, there were very substantial increasing returns and economies of scale. These, of course, were not restricted to the use of animals but also had their impact on labour productivity. That was systematically higher on bigger farms than on smaller ones. Large capital-intensive farms would be the most rational and productive ones. This model of wheat agriculture indeed gives a good stylised description of the situation in Britain, but here, too, I want to add that the model is not necessarily applicable to all wheat growing regions. Bray's contrast between a Western model of grain farming that would be large-scale and capital-intensive and an Asian model of rice-growing that would be more small-scale and labour-intensive is far too determinist and dichotomous.<sup>565</sup> For 'the

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564 The use of human night soil as fertiliser was almost unknown in Britain. But even if it would have been systematically collected and spread over the fields, as was the case in China and Japan, its impact would have been relatively small. As compared to those countries Britain simply had too much arable land per inhabitant. The fact that it had relatively few draught animals does not imply that in Qing China animal manure played no role of any importance. The many millions of pigs must have produced an immense amount of it.

565 See for a brief description Bray, *Rice economies*, Appendixes A and B.

West' it basically extrapolates from the actually quite exceptional case of Britain. Actually, in many regions where wheat or rye was the staple food, production also was mainly in the hands of peasant households working on small plots. In eighteenth-century France, for example, wheat and rye were staple crops, but by far the majority of the farms consisted of tiny, labour-intensive and capital-extensive peasant plots. In Southern Spain in the nineteenth century, huge wheat farms predominated, but they, in contrast to their British counterparts, almost exclusively used human labour and hardly profited from any increasing returns or economies of scale. There in all probability were even more landless labourers here than in England but we find no comparable capitalist dynamics.<sup>566</sup>

In China, the main consequence was that in this way millions of peasants became 'locked' into a labour-intensive production process. They stuck to their land. The point is that in a rice economy it is easier to survive on a tiny plot as well as less easy to survive without one. If one mobilised the working power of every member of the household and took up the various possibilities to earn extra income that China's rice agriculture presented, a piece of land that in the West would be considered as not much more than a garden, could suffice as a basis for subsistence. Furthermore, there normally were good reasons not to completely leave agriculture. For many people, wages were but an 'extra' to the income they were supposed to get from a tract of land of their own. This means wages as such did not normally suffice to provide for subsistence for a family for the entire year. So to be on the safe side, one needed land. The fact that wages could be high in periods of labour shortage normally did not compensate for the fact that during large parts of the year demand for wage labour was rather limited. Most of the land was tilled by peasants. They would only hire labour as a last resort and for as little time as possible. In case of need, they preferred to pool their labour and animals. Demand for wage labour in Britain came from the tenants of the big landlords who had done their best to create huge farms, often at the expense of small peasants. In China's rice agriculture during the Qing, we see no comparable urge to deprive small peasants of their land and no comparable demand for wage labour to work the land that previously had been owned by peasants.<sup>567</sup> This meant a *declining* rate of urbanisation and thus a

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566 When I refer to scale effects in this text, I mean 'economies of scale' and/or 'returns to scale'.

Where economies of scale refer to the positive relationship between the size of a firm and its costs, i. e. a lowering of average costs with increasing size, returns to scale describe the relationship between inputs and outputs. Returns to scale are constant if increasing all inputs by some proportion results in output increasing by that same proportion. Returns are *decreasing* if, say, doubling inputs results in less than double the output, and *increasing* if more than double the output.

567 This also was the case, as we have indicated, in regions where rice was *not* the main staple. Here of course other reasons must be adduced than the ones that apply to rice-cultivation.

decreasing importance of urban ‘middle classes’, plus a very low wage level, as those who worked for wages often still had some means of subsistence of their own.

Millions of peasants had to combine agriculture with other activities to be able to earn a decent living. But if they were to give up agriculture completely, that would have a negative effect on total agricultural production, as it became increasingly hard to find ways to further increase labour productivity in agriculture. In that sense, from a macro-economic perspective, they *had* to stick to their land. Finally, there is what Elvin has called ‘an ecological lock-in’.<sup>568</sup> A huge infrastructure of paddies, ponds, dikes, et cetera, had been created to maintain wet-rice production. If someone decided no longer to do his share, for example, in maintaining dikes or irrigating fields, somebody else had to. One could not simply take a link out of the chain. Moreover the sunk-cost of such a system and the costs of its maintenance are immense. The role of the state in creating and maintaining major irrigation works at times was quite essential and the effects of the difficulty that government from the end of the eighteenth century onwards had in mobilising sufficient resources for their maintenance were certainly widely felt. But the idea that in China the necessities of irrigation, or more in general ‘water-management’, would have necessitated a ‘hydraulic state’ and therefore ‘oriental despotism’ is yet another example of indefensible geographical determinism.<sup>569</sup>

For all these various reasons, labour was massively absorbed in the countryside in household production and kept tied to the land. At the level of the individual farm, it implied that the productivity of land and labour could in the course of time only be raised marginally or not at all. The only realistic option for a peasant family to increase production was to intensify the use of labour, land and resources even further. In a setting such as this, there is an inherent tendency towards ‘involution’. Following Huang, I define involution as the situation in which, with increasing labour, input total output expands but at the cost of diminished marginal returns per workday.<sup>570</sup> Whether it had already set in in

568 For an interesting analysis of the concept of ‘ecological lock-in’, with special attention to the role of the state in ecological matters, see Elvin, ‘Three thousand years of unsustainable growth’ 7–46, and idem, ‘The unavoidable environment: reflections on pre-modern economic growth in China.’ Paper presented at the conference On the origins of the modern world. Comparative perspectives from the edge of the Millennium. All-U.C. Group in Economic History Conference University of California, Davis 15–17 October 1999.

569 This of course is the thesis of Wittfogel, *Oriental despotism*. As a Dutchman, I cannot help being struck by the fact that collectively taking care of water-management in my home country is always regarded as the cradle of our democracy.

570 For this definition see Huang, *Peasant family and rural development in the Yangzi Delta*, 11. It plays a major role in the debate between Huang and Pomeranz in *The Journal of Asian Studies* 61, 2 (May 2002). A large part of that entire issue is devoted to Pomeranz’s, *Great*

China and, if so, when, may be a matter of debate, but *as such*, without some major technological change or massive input from outside the system, in traditional rice agriculture returns are bound to decrease with increasing population.

In Britain, too, efforts were undertaken to increase production, partly in ways quite similar to what happened in China, for example by intensifying the use of land. What for the most part differentiated British mixed agriculture from China's rice agriculture with regard to increasing labour *productivity* was the use of animals and the way in which scale effects were exploited.<sup>571</sup> Animals have to be fed from the land. Increasing their number increases the pressure on the land. Sooner or later, this, too, is no longer a viable option. Broadly and comparatively speaking, China's pre-industrial agriculture in the eighteenth and nineteenth centuries can be characterised as land-, labour-, and resource-intensive and Britain's agriculture as land-extensive, energy-intensive and resource-extensive. China's agriculture was characterised by a household mode of production. As indicated, people owning large tracts of land did not exploit them themselves as managers but rented them out in small plots and became a kind of *rentiers*. There were hardly any full proletarians. Peasants had tiny plots of land, did not invest much in capital goods like implements and animals, and relatively speaking did not buy much from outside their farm. By and large, China's agricultural sector, highly efficient as it was in terms of land-productivity, indeed was on an in-volutionary path of ever increasing labour inputs. Agriculture in pre-industrial Britain did try and use scale effects. As compared to China, average farms were huge and getting bigger, even for European wheat agriculture, the number of animals used in it was very high, as was the use of implements. It was quite capital-intensive, wage labour played a prominent role in it, and the majority of wages labourers were proletarians in the Marxian sense of the word. Efforts to save labour in such a context make sense and are to be expected, which of course does not mean that breakthroughs in doing so would be inevitable.

None of all the above makes it inevitable or even predictable that Britain would 'escape from Malthus' but it does make it more probable that it would than that China would. The more so because – as we will see later on – all these qualifications can to a very great extent be applied to the economies of Britain

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*Divergence.* Particularly interesting for the debate on the Chinese household mode of production and the way in which Chinese peasant households integrated in the market is the article, 'England's divergence from China's Yangzi Delta' by Brenner and Isett, in that same issue. Isett later further developed his ideas in this respect in his *State, peasant, and merchant*.

571 I do not think that overall the use of implements before industrialisation made a substantial difference. As long as they were mainly made of organic material and their use depended on organic sources of energy, the difference in their impact between both countries cannot have been very substantial.

and China in their entirety. Geography and the characteristics of their staple crops definitely played a prominent role in the two very different trajectories of both countries' agriculture, but again we must be wary not to succumb to a simple geographical determinism. We see quite a similar household mode of production in Qing China with quite similar characteristics in regions where rice was *not* the staple and we see many peasant farms in wheat-agriculture regions where large farms and wage labour would have been more efficient. Cultural differences regarding the function and status of family and household and different political agendas of the ruling elites also played their role. In Qing China, the state actively saw to it that peasants did not lose their hold over the land they farmed or it in any case made sure that those peasants could subsist by taxing them lightly, and at times offering them tax holidays, free land, or cheap or gratis food.<sup>572</sup> But nature definitely also did count for much.

#### 4. Geography: town versus countryside, urbanising Great Britain and rural China

A quite specific variety of the thesis that geography – in this case in terms of location – would be of fundamental importance in explaining differences in growth and more specifically the Great Divergence, has been proposed by Roy Bin Wong and Jean-Laurent Rosenthal.<sup>573</sup> In their view, industrialisation in Western Europe, i. e. the rise of mass production with machines in factories<sup>574</sup>, was a consequence of the high labour costs in manufacturing, which in turn were a consequence of the fact that manufacturing took place in towns where wages were high instead of in the countryside, where they were lower. The reason for British and West European entrepreneurs to nevertheless choose urban locations were the permanent warfare and accompanying violence that plagued the countryside in war-infested Europe and that made it rational to protect capital behind city walls, even when overall cost were higher there. Those permanent wars were a consequence of the splintering of Europe into a substantial number of fiercely competing states-systems, which unintentionally brought about consequences for relative factor-prices in the end and thus lay at the basis of the successful industrialisation of parts of the region. In the words of Wong “...the threat of war induced European entrepreneurs to locate behind city walls to

572 For these agrarian paternalist policies of the Qing government see under note 1133.

573 For the opinion of Jan de Vries on this book see De Vries, ‘Review of Rosenthal and Wong, *Before and Beyond Divergence*’.

574 In their view too industrialisation, without much further ado, is identified with the Great Divergence!

protect their capital, even as food costs, mortality threats, and labour costs were higher in cities than in the countryside ... relative factor prices made technological change cheaper and more worthwhile in Europe than in China.”<sup>575</sup>

To be honest, this theory is about as simple as it is unconvincing, because, to begin with, so much manufacturing did not take place in cities in the early modern era; this is especially true of the production of mass products that would be at the heart of industrialisation. Proto-industry was mainly a rural phenomenon. Often, manufacturing took place in towns because guilds *wanted* it that way. In towns, as a rule, the more specialised and expensive finishing took place by members of guilds that overall tried to monopolise their trades and ban rural competition. Safety did play a role but certainly was not always decisive. Those guilds to a very large extent failed to have things their way: as a rule in the early modern era in Western Europe – and I confine myself to that period, the one most relevant to my question – the countryside was more ‘industrialised’ than towns were, as Bin Wong definitely knows.<sup>576</sup> The rural non-agricultural share of the population in Britain, for example in 1750, was thirty-two per cent; most of those people were working in manufacturing. This rural manufacturing was a widespread phenomenon all over Europe.<sup>577</sup>

What is also highly problematic about the Rosenthal-Wong thesis is that Britain, the first and for quite some time the only major industrialised country in Western Europe, was never invaded after 1066 and never saw any real wars on its soil ever since. That, of course, is not to say that there was no violence. It knew two civil wars in the seventeenth century, the last, relatively peaceful one in 1688–1689. But comparatively speaking, it was an extremely peaceful part of Europe. As an explanation for the *emergence* of industry in the first industrial nation, their thesis connecting frequent war, urban manufacturing and expensive labour therefore a priori does not sound very convincing. What actually happened *during* the first decades of Britain’s industrialisation also does not exactly confirm their ideas. Most of Britain’s first factories actually were located in the countryside. The availability of raw materials or energy together with the presence of a relatively easy market outlet in Britain or in particular for cotton production abroad as a rule determined where a factory would be built, not wage levels per se. In the cotton industry up to the 1830s, waterpower was more

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575 Wong, ‘Economic history in the decade after *The Great Divergence*’, 19.

576 See his *China transformed*, 33. Wong distinguishes there between “three periods of European industrial activity beginning in the early modern period” and then describes period 2, from the mid-sixteenth to mid-eighteenth centuries, as the period of “rural cottage industries”, a sign of “a breakdown of feudal control”, adding in note 1 that: “...the phenomenon of rural industry is widely recognized as an important precursor of the Industrial Revolution.”

577 Allen, *Global economic history*, 21–23.

important than steam. It therefore, as a rule, was located in the countryside. The iron industry was located near to the coalfields. Moreover, and that is my final comment, most industry during Britain's industrialisation initially was *not* located in those areas that had the highest wages in the South, in the relatively wealthy agricultural areas there or in London where wages were highest, but in the North of England, where they were lower, which of course also does not exactly make their thesis very probable.<sup>578</sup>

Moreover, even if industrialisation were connected to the urban location of manufacturing and the ensuing high labour cost, then what explains the Netherlands, which in the seventeenth century had a highly developed urban industry with high wages, for example in Leiden, a major cloth-producing, industrial town? The challenge of high urban wages here received the response not of innovation of the mode of production but of a transfer of many parts of production to the countryside and a decline of urban manufacturing. We will briefly return to the intriguing question why 'the Netherlands' did not become the first industrial nation later on in this text. Another region that comes to mind that was highly advanced and had a high-wages urban economy but where technological innovation faltered and no take-off took place is Northern Italy. During the Late Middle Ages, it was far more important as a manufacturing region in Europe than Britain. It had the highest per capita income and the highest rate of urbanisation in the world. The region was famous for its highly developed wool production, which took place in towns where labour was relatively well paid. Following Wong and Rosenthal – and Robert Allen – it must have been an ideal environment for technological innovation.<sup>579</sup> But in the early modern era, this region was one of relative decline rather than dynamism; strikingly enough, that has very often been explained by referring to the high wages that guilds in towns managed to enforce. High-wage towns here lost out in competition to the low-wage countryside. High wages clearly were not a stimulus to innovation here. Silk manufacturing, a new and very important industry, did also settle in a town like Bologna, the most industrial town of Europe at the end of the seventeenth century, but it primarily developed in the countryside. In general we see a movement of manufacturing to places with low wages.<sup>580</sup>

Referring to cities as centres of innovation is of course not new or original. We already referred to economists and other social scientists who have claimed

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578 See, for the locating of industry, Jones, *Locating the Industrial Revolution* and Tim Cooper, *How to read industrial Britain*. For the specific economic structure of London and its peculiar development, see Schwarz, *London in the age of industrialisation*.

579 See for Allen's claims page 199 ff.

580 See, for a brief analysis of the loss of Italian leadership in wool production (and ship-building and trade), Zamagni, *Introduzione alla storia economica d'Italia*, chapter 1, and Malanima, *La fine del primato*, chapter 2 and pages 183 – 190.

that cities have played and play a specific and highly important role in economic development.<sup>581</sup> Several important scholars explicitly referred to the role of cities in the specific economic development of the West. Adam Smith as well as Karl Marx both emphasised the importance of the division of labour between town and country. Marx even claimed: “The foundation of every division of labour that is well developed, and brought about by the exchange of commodities, is the separation between town and country. It might be said that the whole economic history of society is summed up in the movement of this antithesis.”<sup>582</sup> Max Weber was convinced that the European city and its bourgeoisie was something peculiar and of eminent importance for Europe’s exceptional development and its capitalism.<sup>583</sup> Fernand Braudel always was fond of describing towns, or to be more precise, *Western* towns with their, in his view, unique characteristics, as signs and centres of modernity, dynamism and capitalism. He described urbanisation as “the sign of modern man” and towns as “electric transformers,” and “outposts of modernity”, claiming that capitalism and towns were basically the same thing in the West.<sup>584</sup> His descriptions of capitalist cities are reminiscent of Saskia Sassen’s ‘global cities’ or what other scholars call ‘world cities’, agglomerations with an international centre-function in banking, stock exchange, finance, insurance, and real estate, which are homes to the largest firms and a dense service sector.<sup>585</sup> Paul Bairoch thinks the increase of urban population in Europe during the eighteenth century – particularly distinct in Great Britain – was important for economic development because “technological innovation proves to have been of distinctly urban origin.”<sup>586</sup>

Table 24: Urbanisation ratios in Europe and parts of Asia, 1500 – 1890: population in cities with 10,000 inhabitants and over as percentage of total population.

	1500	1600	1700	1800	1890
Belgium	21.1	8.8	23.9	18.9	34.5
France	4.2	5.9	9.2	8.8	25.9
Germany	3.2	4.1	4.8	5.5	28.2

581 See pages 89 – 90.

582 For Adam Smith see e.g. Mummy, ‘Town and country in Adam Smith’s *The wealth of nations*’, The quote by Marx is from *MEW* 23, page 373.

583 See e.g. the text devoted to the European city in his *Wirtschaft und Gesellschaft*, Part Two, Chapter 9, 7. There are many versions, editions and translations of this text. For the reception and discussion of his ideas see Bruhns and Nippel, *Max Weber und die Stadt im Kulturvergleich* and Feldbauer, Mitterauer and Schwentker, *Die vormoderne Stadt*.

584 See for these quotations Braudel, *Civilization and capitalism, 15<sup>th</sup> – 18<sup>th</sup> century, I*, pages 556 – 558, 479, 512 and 514. For the originality of Western towns see page 509 of that volume.

585 See for further explanation Braun and Schulz, *Wirtschaftsgeographie*, 198 – 199.

586 Bairoch, ‘The city and technological innovation’, 165.

(Continued)

	1500	1600	1700	1800	1890
Italy	12.4	15.1	13.2	14.6	21.2
Netherlands	15.8	24.3	33.6	28.8	33.4
Portugal	3.0	14.1	11.5	8.7	12.7
Scandinavia	0.9	1.4	4.0	4.6	13.2
Spain	6.1	11.4	9.0	11.1	26.8
Switzerland	1.5	2.5	3.3	3.7	16.0
England & Wales	3.1	5.8	13.3	20.3	61.9
Scotland	1.6	3.0	5.3	17.3	50.3
Ireland	0.0	0.0	3.4	7.0	17.6
<b>Western Europe</b>	<b>5.8</b>	<b>7.9</b>	<b>9.5</b>	<b>10.2</b>	<b>29.6</b>
China	3.8	4.0	n.a.	3.8	4.4
Japan	2.9	4.4	n.a.	12.3	16.0

Source: Angus Madison, *Contours of the World Economy, 1 – 2030 A.D. Essays in Macroeconomic History*, Oxford 2007, 43.

The fact that urbanisation in Qing China was much lower than in eighteenth-century Britain will certainly have had consequences for the dynamism of its economy.<sup>587</sup> Pomeranz points out that Qing China's low urbanisation rate was not a sign of economic failure – which, as far as I know, no one ever claimed – but admits it may have made certain kinds of future success less likely.<sup>588</sup> In this respect as well, Britain, where London was a booming economic metropolis *and* the capital of the country, was in a far better position than China, where the economic and the political centre were not identical and towns were administrative rather than economic centres. In my view, differences in this respect between different parts of the world would deserve much more attention from economic historians interested in growth. Development, growth and, most importantly, innovation have always tended to be more prominent in cities than

587 For a discussion of urbanisation rates in China as compared to (Western) Europe see e.g. Malanima, *Pre-modern European economy*, 239 – 253. For an excellent comparative analysis of differences and similarities in urbanisation in Europe and China – and of its causes and consequences – in the period from the thirteenth to the eighteenth centuries see Winter, 'Population and migration'. Actually, the differences between Western Europe and China especially regarding the 'impact' of cities in their economies and societies were even bigger than they seem in table 24, as any increase of the total population of an early modern city required a permanent influx of people from the countryside to that city. For north-western Europe, any unit increase of total urban population is estimated to have required on average twice as many people permanently moving from the countryside to its cities. See the article by Anne Winter, page 404, under reference to calculations by Jan de Vries.

588 Pomeranz, 'Ten years after', 23.

in the countryside, which of course does not at all exclude the possibility that they often also were the place whose vested interests tried to block innovation.

When they are centres of trade, exchange and (im)migration, cities show a high degree of openness. I already referred to the connection that Amy Chua and William McNeill see between openness and development and power. Although the way that Chua implements her thesis is somewhat over the top and its empirical underpinning not as impressive as one would like it to be, its main thrust – that whatever the potential advantages, a country definitely also pays a price for keeping the foreign and the foreigner out – sounds highly plausible. In this respect too, Qing China's potential for rapid economic development was in principle smaller than that of Britain. Its economy and society and first and foremost its government were in all respects imaginable *less open* than that of Britain. I am of course not claiming China was a closed country. It clearly was not. But, as always, we are discussing orders of magnitude and it simply cannot be denied that, whether it be goods or ideas, Qing China simply was more closed than Britain, or, for that matter, Western Europe at the time. To claim like Joanna Waley-Cohen, that “from the late sixteenth to the late eighteenth century, then, Chinese were extremely interested in Europe and all it had to offer” is silly.<sup>589</sup> Europeans were incomparably better informed about China than Chinese about Europe, to provide just one example.

## 5. Labour: scarcity and abundance

We have already made several references to labour. Let us now enter the debate about its role – in terms of quantity, quality and, of course, costs – in the emergence of modern economic growth. Economists have produced some quite general statements in this regard, which may have their relevance for debates on the Great Divergence. We begin with some comments on the assumed specific consequences of land-labour ratios first for institutions, in this case property-rights and production-relations, and then for income and wage levels, which in turn are all supposed to have had consequences for growth. Douglass North and Robert Thomas, economists as well as economic historians, in their highly influential book *The rise of the Western world*, take a quite explicit suggestion as their point of departure. In their view, *in the right political context*, labour scarcity would imply better property rights for those with land and better wages or working conditions for those employed by others. They take it for granted that better secured property rights and a free labour market have a positive effect on economic development and growth as in their view their favourite example, Britain after the Glorious

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589 Waley-Cohen, *Sextants of Beijing*, 128. See for critique Landes, ‘Why Europe and the West?’.

Revolution, would show. Actually they only study the situation in Western Europe from the year 900 onwards, comparing Britain and the Dutch Republic with France and Spain, but the suggestion clearly is that they think their findings have general validity.<sup>590</sup> In all these regions, labour scarcity, primarily caused by the Black Death, in the end strengthened the position of agriculturists as labourers and as 'owners' of land versus their lords. It can be supposed to have had similar positive effects for those working as craftsmen. But what, as they themselves indicate, determines the final impact of labour scarcity (or abundance) was the political context. Differences in that context caused the emergence of differences between Britain and the Dutch Republic, with 'good' institutions that protected property rights optimally on the one hand and France and Spain on the other hand with where that protection was much less developed. The importance of politics or rather power relations is even more obvious when one looks at East and Central Europe where, notwithstanding the emerging labour scarcity, the position in particular of peasants *deteriorated* instead of improved. Historians even refer to their situation as the emergence of a second serfdom.<sup>591</sup>

At the time, there certainly was not a simple market mechanism at work in which supply and demand ruled supreme. Sheer power and force played a very important role. Apart from highly exceptional real market-economies, the impact of relative factor scarcity – because of factor endowment – on property rights and the position of labour are determined by variables that are exogenous to the economy to such a great extent, that, in practice, referring to factor endowment hardly explains anything at all.<sup>592</sup> That major role of institutions is quite plainly illustrated by the fact that several scholars start from assumptions that are almost the opposite of those suggested by North and Thomas in regard to the impact of the relative availability of land and labour on the social status of labour. I will restrict my own references to a theory suggested by the economist Evsey Domar.<sup>593</sup> He claims it is to be expected that those with power and money will try to own the factor of production that is scarce, i. e. either labour or land. If, given a situation with abundant free land, they are *not* in a position to control labour, then there will be no rents for them to be gained and they will as a rule not invest. That suggests a positive statistical correlation between ample availability

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590 North and Thomas, 'Economic theory of the growth of the Western world'.

591 See for an analysis Aston and Philpin, *Brenner debate*, and Chiro, *Origins of backwardness in Eastern Europe*. This critical juncture in European history is referred to by Acemoglu and Robinson, *Why nations fail*, chapter 4: 'Small differences and critical junctures. The world the plague created' to show the fundamental importance of institutions over factor endowments.

592 For a methodological critique of North's and Thomas's approach here see Field, 'Problem with neoclassical institutional economics'.

593 Domar, 'Causes of slavery and serfdom'. See more in general Nieboer, *Slavery as an industrial system* and for some specific comments Evans, 'Some notes on coerced labor'.

of free land on the one hand and serfdom and slavery on the other. He then theorises this connection as follows: “of the three elements of an agricultural structure ... free land, free peasants, and non-working landowners – any two elements *but never all three can exist simultaneously*. But he too has to admit that the combination to be found in reality will depend on the behaviour of political factors.”<sup>594</sup> That e.g. in the end peasants became free after the Black Death in Britain whereas in Russia most of them were given the status of serfs is the outcome of a political process and in his view, too, cannot be explained by simple land-labour ratios. In many parts of Africa, population density over the entire early modern era was low and land was so abundant as to be worthless. Slavery indeed was quite common there, as to be expected, but wages for free labour were quite low, which is somehow surprising.<sup>595</sup> Labour only became abundant in several regions of Africa during the later twentieth century.<sup>596</sup> This meant that the typical technique for agricultural production was land extensive and labour saving. That ‘geographical’ fact, at least according to Jeffrey Herbst in his book on states and power in Africa, would go a long way in explaining why so many African states are relatively weak. When land is abundant, states are not needed to protect private property rights and conversely are not able to collect taxes.<sup>597</sup> Here, too, I would think that depends on the circumstances, not simply on geography. In Russia in the early modern era, basically until the abolishment of serfdom, labour was scarce enough and land abundant: but that did not help labour because it was weak politically. There was a centralized despotic state that did collect a fair amount of taxes and protected the property rights of the landlords over their peasant-serfs, in order to ensure it had enough soldiers at its disposal.<sup>598</sup> Landlords knowing their country could not do without a big army did not object to this ‘arrangement’. In descriptions of Spanish America, the focus has always been on coercive labour relations, but more and more historians are now convinced that free labour and wage labour actually were quite normal. In the words of Rafaél Dobado-González and Héctor García-Montero: “encomienda, repartimiento, mita and slavery were neither ubiquitous nor permanent” and institutions of extractive nature “tended to contract or even disappear.”<sup>599</sup> This fact is then explained by referring to ... the overall scarcity of labour! We have already discussed the fact that in the United States and Canada overall labour was scarce and land abundant but that this – with the very im-

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594 Domar, ‘Causes of slavery and serfdom’, 21.

595 Allen, *Global economic history*, 96–97. The *nature* of slavery in Africa, however, was quite different from that of slavery in the Atlantic.

596 Austin, ‘Resources, techniques and strategies south of the Sahara’.

597 Herbst, *States and power in Africa*.

598 See e.g. Hellie, *Enserfment and military change in Muscovy*.

599 Dobado-González and García-Montero, ‘Neither so low nor so short’, 4.

portant exception of course of the Southern States – did not lead to the emergence of widespread coerced labour.

When it comes to explaining why Britain in the end became a country with such exceptionally high numbers of landless wage labourers that also to a large extent is a matter of politics rather than pure economics. It was a political decision to ‘accept’ that peasants lost their land or even support policies with that outcome. In China there continued to be free land until the very end of the period discussed here, peasants continued to be free *and* the country had a non-working class of landowners. Here, too, politics overruled economic ‘logic’. China’s rulers did not want landowners to become powerful landlords with a massive coerced labour force nor did they want the free peasantry to disappear knowing full well that the last thing they as tiny foreign elite needed were huge peasant revolts. What might also have played a role is the fact that most landlords, here and in many other parts of the world, actually often were not keen on turning peasants into slaves or serfs. For many peasants the marginal product of their labour descended to the subsistence level, which means they could not be profitably exploited. It may well be the case that many societies had no coerced labour because labour could not produce goods with such a high value added and such ample outlet that it was worthwhile to coerce it. Plantations like those set up by Westerners in their peripheries in that sense were quite special and exceptional. The problem as always in history is that so much depends on circumstances, agency and path dependency.

But let us finish our *tour d’horizon* of general claims made with regard to the possible effects of certain land- and labour-ratios and switch to claims that might be more directly relevant for explaining the Great Divergence. We begin with the thesis of Julian Simon, who explicitly discusses the Great Divergence, or in his terminology ‘the Great Breakthrough’ or ‘Sudden Modern Progress’, and claims that increasing population size was the impetus behind the sharp rise of standards of living that started in the late eighteenth century. Gradual improvements of technology allowed increased population, which assisted technological improvements, which fed back into population growth. When population in Europe hit a particular point, a feedback-cycle set in. On page 11 of his book on the Great Breakthrough, he writes: “The proximate cause of the higher present wealth is the present level of technology... But what was the cause of technology ... being what it is?” This is his answer: “...the size of humanity (and the nexus of human numbers with technology) has been the main driving force. Starting at any particular moment in the past, the length of time it took to reach the modern breakthrough depended on the number of people endowed with intellect and training who lived thereafter, together with the amount of technology in existence

at the particular moment about which the question is being asked.”<sup>600</sup> Institutions and their changes in his view definitely are important but *from a very long-run perspective* they themselves are the result of population growth: “...in the very long run, all political, social, and economic dimensions are a function of population size and density and constitute endogenous intermediate variables rather than independent causal variables.”<sup>601</sup> His interpretation is, as he calls it, explicitly mono-causal: “...the central point of this essay is that population size was both necessary and sufficient for the history that occurred, whereas no other variable among those that were necessary was also sufficient to determine the path of resulting progress.”<sup>602</sup> It is a major error to think population increase would lead to diminishing returns. Quite the contrary: progress is dependent on idea sharing. As population density increases, the availability of new ideas and the differentiation of occupation allow those with extra time to make use of these ideas. Rational optimist Matt Ridley agrees and argues that population density is necessary for trade and division of labour, which is the route to economic prosperity. The division of labour leads to inventions, which leads to further specialization. Specialisation requires a large enough market to support it and as a result population density is the friend of economic progress. The prologue of his *Rationalist optimist* on “when ideas have sex” basically is an improvisation on the theme of ‘increasing returns to knowledge’, a subject very dear to endogenous growth theory.<sup>603</sup> Oded Galor also thinks along these lines.

According to my unified growth theories the transition from stagnation to growth is an inevitable outcome (sic PV!) of the process of development. During the Malthusian epoch technological progress permitted an increase in the size of the population, while population size affected the rate of technological progress. The size of the population determined the supply of, and demands for, ideas. It also influenced the diffusion of ideas, the degree of specialisation in the production process that stimulated ‘learning by doing’, and the level of international trade that further fostered technological progress. At the same time, the rate of technological progress and its effect on the resource constraint, enabled population growth.<sup>604</sup>

Mancur Olson does not provide an extensive explanation for his finding but he does claim that analysing all countries for which the required data were available at

600 Simon, *Great Breakthrough*, 179.

601 Simon, *Great Breakthrough*, 139.

602 Simon, *Great Breakthrough*, 179.

603 Ridley, *Rationalist optimist*, ‘Prologue’. His position, to be honest, is not entirely clear as he also tells us that increasing population caused a decline in the living standards of e. g. Japan and Denmark. Increasing population there decreased the value of labour and therefore impacted negatively on the market for specialization and inventions, which to my view also is what happened in Qing China.

604 See the interview with him ‘Towards a unified theory of economic growth’, 124–125

the time he wrote his text in 1996, he found a positive and statistically significant relationship between population density and per capita real income: “the *greater* the number of people per square kilometre, the *higher* the per capita income”<sup>605</sup>

Amongst historians, John Komlos is one of the few who to my knowledge explicitly stresses Boserupian effects in his analysis of the Industrial Revolution and argues: “Population growth was ... the proximate cause of the industrial revolution ... the achievement of the pervious millennia were the preconditions for sustaining the economic momentum precipitated by the rise in population”.<sup>606</sup> Gregory Clark gives a quite idiosyncratic twist to this idea by claiming that what really grew during Britain’s Industrial Revolution and what lay at the base of Britain’s hegemony was not so much its economy – with very low growth rates – as its population.<sup>607</sup> For him the actual drive behind industrialisation was a growing population that needed more food. That extra food had to be imported and paid for by manufacturing: “The food and raw material imports of the Industrial Revolution had to be paid for by exports of manufactured goods. It was this, rather than technological advances, that made [sic! PV] Britain “the workshop of the world.”<sup>608</sup> The way I read it, this can only mean that Britain’s industrialisation was caused by its population increase, which strikes me as a very far-fetched and unconvincing line of reasoning that is also hard to square with other claims by Clark. The contrast he draws between paying for imports by exporting manufactured goods on the one hand and making technological advances on the other, is strange: Britain could export more *thanks to* those technological advances. The simple fact that Britain imported food can hardly have worked as an incentive for any concrete entrepreneur in Britain to start exporting more manufactured goods. The claim made in the quote also conflicts with another claim that Clark, as we already indicated, quite explicitly made in the very same book, when he writes that the essence of Britain’s take-off consisted in the expansion of its useful knowledge. That last claim could be reconciled with his comment on growing population if we assume that a growing number of people ipso facto lead to more innovation, especially in a country like Britain that, according to Clark, was inhabited by a quite special kind of people.

The problem is that, in practice, the positive ‘Boserupian’ connection that all the scholars just referred to assume between population density, innovation and

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605 Olson, ‘Big bills left on the sidewalk’, 48.

606 Komlos, ‘Thinking about the Industrial Revolution’, 205.

607 See Clark, ‘What made Britannia great?’ and Clark, *Farewell to alms*, 249: “The unusual growth of population during the Industrial Revolution in England, and the simultaneous expansion of the cultivated area in the United States, were more important than the specific technological advances of these years for the transformation of the economy and the society.”

608 Clark, *Farewell to alms*, 248

growth is anything but obvious and certainly not universal. For the history of Western Europe over the last thousand years, for example, it would be very hard, or rather simply impossible, to prove it. David Landes describes the European Middle Ages as, “one of the most inventive societies that history has ever known.”<sup>609</sup> But, strikingly enough, many inventions and innovations occurred in the Late Middle Ages when the population *decreased* sharply in the wake of the Black Death. The period of, and just after that pandemic, at least in *Western* Europe, saw the introduction of several technological innovations in production as a reaction to labour scarcity and high costs.<sup>610</sup> Eric Jones calls the fifteenth century “... a period of distinct technological advance”.<sup>611</sup> Technological progress, according to him, has not slowed since, permanently creeping forward and remaining unchecked, a circumstance he calls ‘unique’.<sup>612</sup> Renaissance Italy was a highly inventive society, as were Golden-Age Holland and eighteenth-century England. At the time of their apex, these were among the most densely inhabited regions of Europe. There does not seem to be an overall uniform pattern. With regard to the situation in pre-industrial England, Nicolas Crafts and Terence Mills conclude: “There is no evidence of a positive feedback from increasing population size to technological progress as postulated by unified growth theory.”<sup>613</sup>

Moreover, if a clear correlation existed, then what to think of Qing China, where the population increased from some 150 million to over 400 million between 1680 and 1850? Why wasn't it the most technologically innovative society on the globe and the place where the Great Breakthrough took place? Simon devotes an entire chapter of his book (chapter 5) to this question, comparing Europe to China, but what he writes there, surprisingly enough, does not support his main thesis at all. What really matters in understanding the difference between these two regions, as he claims there, is the fact that both regions had different *political-institutional systems*. He then adds two quite peculiar comments: firstly, that they both were *parts of the same larger system*, which would imply that the question of why they differed would not be a question of any importance to his book, which only addresses the question of why Sudden Modern Progress began *anywhere in the world*; and secondly, that an answer to the question “Why Europe and not China” *cannot be given sci-*

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609 Landes, *Wealth and poverty*, 45.

610 For a general analysis see Pamuk, ‘The Black Death and the origins of the Great Divergence across Europe’, and Herlihy, *The Black Death and the transformation of the West*. For specific examples, see Mokyr, *Lever of riches*, chapter 3.

611 Jones, *European Miracle*, 59.

612 Jones, *European Miracle*, 63.

613 See the Abstract of their ‘From Malthus to Solow’. On page 91 of that text they conclude that basically from the mid-sixteenth century to 1800 there was “no general tendency for technological progress to accelerate as population increases”.

*entifically*<sup>614</sup> (Italics in original). That is a depressingly weak and evasive answer, to say the least. The previous paragraphs also indicate that the less far-fetched thesis – namely, that at least for the period in history before science and technology became large-scale and institutionalised, there indeed was a positive correlation between the size and growth of population and the level and development of technology – is also indefensible. With increasing population as a rule, the number of clever minds indeed also increases, as does the chance that innovations will occur.<sup>615</sup> Justin Yifu Lin has applied and defended this thesis for Song China, a period when the country was quite densely populated and extremely creative and innovative. Without an epistemic basis in ‘theory’ or ‘science’, however, that provided a basis for experiment-based technology, this experience-based knowledge bled to death.<sup>616</sup>

Considering the recent and big success amongst economists of Oded Galor’s unified growth theory, which explicitly postulates links between population density on the one hand and (modern) growth and innovation (or their absence) on the other, some brief extra comments are in order here. Actually, any historian can come up with many examples that contradict his grandiose claims. Let us focus on the Industrial Revolution in Great Britain, the central *explanandum* of this text.<sup>617</sup> Can unified growth theory throw light on this fundamental phenomenon that is generally considered to be the take-off to modern economic growth? Can it explain why it occurred in Great Britain and why in the eighteenth / nineteenth centuries? To figure that out, one would in any case also have to compare Great Britain with other countries in the world and those centuries with other periods in time. Galor never does this. He, moreover, starts from certain assumptions and makes certain claims that simply do not fit the case of Great Britain. He assumes, for example – strikingly enough only focusing on fertility –, that all societies till about the eve of industrialisation would have been Malthusian in the strict sense in which demographers use the word. For Great Britain, that simply is not the case. Another assumption is that before industrialisation, consumption would have been at or very near subsistence. As a matter of fact, even ordinary labourers in early modern Great Britain had an income clearly above bare subsistence. Galor’s claim that there would have been macro-inventions before industrialisation so that the innovations we associate

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614 Simon, *Great Breakthrough*, 160–161.

615 A claim (also) made in e.g. Clark, *Farewell to alms*, XX; Diamond, *Guns, germs and steel*, 407–408, and Persson, ‘Malthus delusion’, 171–172.

616 See e.g. Justin Yifu Liu, ‘Needham Puzzle’. This is also the basic position of Mokyr. See e.g. his *Gifts of Athena*, chapter 1. The question of why Qing China was far less innovative still remains.

617 All my following comments refer to unified growth theory as Galor presents it in the book with the same name.

with that revolution cannot per se cause it, ignores the very specific character of the main inventions of the Industrial Revolution, in particular the steam engine.<sup>618</sup> Galor's unified growth theory relates industrialisation to a new demographic regime with lower fertility. With better prospects, so he claims, investment in the education of children and choosing for their *quality* instead of their *quantity* began to pay. But there is a broad consensus amongst economic historians that the bulk of the population in Great Britain only experienced growth in terms of increasing real income per capita from the 1830s or even 1850s onwards. That means that, in terms of unified growth theory, it was only *then* that parents would have had a good reason to get fewer children. Many historians would claim that in the early stages of industrialisation there actually was some *deskilling* of the labour force.<sup>619</sup> Even if over time a connection between a demographic transition, rising education, and industrialisation indeed developed, it simply did not exist at the time when the economy of Great Britain took off. Investment in education in terms of official schooling only increased there after 1870. Besides, fertility declined in France before it did in Great Britain. In Qing China in all probability, households with high status and a very high investment in education practiced fertility control, but there was no industrialisation. I have already referred to the in-existence of any clear correlation between population size and inventiveness several times. In my view, one can only conclude that unified growth theory has nothing to offer historians when it comes to explaining why exactly eighteenth-century Great Britain was the first country to know modern economic growth. Overall its assumptions are so unrealistic and its main claims so easily refutable that one can only wonder why economists would take unified growth theory seriously.

Fairly direct connections between changes in population and innovation definitely do emerge sometimes, but, as far as I see it, these cannot be reduced to one general, overall logic. That can hardly be made clearer than by the fact that many scholars hold the exact opposite view from Boserup, Simon and others and claim that a *scarce* labour force is to be preferred over a *numerous* one for such extensive economic development that depends on technological innovation. They claim that a numerous population tends to act as a brake on development and leads to all sorts of Malthusian trouble, whereas labour scarcity – in any case when expressed in high wages – would stimulate innovation. The thesis that labour in the West would have been relatively scarce and that this then would have had positive effects on its development has never been without support, in

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618 See for a similar claim Robert Lucas, *Lectures on economic growth*, 114, a new version of his text 'The Industrial Revolution: Past and Future'. Just like Galor, Lucas also claims that with industrialisation it became rational and worthwhile to limit fertility.

619 See my comments on page 225.

particular amongst scholars trying to explain the Great Divergence on the basis of structural, specific characteristics of Western European society. That relative scarcity is assumed to have had several favourable effects on development and growth. It is supposed to have played a role in the emergence of relatively strong property rights and of a relatively free labour force in the West. These would have become the mainstays of a capitalist economy, which according to most economists and economic historians, was a better guarantor of growth and wealth than any known alternative. That labour scarcity, moreover, would in any case have led to high wages in Western Europe. These would have prompted employers there to look for less labour-intensive and more capital-intensive ways of producing. The impact of that strategy would have been felt through the entire economy because nowhere in the world (full) wage labour was as normal as it was in the West (in Britain first and foremost).

This is a line of reasoning with a long pedigree in European economic history. We find it, for example, in the book by Jones on the European miracle to which we already referred a couple of times. He suggests that a tendency to choose capital-intensive strategies existed in Europe because of the relatively low density of population. The fact that the type of agriculture that prevailed in Western Europe required animals, heavy ploughs and mills to mill grain only reinforced this tendency to look for capital-intensive solutions.<sup>620</sup> Landes too refers to the positive effects of labour scarcity in Europe.<sup>621</sup> I already referred to scholars who have pointed at the incisive effects of the Black Death.<sup>622</sup> Although claiming there is a connection between labour scarcity and innovation seems quite obvious, it on second thoughts is not, in particular because it is not obvious what labour scarcity actually means, how it might be measured and even more important here, how it might be compared. In principle, scarcity is a relative concept defined by the ratio between supply and demand. That means that one has to be careful in simply taking population density as a proxy. The same goes for nominal or real wages. That is not particularly unproblematic when one compares different economies. To my mind, the best indicator of the relative scarcity of labour in one society as compared to another society would be its relative cost as compared to other factors of production. There are good reasons to think that labour in that sense indeed was relatively scarce in early modern Europe as compared to in any case East Asia, although in my view, not many scholars have actually put this claim to a very systematic test. Let us expand some more on its possible implications.

<sup>620</sup> Jones, *European Miracle*, pages XXVII and 227.

<sup>621</sup> See his 'Reply to Peer Vries and Om Prakash', 9: "... I would give more attention to ... the persistent European scarcity of labour by comparison, say, with Asian societies. Much, though not all, of the European fascination with and demand for machinery, and the eager substitution of capital for labour, can be understood in these terms ..."

<sup>622</sup> See note 610.

## 6. Factor endowments: labour-saving Britain versus labour-absorbing China

Many mainstream economists accord a prominent role to factor endowments in economic development and, like Heckscher and Ohlin in their theorem, ‘predict’ economic specialisation on the basis of factor prices. In practice, however, it is not unequivocal what that would mean in concrete cases. High wages can be a good reason to look for labour-saving innovations, but *ceteris paribus* those same high wages make it less easy for entrepreneurs to accumulate and find money to invest in innovations. With low wages, in contrast, innovation may be less urgent but, again *ceteris paribus*, accumulating money is easier. In debates about the Great Divergence, one can come across both arguments. Very recently, Robert Allen has turned labour scarcity in terms of high wages as compared to the costs of other factors of production into the essence of his explanation of Britain’s Industrial Revolution. He bases his analysis on the premise that Britain had very high real and nominal wages when its industrialisation began: with parts of what now is the Netherlands, the highest in the world. ‘Absolute’ labour scarcity may well have played a role here but high wages in Britain certainly were also related to the fact that the very high remunerations in London’s service sector – that would have been inconceivable with the rise of Britain’s fiscal-military state and its position as global trader – overall drove up payment in the relatively small and integrated British economy, without, however, creating one fully integrated labour market with *one* wage level.<sup>623</sup> This, *combined* with relatively low cost of energy and relatively low interest rates, in his view, made a capital- and energy-intensive route the natural course for Britain’s manufacturing. This, for similar and some specific reasons we already referred to, also applied to Britain’s agriculture.<sup>624</sup> He systematically and explicitly tackles the question of (non-) industrialisation from the perspective of factor-endowment, as the following quotations illustrate: “The Industrial Revolution was the result of high wages – and not just their cause.”<sup>625</sup> Elsewhere it reads: “...the explanation [of why the Industrial revolution was British] lies in Britain’s unique structure of wages and prices” and “Britain’s high-wage, cheap-energy economy made it profitable for British firms to invent and use the breakthroughs of the Industrial

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623 Allen made this connection between commerce and high wages in Britain already very explicit in an unpublished paper from 2006, called ‘The British Industrial Revolution. How commerce created the Industrial Revolution and modern economic growth.’ He later published ‘Why the industrial revolution was British: commerce, induced invention, and the scientific revolution’. This clearly indicates that his explanation is not solely and cannot solely be conceived in terms of simple factor-endowments.

624 Allen, *British Industrial Revolution in global perspective*.

625 Allen, *Global economic history*, 13.

Revolution.<sup>626</sup> Borrowing money for investment was quite cheap too in Britain.<sup>627</sup> That of course is not irrelevant, even if at the moment no scholar would endorse this claim by T.S. Ashton (1899–1968) in a classic text about the Industrial Revolution in England:

If we seek – it would be wrong to do so – for a single reason why the pace of economic development quickened about the middle of the eighteenth century, it is to this that we must look [i. e. the lowering of the rate of interest]. The deep mines, solidly built factories, well-constructed canals, and substantial houses of the industrial revolution were the products of relatively cheap capital.<sup>628</sup>

It need not come as a surprise, still according to Allen, that there was so much interest in machines in Britain. In a context where labour was expensive and capital cheap, they were profitable.<sup>629</sup> High wages for Allen not only serve as explanation for economic growth in industrialising Britain. They also figure very prominently in his explanation for the economic development of the United States, in which he follows in the footsteps of John Habakkuk and his claim that the ample availability of free land there caused high wages which in turn made entrepreneurs keen on introducing labour-saving technologies.<sup>630</sup> He even goes as far as to postulate a kind of virtuous circle for the Western world: “...high wages induced more capital-intensive production that, in turn, led to higher wages. This spiral underlies the rising incomes of rich countries.”<sup>631</sup>

626 Allen, *Global economic history*, 31. Actually it was not so much ‘energy’ that was cheap in Great Britain but *coal* and then in particular in specific regions.

627 For information on interest rates in Britain see e. g. Ashton (See the next note); Mathias, *First industrial nation*, under ‘interest’, and Flandreau, ‘Bell Jar’. For concrete examples see Temin and Voth, ‘Private borrowing during the Financial Revolution’. Here again, however, context matters. Low interest rates indeed can facilitate investment, but they can also be an indicator that profitable opportunities to do so are lacking and that the economy with those low interest rates is in a ‘stationary state’. As Adam Smith wrote: “...as the usual market rate of interest varies in any country, we may be assured that the ordinary profits of stock must vary with it, must sink as it sinks, and rise as it rises. The progress of interest, therefore, may lead us to form some notion of the progress of profit.” Smith, *Wealth of Nations*, IX 4, page 105.

628 Ashton, *Industrial Revolution*, 9.

629 See e. g. Allen, *Global economic history*, 32–33.

630 Habakkuk, *American and British technology in the nineteenth century*.

631 Allen, *Global economic history*, 47. Apparently, though, things do not always work out like this, even in Allen’s perception. On page 24 of his *Global economic history*, he refers to the silver influx into Spain that began in the sixteenth century and then comments that it led to much higher inflation there than in the rest of Europe and made Spanish agriculture and manufacturing uncompetitive. High wages here apparently were a liability, not an asset. Is that only because other factors of production would be expensive in Spain at the time? Just to show that there is always an economist claiming the opposite: Francois Simiand (1872–1935), a quite influential French economist-historian, was convinced that periods of low prices and wages, in his terms periods best described as ‘phase B’, would be periods that saw most innovation. See for his ideas and methods F. Vayssièr, ‘Raison collective et progrès

On the other hand, he associates low wages with economic stagnation and poverty traps. In very poor countries "...labour is so cheap that businesses have no incentive to invent or adopt machinery to raise productivity."<sup>632</sup> He clearly suggests that the cheaper labour is relative to other factors of production, the fewer incentives there are to industrialise: "It only pays to substitute that much capital for labour when wages are high relative to capital costs."<sup>633</sup> The point Allen is making specifically for Britain had already been often made with reference to entire Western Europe. According to several scholars, that region was characterised by a quite exceptional labour to capital goods ratio, and therefore had a more technology-driven economy than other regions of the world already from the High and Late Middle Ages onwards. Joel Mokyr, for example, wrote in 1990, "... medieval Europe was perhaps the first society to build an economy on nonhuman power rather than on the backs of slaves and coolies."<sup>634</sup> Landes in 1998 made a similar claim: "Europe, as nowhere else, was a power-based civilization."<sup>635</sup> Labour scarcity is supposed to have led to the introduction of new technologies – in particular in towns but also in the countryside – such as watermills and windmills, and much more importantly when it comes to the total amount of energy they provided, the use of animals, wood, and in some regions peat and coal. That labour in Western Europe overall was relatively free and therefore at times had a good bargaining position certainly also played a role in this tendency to substitute it with capital.

In China, as Allen argues, energy, money and certain resources were relatively much more expensive and wages much lower, which made choosing a labour-intensive option the rational thing to do. In their comparison of the economy of the Yangzi Delta and the Netherlands at the beginning of the nineteenth century, Jan Luiten van Zanden and Bozhong Li also found clear indicators that the economy in China's core region was on a different, more labour-intensive trajectory from that chosen in the economic core of Western Europe.<sup>636</sup> The many recent publications on a specific East Asian path of development, e.g. by the Japanese economic historian Kaoru Sugihara, also associate Western industrialisation, the first in world history, with a specific factor endowment in which the labour supply was less 'unlimited' than it would be in East Asia's

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économique: la théorie du cycle de François Simiand', [http://dumas.ccsd.cnrs.fr/docs/00/81/78/54/PDF/2012-06\\_VAYSSIERE\\_RAI.pdf](http://dumas.ccsd.cnrs.fr/docs/00/81/78/54/PDF/2012-06_VAYSSIERE_RAI.pdf) consulted on 04-06-2013.

632 Allen, *Global economic history*, 13.

633 Allen, *Global economic history*, 51. See also *ibidem*, 51: "Labour has to be very expensive to make it worthwhile to build all that extra capital" and 55: "Industrial technology, however, was not cost-effective in other parts of the world where wages were lower."

634 Mokyr, *Lever of riches*, 35.

635 Landes, *Wealth and poverty*, 46. Both Mokyr and Landes refer to the medievalist Lynn White as their 'source' for this claim.

636 Bozhong Li and Van Zanden, 'Before the Great Divergence?'

industrialisation as it set in later on and that Sugihara describes as labour intensive.

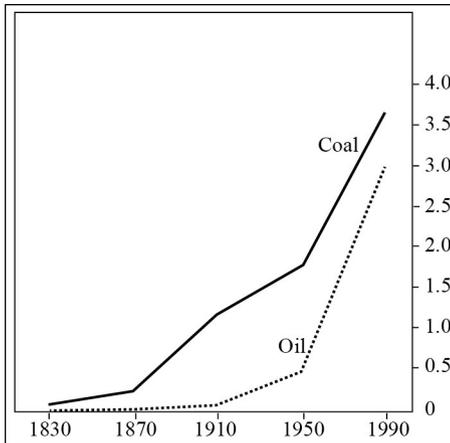
Table 25: Pre-industrial energy consumption in Britain and China, (%)

Britain	1600	1700	1800	China 18 <sup>th</sup> century
Food	27.5	19.9	7.4	47
Fodder	25.6	16.4	8.8	43
Firewood	28.7	13.4	4.4	8 (firewood and fossil fuel)
Fossil fuels	16.7	48.6	77	
Wind	0.5	0.8	2.3	2 (wind and water)
Water	1	0.6	0.2	

Precise figures for a comparison of non-human energy use in Britain with that in China are lacking. But all estimates we do have in any case suggest it was *several* times higher in Britain than it was in China.

Based on: Paul Warde, *Energy consumption in England and Wales, 1560–2000* (Naples 2007) 69 and 73, and (for China) on Paolo Malanima, *Energia e crescita nell'Europa preindustriale* (Rome 1996) 124. See also S.A.M. Adshead, *Material culture in Europe and China, 1400–1800* (Houndmills Basingstoke 1995) chapter 5, and Paolo Malanima, 'Energy crisis and growth 1650–1850: the European deviation in a comparative perspective', *Journal of Global History* 1,1 (2006) 101–122.

Graph 8: The increase of energy consumption since the beginning of industrialisation in billions of tons



Source: *The Economist* December 31<sup>st</sup> 1999, page 81.

Britain not only had much more non-human energy per capita. It also had much more land per agriculturalist. Farms on average were much bigger there and had far more animals and more implements.<sup>637</sup> British farms took advantage of

<sup>637</sup> See my *Zur politischen Ökonomie des Tees*, 97–126.

positive scale effect and used far more ‘outside’ labour that worked for wages. Reasons abounded to try to substitute labour with capital goods. What is striking is not only that such clear differences existed between Britain and China, but that they tended to increase over time on top of that. In Britain, the amount of land, animals and capital goods per agriculturalist tended to increase and farms tended to become bigger, in China exactly the opposite happened. In that respect, the situation in Japan was quite similar to that in China in the period from the seventeenth until the first half of the nineteenth century.<sup>638</sup> Considering all the characteristics we associate with industrialisation, – first and foremost high energy use, the use of scale effects, and wage labour – chances clearly were far greater that it would occur first in Britain.

The contrast presented between the situation in Great Britain and in China in the previous paragraphs might give the impression that the situation of China was increasingly more Malthusian – that is, it was characterised by a tension between population and resources – than that of Great Britain, even though over the entire period discussed here, from the 1680s to the 1850s, Great Britain’s population was far from stagnant. Malthusians, as indicated, focus on the disadvantages of population growth, on the permanently lurking danger of overpopulation. In the what-went-wrong-story for China, the country often has been portrayed as the example *par excellence* of an economy that had entered a Malthusian *cul-de-sac*; a ‘land of famine’ having too many people and not enough resources.<sup>639</sup> The dangers of overpopulation, of course, were not unknown in Europe. Malthus was an Englishman and undoubtedly also had the situation in his own country in view when he wrote down his ideas. But according to many scholars, those dangers would – in particular in Western Europe – in the end have been kept in check by a conscious policy of limiting population growth.<sup>640</sup>

Current scholarship admits the existence of clear differences between the demographic systems of China and Western Europe, but most scholars now think that those differences did not make much difference strictly in terms of

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638 See e.g. Macfarlane and Harrison, ‘Technological evolution and involution’.

639 See Mallory, *China: Land of famine*.

640 It has always been a stock in trade argument of ‘Eurocentrists’ to point at the West European marriage pattern – in particular characterised by the fact that people married late and a high number of them married never at all – as uniquely European and as a way in which Western Europe in contrast to other parts of the world kept its population increase in check. At the moment, most scholars would accept it indeed was uniquely Western European but would doubt that it functioned as a more efficient means of population control than the means used in e.g. early modern China. For the uniqueness of the Western European marriage pattern see Engelen and Wolf, *Marriage and the family in Eurasia*. For alternatives when it comes to checking population growth, see Lee and Wang Feng, *One quarter of humanity*.

population growth. In both regions population grew over the period 1680 to 1850: In China from an estimated 150 million to an estimated 400–410 million and in Western Europe from some seventy-five million to some 170 million and in both there were Malthusian pressures. In Great Britain, the population over that period increased from some seven to some twenty-one million. It is, of course, rather rash to make firm statements about the relative overpopulation of any of these regions on the basis of such aggregated data. They had very different population densities to begin with in their core regions, population was spread differently, and they had completely different agricultural systems and resource portfolios, and so on. But at least *aggregated* figures and analyses of the situation in both countries regarding available resources per capita do not provide any clear proof that China got into trouble because of population pressure, whereas ‘Europe’ had developed strategies to prevent such pressures from even emerging. Population pressure clearly existed and increased in high Qing China, but overall its effects became so problematic because China did not industrialise rather than that China did not industrialise because it was in a fatal Malthusian predicament. Britain actually was already experimenting with solutions to break its Malthusian constraints before it had really hit its Malthusian ceiling. In any case, as we have already seen on pages 189–221, it is very hard to make clear, mono-causal statements about connections between population resources and growth. What is clear is that whatever the exact relationship may have been between population pressure and economic problems in China in the nineteenth century, population pressure clearly was not the only cause of the economic hardship.

Demography *in the wider sense* of the word definitely played a role in setting China on a path that, while not making growth impossible, did inhibit the emergence of modern industry and modern economic growth. I will refer here to its predominant household mode of production with its specific power relations that in my view really set China’s economy on a trajectory quite different from that of Britain. I already referred to some effects of that mode of production when it comes to consumer behaviour, opportunities to specialise and profit from scale effects, investment patterns and the development of a market for wage labour. I will later on expand further on them.<sup>641</sup> The prevailing power relations and familial norms and values also had their impact on economic life. They made it, for example, less easy for Chinese women to work outside their home under one roof with non-family members.<sup>642</sup> Family and firm, as a rule, were not separated. China’s inheritance system very much favoured splitting up in-

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641 See pages 339–342.

642 See note 734.

heritance under all heirs. Overall its system of law was more based on dealing with members of families than with individuals.<sup>643</sup>

The question how an economy that had once been as productive and dynamic as China's could have become so poor and static has captured the attention of economic historians. Two interpretations have dominated the debate when it comes to the role of demographic factors – and those are the one we are focusing on here – in explaining that development. Their overall assessment of the development of China's economy, first and foremost its agriculture, in the end leads to fairly similar results but their points of departure and their general assessments are quite different. The first interpretation, which is always associated with economic historian Philip Huang, looks at that development in terms of 'involution'.<sup>644</sup> The opportunity costs of family labour were quite low. Members of the family had to be provided for anyhow and when they were at home and had time to spare, that time was not considered money. So there was a tendency to increase the labour input of family members even when marginal returns decreased, to use them for all sorts of extra activities and to not or at least as little as possible hire external labour.

Mark Elvin, who claims that China's pre-industrial economy would have ended up in a high-level equilibrium trap, represents the other interpretation, in according to which the initial strengths and positive dynamics of pre-industrial China's economy receive more attention but that in the end too focuses on the stasis, that came to characterise China's economy because of Malthusian problems.<sup>645</sup> What he refers to clearly is a Malthusian trap:

Clearly the shortage of many resources grew more severe. ... A major cause of these shortages was of course the continuing growth of the population under conditions of relative technological standstill.<sup>646</sup>

Traditional inputs, whether in the form of irrigation works, fertilizer or labour, were also nearly as high as they could be without running into sharply diminishing or even negative, returns.<sup>647</sup>

The following quotation indicates why it is called high-level equilibrium:

... in late traditional China economic forces developed in such a way as to make profitable invention more and more difficult. With falling surplus in agriculture, and so

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643 Idiosyncratic in dealing with these and related topics but also quite interesting, is Gates, *China's motor*.

644 See e.g. his *Peasant economy and social change in North China; Peasant family and rural development in the Yangzi Delta*, and 'Development or involution in eighteenth-century Britain and China'. For the definition of involution see page 182 of this book.

645 Elvin, *Pattern of the Chinese past*, chapter 17, plus idem, *Another History*, chapters 2 and 3.

646 Elvin, *Pattern of the Chinese past*, 301.

647 Elvin, *Pattern of the Chinese past*, 306.

falling per capita income and per capita demand, with cheapening labour but increasingly expensive resources and capital, with farming and transport technologies so good that no simple improvements could be made, rational strategy for peasant and merchant alike tended in the direction not so much of labour-saving machinery as of economizing on resources and fixed capital. Huge but nearly static markets created no bottlenecks in the production system that might have prompted creativity. When temporary shortages arose, mercantile versatility, based on cheap transport, was a faster and surer remedy than the contrivance of machines. This situation may be described as a 'high-level equilibrium trap'.<sup>648</sup>

According to Elvin, China's economy went through a "medieval revolution" during the Song and Yuan dynasties, in which its agriculture and systems of transport as well as its monetary and credit system, its market-system, and its science and technology became very efficient and sophisticated. What emerged was a situation in which labour became relative abundant and cheap, resources in contrast relatively scarce and expensive. In many respects, the economy continued to function at a very high level of development also after that medieval apogee, especially when it comes to the production of food and the efficiency of markets and transportation. It was in a trap nevertheless, as machines or large scale co-ordination that may have led to a real qualitative breakthrough, were not needed – although they might have been very helpful – and, more importantly, often simply were not directly profitable. In fact the situation here had become the exact opposite of that which existed in Britain in the eighteenth century according to Robert Allen and in that case corroborates his ideas on why Britain did industrialise, although Allen never explicitly refers to Elvin's trap. In case bottlenecks occurred, solutions were found with recourse to extra *very cheap* labour and to the very well functioning markets. Buying up land and then renting it out and by lending money against high interest rates could result in high earnings. For those who wanted to make productive investments, it was neither easy to find capital nor to find profitable investment outlets. As a whole, the economy produced a substantial surplus and ordinary people clearly need not necessarily have been poor as in classical involution stories. The problem was to find profitable *innovative* investment for that surplus. Over time, so Elvin claims, per capita surplus decreased and with it demand, which of course means profitable outlets for investment in capital goods became even scarcer. In his *ReOrient*, Gunder Frank uses exactly this demographical-economical model to explain 'the decline of the East', in this case China.<sup>649</sup>

The arguments of Allen, Huang and Elvin look plausible and their empirical underpinning looks solid. The point is whether their arguments actually provide

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648 Elvin, *Pattern of the Chinese past*, 314.

649 Frank, *ReOrient*, 297 – 330.

good and sufficient explanations for what occurred in China and how that is different from what occurred in Britain. Where Allen postulates that relatively high wages as compared to the costs of other factors of production (implements, energy, money) acted as a spur for innovation in Britain, Huang and Elvin, in a kind of mirror image for China, postulate that relatively low wages as compared to the costs of other factors of production (implements, energy, money and also land) led to a 'trap'. Are they right?

## 7. High wages and low wages: stimuli and traps?

Allen's thesis, in a nutshell, boils down to the claim that labour in Great Britain was expensive, whereas energy and capital were cheap and that therefore the economy of the country took a labour-extensive and capital- and energy-intensive road, which led to what we call the first Industrial Revolution. He sketches the situation in China in quite different terms. Without explicitly referring to them, he supports the Elvin-Huang interpretation of China's early modern economic history that characterises its economy as labour-abundant with expensive non-human energy and capital goods and that looks at it in terms of a high-level equilibrium trap or even an 'involutionary' dead-end street. Allen's thesis looks very convincing and logical indeed and is supported by serious empirical research and data. In the context of the debate on the Great Divergence and in particular on industrialisation, however, several cases come to mind that indicate that *in general* matters probably were more complicated. We already made several comments in our discussion of the thesis by Wong and Rosenthal. A first problematic 'case' that one might refer to is the country that is now called the Netherlands, a case that Allen discusses but which to my view he cannot entirely fit in into his explanatory scheme. That country was at least as wealthy as Britain, if not wealthier during the eighteenth century. Overall wages were not lower than in Great Britain, with the exception of London. But in Great Britain, London clearly was an *outlier* and *not* the place where industrialisation began. Wages in Amsterdam e.g. were comparable to if not higher than those in towns in South England.<sup>650</sup> Wages in other towns in Holland were quite similar and definitely not lower than e.g. in Lancashire. Interest rates in the Dutch Republic were not higher than in Britain.<sup>651</sup> Nor need energy have been more expensive, as Newcastle coal could easily be shipped overseas to Amsterdam as

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650 We of course speak here in terms of overall orders of magnitude and rough equivalences. See Allen, 'Great Divergence', *passim*, and De Vries and Van der Woude, *First modern economy*, chapter 12, e.g. tables 1 and 8.

651 De Vries and Van der Woude, *First modern economy*, chapter 4.

soon as that was cheaper than buying peat at home.<sup>652</sup> The Dutch Republic and later on the Kingdom of the Netherlands continued to be a very wealthy, highly developed country, but it did not become an early industrialiser, and was no longer a technological innovator.

Another highly advanced region with high wages that we also already referred to but where technological innovation faltered and no take-off took place is Northern Italy. During the Late Middle Ages it was far more important as a manufacturing region in Europe than Britain. It was famous for its highly developed wool production in towns where labour was relatively well paid. As I already indicated in another context, it should have provided an ideal environment for technological innovation. But in the early modern era, this region was one of relative decline rather than dynamism and strikingly enough that has very often been explained in reference to the *high* wages that guilds in towns managed to enforce. High-wage towns, in this case, apparently lost out in competition and high wages apparently were no stimulus for innovation. As indicated, emerging silk manufacturing found a centre in Bologna, but ‘industry’ in general moved to places with low wages in the countryside and technological breakthroughs did not occur.<sup>653</sup> When it comes to high wages, I could also refer to Spanish America, where according to Letitia Arroyo and colleagues, and even according to Robert Allen, who is much less optimist about those wages, income during the early modern era expressed in silver often was higher than on the European Continent.<sup>654</sup> In particular in case the figures by Arroyo and colleagues would be correct, that would mean that high wages as such – as Allen is of course aware – do not suffice to set an economy on a capital-intensive path.

For the *specific* cases of Britain and China, I think the factor-endowment approach of Allen, Elvin and Huang certainly is very valuable, although it of course cannot explain all there is to explain. What is interesting and should at least provide food for thought is, as I have stated above, that industry in Britain did *not* initially arise in its highest-wage regions, i.e. London and more in general the South, but in regions where wages were, *for British standards*, quite low.

As E.H. Hunt, an expert in the field, writes:

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652 For coal prices in various European cities at the end of the eighteenth century see Allen, *Global economic history*, 25, and idem, *British Industrial Revolution*, 99–103, for energy prices, i.e. prices of coal, charcoal and peat. For the possibility to import (more) coal cheaply from Newcastle to the Netherlands see De Vries and Van der Woude, *First modern economy*, 718–719.

653 See under note 580.

654 See Arroyo Abad, Davies, and Van Zanden, ‘Between conquest and independence’ and the figures calculated by Allen and colleagues in Table. 33.

Major regional differences in wages already existed at the beginning of the classic industrial revolution. Because industrial growth focused on parts of the North where wages were low, industrialization initially eroded the pre-industrial pattern of wage differentials.<sup>655</sup>

From a global perspective, even those wages in Britain's industrialising North were high but in my view it is clear that the fact that industrialisation did not begin in Britain's high wages regions makes Allen's explanation less obvious and convincing. That many experiments with steam engines e.g. by Thomas Newcomen (1683 – 1729), James Watt but also by Richard Trevithick (1771 – 1833), took place in Cornwall in tin or copper mines where wages were *low* and coal was *expensive* also does not really support Allen's factor-endowment thesis. Neither does the fact that regions such as Scotland and the Northeast that were well endowed with coal and industrialised quite early, contributed very few 'labour-saving' innovations and had relatively *low* wages.<sup>656</sup> The problem is that one might also set up a fairly obvious and convincing argument in which *low* wages would facilitate industrialisation as Joel Mokyr, without any doubt just as capable and respected as an economic historian as Robert Allen, indeed has done:

...it is clear [sic] that the successful economies relied on a reservoir of cheap, elastically supplied labour ... The lesson to be learned from the experience of European countries during the Industrial Revolution is that low wages, all other things being equal [sic!], facilitated the accumulation of the capital necessary for the diffusion of the new technologies, and that eventually these new technologies raised wages, thus eventually eliminating the conditions that made their acceptance possible.

Rising wages and living standards are the reward that society reaps for the diligence, abstinence and ingenuity of past generations.<sup>657</sup>

We will later discuss the possible connections between low wages and industrialisation on in this text<sup>658</sup> but first continue our analysis of the British and Chinese cases.

Industrialisation triggered an economic reallocation in which the heart of England's economy shifted to the North. Lancashire, the West Riding, and the West Midlands, in that order, led the development of modern industry in Eng-

655 Hunt, 'Wages' and Morris *Atlas of Industrializing Britain 1780 – 1914*, page 64. It is very important to realise that wages in London were exceptionally high, much *higher* than in the regions where industrialisation took off. On average between 1700 and 1789 wages of building craftsmen in London were sixty per cent higher than in Kent, Oxfordshire and Lancashire on the whole. Such craftsmen on average over that period earned about twice as much in London than in Lancashire. I take these figures from Malanima, 'When did England overtake Italy?'

656 See for that comment Dudley, *Mothers of innovation*, 125 – 130.

657 Mokyr, 'Dear labor, cheap labor and the Industrial Revolution', 195.

658 See pages 214 – 221.

land for decades: they all were among the poorest and most backward regions of the country in 1660 and even at the beginning of the eighteenth century. Lancashire, the symbol *par-excellence* of industrialisation, was amongst the very poor regions of England during the Middle Ages and the Restoration period in terms of wealth assessed for tax.<sup>659</sup> It was the second wealthiest region of the entire country in 1843. In the period 1767 – 1770 Lancashire and the West Riding were among the eleven countries with the lowest wages in Britain. Those mostly were in Northern England. By 1794 – 1795, however, the regional picture of wages had already been reversed completely. Then six of the eleven countries with the highest wages were in the North, with the West Riding having the highest wages of them all. In 1843, when Lancashire was the second wealthiest region of the entire country, its wages were the third highest.<sup>660</sup> Scotland, known for its very low wages in the eighteenth century, quickly caught up with the industrialising regions, i. e. it industrialised fast *and* in the process saw its wages increase. One might argue that already in the 1840s it had become more industrialised than the rest of Great Britain.<sup>661</sup>

Would not all this suggest that, in Great Britain and *in British circumstances*, industry *caused* high wages in industrializing regions rather than the other way around? In my view, Allen has developed a tendency to focus too exclusively on wages and to underestimate the role of location. In the very important case of the rise of the cotton industry, for example, what in my view was fundamental for its emergence at *specific* places was the combination of relatively low wages and two more strictly 'locational' advantages: being close to a harbour that could provide a cheap and easy import of raw materials and an easy export of cloth and being close to cheap energy-sources, first streaming water and then from the 1830s onwards, coal. In the case of the iron industry, which needed heavy raw material and tremendous amounts of fuel, I would also not underestimate the importance of location. Britain did not become one integrated economy until the 1840s with the advent of railroads. Only then did location become less determining. Overall, also outside Britain, industry did not emerge first in regions where agriculture or the service-sector was highly developed. As a rule, it did in a context of *relative* poverty and backwardness, not high wages. London's high wages, for example, promoted the migration of shipbuilding to 'out ports' up the coast and around the Isles towards pools of cheaper labour in the North, Scotland and Ireland.<sup>662</sup>

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659 Information in this paragraph and the next one, unless indicated otherwise, is taken directly from Inikori, *Africans and the Industrial Revolution in England*, chapter 2: 'The English economy in the *longue durée*'.

660 I took this information from Hunt, 'Industrialization and regional inequality'.

661 Devine, 'Scotland', 400.

662 See Parkinson, *Trade Winds, 1793 – 1814*. I found this reference in O'Brien, 'Contributions of warfare with Revolutionary and Napoleonic France'. A version of it has been published on

Different factor costs certainly played an important role in setting economies on different roads and facilitating different outcomes and Allen clearly has made some very important points in his analyses. But industrialisation was not only a matter of factor endowment (labour scarcity, fortunate endowment with coal and easy money). In the Dutch Republic, factor costs that were fairly similar to those in Britain did not trigger any industrialisation. Location, politics, institutions and the more or less autonomous development of science and technology also had their parts to play. The Industrial Revolution was about more than just saving labour, or, more generally, cutting the cost of more expensive factors of production and using more of the cheaper ones. One can find many efforts to save coal via more efficient machines even though it was relatively cheap. But there are also examples of coal being wasted *because* it was cheap. Inventors themselves did not regard saving labour their main goal.<sup>663</sup> Even if high wages indeed functioned as a trigger to mechanisation, one would still have to deal with the question of why this effect occurred in cotton production and, more specifically, in cotton spinning.<sup>664</sup> Relative factor-costs certainly played a role but they certainly do not provide the entire story. Joseph Needham (1900–1995) already pointed out that imperial China with its dense population developed numerous labour-saving technologies much earlier than its European counterpart and added: “...it is remarkable that we have never so far come across any important instance of the refusal of an invention in Chinese society due to fear of technological unemployment before the nineteenth century.”<sup>665</sup>

In that respect, it is striking how positive Allen is about the effects of high wages on an economy. We already indicated he refers to a virtuous circle of high wages – innovation – high wages in his history of Western industrialisation. That description is hard to square with the history of Western capitalist economic development with its permanent shifting of the economic cores where wealth and innovation are concentrated. Although there are surprising continuities in

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the Internet as a Working Paper of the Department of Economic History of LSE: <http://www2.lse.ac.uk/economicHistory/workingPapers/2011/WP150.pdf>. For London’s economy I refer to the book by Leonard Schwarz mentioned in note 578.

663 See for critical comments on the high-wages and low-energy cost argumentation defended by Allen, e.g. Mokyr, *Enlightened economy*, 267–272, and McCloskey, *Bourgeois dignity*, chapter 22. See Macleod, *Inventing the Industrial Revolution* for the various reasons inventors and innovators had – or in any case *claimed* to have – for their inventions and innovations.

664 With Parthasarathi, I would claim the answer must be sought in the challenge of Indian cotton textiles production. See Parthasarathi, *Why Europe grew rich*, *passim*.

665 See Joseph Needham, a.o. *Science and civilization in China, Volume 7, Part II. General conclusions and reflections* (Cambridge 2004) 4. The original source is his article ‘Science and society in East and West’, of which various versions exist and that was first published in 1964.

the *wealth* and *poverty* of regions in Europe over the last thousand years<sup>666</sup>, economic *primacy* there was not something self-perpetuating. There are several stories of their rise and (relative) decline. Braudel, e.g. in his analysis of early modern Western capitalism, refers to the following sequence of economic centres: Venice, Antwerp, Genoa, Amsterdam, London, and he could have added New York for the period after the First World War.<sup>667</sup> As we already indicated for Northern Italy and for the Dutch Republic as well, where real wages were almost frozen from 1680 to 1820, high wages became something of a trap. They have done so in many regions over time.

Allen persistently claims that low wages create a poverty trap.<sup>668</sup> But are low wages by definition bad for innovation? One can easily think of exceptions and, as we saw, Joel Mokyr with his claim that “successful economies relied on a reservoir of cheap, elastically supplied labour” would think those ‘exceptions’ are the rule.<sup>669</sup> What about a situation, for example, where labour to all intents and purposes is cheap but machine-production nevertheless wipes out non-machine production, as was the case in the second half of the nineteenth century when British machine-produced yarn began to undercut Chinese hand spinning? Would that not provide China’s businessmen with an incentive to invent or adopt machinery to raise productivity? Maybe the Chinese situation was not very well suited to being first but one would tend to think that with its ‘unlimited supplies of labour’ it was quite suited to catching up à la Arthur Lewis. It may well be that for a Chinese entrepreneur investment in machines at the time was extremely expensive, as it indeed was. But that would *ceteris paribus* of course not be the case for an entrepreneur from let us say Britain investing in China. *Ceteris paribus* those same machines in any case would be even more productive and profitable with cheap labour. According to E.A. Ross in 1914 “The cheapness of Chinese labour is something to make a factory owner’s mouth water.”<sup>670</sup> *Ceteris paribus* one would expect an enormous drain of investment from high-wage to low-wage countries that as a rule have ‘unlimited supplies’ of labour. Not by accident most (neo) classical economists have always liked to predict global economic convergence. There indeed are many examples of situations where this actually occurs, which shows that low wages can be an advantage and attract investment. On the other hand, apparently, ‘other things’ often were not ‘equal’ and the bulk of ‘modern’ production remained in high-wage countries. The main point, I would guess, is not the height of wages as compared to other factors of production at a certain place, but their height as compared to what those who

666 See e.g. Polèse, *Wealth & poverty of regions*, maps, 1, 2 and 3.

667 Braudel, *Civilization and capitalism, 15<sup>th</sup> – 18<sup>th</sup> century*, III, 27 – 35.

668 See e.g. Allen, *Global economic history*, 13.

669 See Mokyr, ‘Dear labor, cheap labor’.

670 Ross, *Changing Chinese*, 117.

receive them actually produce, i. e. their *productivity* as compared to that productivity someplace else. If, in principle machinery, technology and knowledge are transferable but nevertheless – even with enormous wage differentials – so much industry stays in high-wage countries, this shows other factors than wages *per se* must play a large role. Would that not, *amongst other things*, force us more extensively to discuss the problem that Clark tackled in his *Farewell to alms*, i. e. the quality of labour, its skills, discipline et cetera?<sup>671</sup> Apparently it is not that simple to spread skills and effective use of technology.<sup>672</sup>

The level of wages in China in the period just before and during industrialisation in Britain could indeed have had a negative effect in the sense of retarding and hindering massive industrialisation. As a general statement, however, I think it clearly does not make much sense to directly blame its low wages for the fact that China did not industrialise in the nineteenth century. Before foreign machine-made goods massively entered their country, China's entrepreneurs basically competed amongst each other or, at best, with other entrepreneurs who also lacked modern machinery. I fail to see why the simple fact that Chinese wages, where low, *in themselves*, would then be a serious, overall disincentive for them to try to invent or at least use almost any new machinery or implement, considering the enormous domestic market for Chinese goods. Even if something like a high-level equilibrium trap had existed, does that mean profitable innovation of any kind would have been unthinkable? Can one not think of any innovation that would have given Chinese producers an opportunity to simply cut their costs and even undercut their competitors – almost without any exception Chinese who had to pay 'Chinese' wages – on the Chinese market – that was all but closed to foreign commodities – just as it did for British entrepreneurs in their county, where wages were higher? Were 'profitable' labour-saving innovations impossible simply because labour was cheap? There are good reasons to doubt that. For various sectors of Qing China's economy such as copper mining and irrigation and even coal mining, innovations could have been profitable even with the existing low wages. Even Mark Elvin, who coined the expression 'high-level equilibrium trap', and convincingly explained its logic, admits that he wonders why Qing China had so few innovations.<sup>673</sup> It was not struck in a poverty trap. It was not *per se* starved of capital.<sup>674</sup> In principle again, *ceteris paribus*, it should in any case have been very

671 See for some comments pages 226–231.

672 For some further comments see Amsden., *Rise of 'the rest'* under 'skill deficits' (pages 46–48); chapter 3: 'Tribulations of technology transfer' and chapter 5: 'Lack of manufacturing experience matters'.

673 See e. g. Elvin, *Another history*, chapters 2 and 3.

674 See for an underpinning of that thesis e. g. Lippit, *Economic development of China* and pages 240–241.

attractive for foreign investors to move their machines from their high-wage home countries to countries like China.

## 8. Labour-extensive and labour-intensive routes to growth?

The connection between low wages and the (non-) emergence of modern economic growth deserves closer attention. Recently, the debate on industrialisation and modern economic growth, no doubt because of the East Asian Miracle and the rise of economies like Brazil, has taken a different turn in which relatively low wages and a relatively high labour-intensity are seen in a more positive light as providing a specific *labour-intensive route to growth*. Here, I will focus on the most important and most widely discussed example, that of the so-called East Asian path of economic development, that especially in its take-off phase would have had more traits of an 'industrious' than of an 'industrial' revolution, and on the debates about it which clearly also impinge on how scholars now look at the Industrial Revolution in Britain. During the nineteenth century, when the great gap between rich and poor emerged, both the economies of China and Japan were resource-scarce and labour-abundant. But China's economy had a couple of specific characteristics that ensured that it did not (yet) embark on a broad labour-intensive industrialisation.<sup>675</sup> Basically, it only did after 1978. So the focus here will be on Japan, the country for which the concepts 'industrious revolution' and 'labour-intensive industrialisation' were originally coined. The scholar who introduced this concept in economic history was Akira Hayami, an economic historian from Japan, who first coined the term to describe economic developments in Tokugawa Japan but later gave it a wider connotation.<sup>676</sup> His ideas have been very much popularised by Kaoru Sugihara, and are now enjoying wider popularity amongst economic historians dealing with Asian Economic development. I will base myself on his description and analysis.<sup>677</sup>

In his view, scholars theorising about industrialisation have to take on board the different way(s) in which Asian countries industrialise or industrialised. According to him, it is now clear that industrialisation can occur, and has

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675 See page 276.

676 See e.g. Hayami, 'Great transformation'; idem, 'Industrious Revolution'; idem, 'Industrial Revolution versus Industrious Revolution'.

677 See in particular Sugihara, 'Labour-intensive industrialisation in global history: the second Noel Butlin Lecture'; idem, 'The state and the industrious revolution in Tokugawa Japan, GEHN Working Paper no 2 (London, London School of Economics 2004) and idem 'East Asian path of economic development'. See also Pomeranz, 'Is there an East Asian development path?', and Osamu Saito, 'An industrious revolution in an East Asian market economy?' Very informative is Austin and Sugihara, *Labour-intensive industrialization in global history*.

occurred, in different cultures under a variety of factor endowments. In his perception the 'classic', Western interpretation of industrialisation always focused on capital rather than labour. Talking about industrialisation in Western capitalist economies as a rule meant talking about savings and investment, capital goods, factories and scale effects. In analyses of the first, Western path to industrialisation, the emphasis always lay on capital-intensive and resource-intensive technology. He also argues that the role of labour was fairly unproblematic. It was present, homogeneous and disposable. The rise of East Asia shows a fundamentally different, what he calls 'East Asian', route to industrialisation that uses labour more fully and relies less on substituting capital for labour. He explicitly considers East Asia's labour-intensive industrious industrialisation as an alternative to the Industrial Revolution as it took place in the West. In it, the family, in particular the peasant household continues to be the predominant, labour-absorbing unit of production during the take-off stage. Specialisation takes place inside this unit of production – the household – and mainly in the countryside and not like in the West, predominantly between different regions with individuals, in particular in towns, specialising in different skills. A lot of East Asian industry is rural-based, small-scale and more labour-intensive and productive per unity of capital than its large-scale Western counterpart. At the basis of these differences in 'mode of production' there would be differences in factor endowment: high-wage economies, i.e. economies where labour is relatively scarce will be capital-intensive, low wage economies where labour is relatively abundant will be labour-intensive. Regions with labour-intensive industrialisation will export labour-intensive goods and import capital-intensive ones. The Western capital-intensive and labour-intensive path according to Sugihara and several colleagues is not the only one. The global *diffusion* of industrialisation in any case was made possible by the development of labour-intensive and resource-saving technologies that at the moment provide the bulk of the world's industrial employment, combining cheap labour with Western technology. Considering the enormous population of industrialising Asia, one might claim that this specific way of industrialising up until now has been the main route by which mankind could escape the Malthusian trap of overpopulation, *not* 'Western' industrialisation.

Those who think in terms of a specific East Asian development path tend to do this on the basis of a quite specific interpretation of how Western Europe industrialized. I think that they overrate the capital-intensity of industrialisation in the West and underrate its labour-intensity, at least when we look at the *beginning* of the process. At any rate, the contrast between the beginning of industrialisation in Britain and the beginning of industrialisation in 'East Asia' was not as great as they suggest. As indicated earlier on, over the last decades the image of industrialising Britain has undergone some major changes. These in-

clude the recognition that in the manufacturing sector, capital-intensity was not as high and big factories not as normal as the traditional image of the industrial revolution, with its focus on large scale mechanised production, i.e. steam, machines and factories, and sudden, fundamental change suggested. It now is recognised that factory production was much less predominant and that the role of all sorts of flexible production combining work in factories, sweat shops or at home, had been severely underestimated.<sup>678</sup> In brief, what happened in Britain, in many other European countries but also in the United States during the first stages of industrialisation, often looked far more like the Asian model than Sugihara *cum suis* assume in their East-West dichotomy. That dichotomy is quite problematic anyway as there actually is no uniform *Western* route to a uniform *Western* industrialisation. A comparison of the economic histories of Britain, France or Germany, for example, over long nineteenth century suffices to make that quite plain.<sup>679</sup>

That Japan and for that matter China went through an industrious revolution is in no doubt, but it is becoming increasingly clear that such a revolution *also* occurred in Western Europe in the early modern era and probably until far into the nineteenth century as in particular economic historian Jan de Vries has shown in several publications.<sup>680</sup> There are unmistakable signs that in the centuries before industrialisation and during its first decades, in Western Europe labour input substantially increased. Paolo Malanima, in his overview of Europe's pre-modern economy, concludes that, "On the whole it can be said that, during the sixteenth to eighteenth centuries the overall number of working days in Europe increased by some fifteen per cent."<sup>681</sup> A larger share of the population began to work, and they worked longer and harder. Over the period 1750 – 1850, working time for men of prime working age in England is estimated to have increased with twenty to thirty-five per cent. The number of annual working hours in industry reached its limit in 1830 with 3500; that is about double the number of hours English labourers work now.<sup>682</sup>

A very substantial part of this extra labour input took place in domestic industry, where we see an increasing involvement of especially agrarian families in market-oriented craft production. During the early modern era this was a

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678 See Hudson, 'Industrial organisation and structure'. For a European-wide analysis see Sabel and Zeitlin, *World of possibilities*.

679 See the literature referred to under note 55.

680 For specific data see De Vries, *Industrious Revolution*, chapter 3.

681 Malanima, *Pre-modern European economy*, 143.

682 See for this information Voth, 'Living standards and the urban environment'. For long-term data specifically for England, see Allen and Weisdorf, 'Was there an 'Industrious Revolution' before the Industrial Revolution? See also Muldrew, *Food, energy and the creation of industriousness*.

phenomenon of truly global dimensions. It came in several varieties: the putting-out system organised by merchant capitalists who provided raw materials and then collected processed products; a system in which merchants only advanced money and the actual producers took care of buying raw materials and sold their products after processing them, or in a system in which producers operated as independent buyers and sellers. In particular for early modern Europe, a debate was waged during the 1970s and 1980s about whether this domestic industry, first and foremost in its putting-out variety, should be regarded as a form of 'proto-industry', that is as the first stage of industrialisation.<sup>683</sup> This proto-industrialisation-theory that implied a rather crude linear progression from artisans, putting-out systems, to the factory, did not stand up the test. In the context of our discussion of an assumed Asian route to industrialisation via an industrious revolution, this of course is highly significant. In the history of Western Europe, domestic rural industry at times indeed was a kind of preparatory stage of industrial production, but very often it was not and turned out to be a dead-end street, a route to impoverishment hardly distinguishable from 'involution' as it has been described as a serious problem in China's economy during its pre-industrial era.<sup>684</sup> The system of domestic industry that prevailed in Qing China can be best characterised as a *Kaufsystem*, which means that 'centralised' coordination, financing and capital accumulation were much less important than in the putting-out system, which according to most scholars prevailed in Western Europe.

Jan de Vries in that respect points at differences in the industrious revolutions as they occurred in certain parts of Europe and its North Atlantic offshoots on the one hand and in the rest of Europe and East Asia on the other hand. In his view in north-western Europe and its north Atlantic offshoots, industriousness were linked to consumerism, which was not or far less the case in the rest of Europe and East Asia where in his view a far more involutory road was taken.<sup>685</sup> In *all* regions of the globe with increasing population, labour-intensity tended to increase too, in order to counteract the tendency of decreasing marginal productivity in agriculture. That was also the case in Western Europe, although the level of labour-intensity very probably was always highest in East Asia. But according to De Vries, industriousness in north-western Europe was not so much a matter of supply-side constraints as of demand-side aspirations.

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683 Mendels, 'Proto-industrialisation'.

684 For a general overview see Ogilvie and Cerman, *European proto-industrialisation*. For a critical evaluation of the British case, see Hudson, 'Industrial organisation and structure', in particular 29–34. Paolo Malanima clearly rejects the proto-industrialisation thesis. See his *Pre-modern European economy*, under 'proto-industrialisation'.

685 De Vries, 'Industrious peasants in East and West'. All the comments here are paraphrases of his text. Only in case of literal quotations do I give a further reference.

In his words, "...consumer aspirations played an important role in motivating the strategic deployment of the productive resources of the household ..."<sup>686</sup> This consumption-motivated industrious revolution began in North-western Europe and was long restricted to that region plus its North American settlements. North-western Europe had a capital-abundant environment where households or household members could specialise because of the broad availability of factor and commodity markets. They could increase productivity as they had ample opportunity to shed and acquire labour and become a link in an extending division of labour.

De Vries's industrious revolution in these regions had a clear element of increasing total productivity by means of 'improving' the division of labour and allocating one's labour to activities that might lead to higher yields. It was not just or not even primarily a matter of working harder but of increasing productivity by wide-ranging specialisation made possible by extended markets. Adam Smith would have approved of it. As late as 1879, only five per cent of the working population lived from wage labour in Japan. In China, the figure would have been similarly low. Peasant households only released and hired a very limited amount of labour. In that East Asian context, and in most of Europe apart from the northwest, by-employments were more part of a survival strategy driven by the simple necessity to increase labour-input and a matter of self-exploitation than of a growth strategy. De Vries's comparative analysis of the industriousness of East Asian peasants nowhere creates the impression that he regards the East Asian industrious revolution as in any kind the beginning of a process of modern growth, in any case not for the period he explicitly refers to. He only rather in passing refers to Sugihara's focus on labour-intensive industrialisation as embracing the gradual improvement of the quality of labour and its ability to in that case become the "main route by which mankind escaped the Malthusian trap of overpopulation and the Ricardian trap of rising food prices."<sup>687</sup>

It is still a matter of debate to what regions and sectors the 'optimist' interpretation of the industrious revolution by Jan de Vries applies. As indicated, he himself confines it to North-western Europe and its North Atlantic offshoots, for which regions he considers it a real boost to development and growth. For those exceptional regions he looks at it in terms of increasing industriousness, dynamism and development. Overall, even for Europe, a fairly negative interpretation prevails. In his overview of Europe's economic history over the last

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686 De Vries, 'Industrious peasants', 108.

687 Kaoru Sugihara claimed this in his paper, 'Labour-intensive industrialization in global history' presented at the 13<sup>th</sup> International Economic History Conference in Buenos Aires, 2001.

millennium before industrialisation, Malanima claims that this extra effort mostly was a matter of hardship, in any case in the countryside: “Peasants became industrious because they had no other choice.”<sup>688</sup> For Britain, Allen and Weisdorf agree regarding the situation in the countryside but think that the situation in towns was more like De Vries describes it, which would mean that industriousness there was positively connected to major changes in consumer behaviour.<sup>689</sup> Very probably, optimists and pessimists – as in the previous debate on proto-industrialisation – both have a point, depending on the circumstances.

In that respect, Sugihara’s rather positive interpretation of East Asia’s industrious revolution as a distinct path to modern economic growth could also do with some qualifications. Industrialisation as it began in Britain differed from industrialisation as it occurred later on in parts of East Asia. But in East Asia too, working hard and diligently simply did not suffice to become really wealthy, as began to be clear some time later in Japan. To reach Western levels of wealth and really escape from poverty, more was needed. During the first stages of its industrialisation, Japan changed and adapted Western technology to make it cost-effective for its low-wage economy and it in all probability indeed took a labour-intensive route. After 1945, however, it switched to very capital-intensive technologies and built very highly capital-intensive industries. No big country has ever become rich on the back of small firms.<sup>690</sup> It was only then, that it really began to catch up with the West in terms of wealth. In China at the moment industrialisation walks on two legs, i. e. it combines capital-intensity and labour-intensity.<sup>691</sup>

Table 26: Real GDP per capita incomes in 1990 international PPP dollars compared over time

<i>GDP per capita in:</i>	<i>Japan</i>	<i>China</i>	<i>UK</i>	<i>Netherlands</i>
1700	570	600	1,250	2,130
1820	669	600	1,706	1,838
1913	1,387	552	4,921	4,049
1950	1,921	448	6,939	5,996
1973	11,434	838	12,025	13,082
2003	21,218	4,803	21,310	21,480

Source: Angus Maddison, *Contours of the World Economy, 1 – 2030 A.D. Essays in Macroeconomic History*, Oxford 2007, 382.

Only in 1950 did real income per capita in Japan reach the level of the United Kingdom in the 1830s and it was still lower than real income per capita in the

688 Malanima, *Pre-modern European economy*, 238.

689 Allen and Weisdorf, ‘Was there an ‘Industrious Revolution?’

690 I here paraphrase Studwell, *How Asia works*, 134 – 135.

691 See for a very brief discussion Allen, *Global economic history*, 122 – 123, 135 – 137 and 140.

Dutch Republic in 1700. The real Japanese miracle after the Second World War was *not* a labour-intensive miracle. The situation in China was even worse. Per capita in real terms, people there in 1973 still earned less than half of what the Dutch earned over two and a half centuries earlier when real income per capita in the Dutch Republic amounted to 2130 dollars of 1990.

The East-Asian path to industrialisation thus looks more like an intermediary, temporary path that can lead a country to the take-off stage than like a full-grown 'alternative' to Western industrialisation.<sup>692</sup> After some time, being industrious simply no longer suffices to increase production. To reach the level of wealth that became normal in the Western world, one simply cannot do without the massive input of non-human energy sources and modern technology. Japan, in this respect, has become just like the rest of the industrialised world: in wealth *and* consumption of energy and capital-intensity. To me, the best yardstick for measuring energy- and labour-intensity would be the amount of energy used or the number of hours worked per international dollar of real income. At the moment (2012), the Chinese use *more* energy per dollar of real income than many Westerners.

Table 27: Energy consumption and real income

	<i>Consumption per head in kg oil equivalents</i>	<i>Real income per capita as percentage of US real per capita income</i>
US	7,051	100
France	3,970	72,4
Germany	3,889	79,3
Japan	3,788	71,5
UK	3,183	75,7
China	1,695	16,1

Source: *The Economist. Pocket World in Figures 2013 Edition* (London 2012). All figures refer to the year ending 31 December 2010.

Labour-intensive industrialisation, moreover, also does not look like an independent road but rather like a temporary possibility created by the very fact that its industrialisation turned the West into a high-wage region. That created room for mass production of simple commodities by cheap labour in developing countries. But a strategy of simply increasing labour and capital inputs *ceteris paribus* must sooner or later lead to decreasing returns. Substantial and sustained increases in wealth require technological innovation and the use of a lot of non-human energy. You will not become really wealthy via low wages and in-

692 For Japan's energy consumption during its early industrialization see Minami, *Power revolution in the industrialization of Japan*.

dustriousness. Those may be able to put you on a road to wealth, but a high GDP per definition requires high average wages, in particular in countries where incomes are relatively equal. This is not meant to devalue the East Asian development path: a global diffusion of industrialisation indeed only looks possible via labour-intensive industries and these employed and employ many millions of people.

The debate on labour-intensive industrialisation has not yet been waged very intensively and systematically. To settle it or at least make it more solid, one would need a systematic comparison of labour-, capital- and energy-intensities per entity of real production of the countries discussed. Sugihara, time and again, also points at the specific *quality* of labour-input in his East Asian industrialisation, but he never provides a systematic comparison with the supposedly very different situation in the West. Did or do differences in the level of training, discipline, industriousness, formal and informal schooling of Western countries and East Asian countries really exist as they began to industrialise, as he consistently claims, with the East having a clear *advantage* over the West?<sup>693</sup> I doubt that.<sup>694</sup>

## 9. Human capital: labour and its skills

This brings us to the importance of the quality of labour, a subject that under the label human capital is now at the very heart of economic thinking about growth and development. An increasing number of scholars, businesspeople and politicians refer to the ‘modern’, ‘developed’ economy as a ‘knowledge economy’ in which the ability to increase knowledge and to innovate is considered the essence of growth. We have already indicated that the main effort of many new growth-economists consists in trying to ‘endogenise’ innovation in the economic system. That of course is only possible with a sufficiently skilled labour force. It will not come as a surprise that the role of human capital in the Great Divergence is also receiving ample attention. Although – which is very striking and, to be honest, in my view rather incomprehensible – members of the California School tend to completely ignore it, the main and very important exception being Jack Goldstone. Scholars like Andre Gunder Frank, Robert Marks, Kenneth Pomeranz or Roy Bin Wong never explicitly and systematically deal with questions of literacy, numeracy, skills formation, or the way in which all

693 See for example his ‘Labour-intensive industrialisation in global history’.

694 I found no clear indication whatsoever of a high level of education of Japan’s labour force before World War Two. Formal vocational, scientific and technical training only took off in the 1930s. See e.g. Landes, ‘Japan and Europe: contrasts in industrialization’, 108–111.

sorts of knowledge and their application evolve. For them, they apparently are just epiphenomena, automatic responses to obvious challenges. Here again we see a fascinating difference between thinking about growth in economics, where knowledge is increasingly holding centre stage, and in global economic history, where a surprisingly large number of scholars emphasises factor endowments and factor prices and all but ignores ‘knowledge’.

As far as I can see, there seems to be a consensus that literacy, numeracy, and all sorts of specific skills formation that are necessary ingredients of processes of industrialisation and growth, were nowhere in the world in the eighteenth and nineteenth centuries as high as in north-western Europe.<sup>695</sup> Robert Allen quite explicitly makes this claim and thinks this fact is not so much due to Protestantism – as an old tradition has it – but to the existence of a high-wage, commercial economy that enabled people to pay for education, which in turn could lead to higher income.<sup>696</sup> Recent research by two economists points in the direction that there nevertheless may have been an advantage of Protestant regions or countries over non-Protestant ones in terms of education and literacy.<sup>697</sup> As regards our task, explaining why Britain was first, this difference of opinion of course is inconsequential: Britain was a Protestant, high-wage commercial economy. No doubt its literacy rates were amongst the highest of Europe, though definitely not the highest.<sup>698</sup>

Table 28: Adult literacy in Europe, 1500 and 1800: the percentage of the adult population that could sign its name.

	1500	1800
England	6	53
Netherlands	10	68
Belgium	10	49
Germany	6	35
France	7	37
Austria/Hungary	6	21
Poland	6	21
Italy	9	22
Spain	9	20

Source: R.C. Allen, *Global economic history. A very short introduction* (Oxford 2011) 25.

695 See for a general overview of the situation in Western Europe, Reis, ‘Economic growth, human capital formation and consumption in Western Europe’.

696 Allen, *Global economic history*, 26. See for his comments on education and literacy from a global economic perspective under ‘education and literacy’ in the index.

697 Becker and Wössmann, ‘Was Weber wrong?’

698 See e.g. Allen, *Global economic history*, 25; Mitch, ‘Education and skill of the British labour force’ pages 334 – 345 and 351, and Van Zanden, *Long road to the Industrial Revolution*, 193.

I never came across any study in which not literacy rates of north-western Europe in the early modern era were regarded as the highest in the world, although the figures one finds for Tokugawa Japan are also quite high. It had an estimated literacy rate at the beginning of the Meiji Restoration in 1868 of forty to fifty per cent for men and of thirteen to seventeen per cent for women.<sup>699</sup> For China at the end of the eighteenth century, it is estimated at some fifteen per cent for men. For women it was much lower, some two to ten per cent in the beginning of the nineteenth century. The figure for male literacy in the beginning of the 1930s still only was some thirty per cent.<sup>700</sup> More broadly, Western Europe is now claimed to have had a clear advantage over the rest of the world in terms of book producing and reading.<sup>701</sup> Even if the amount of printed texts as such had not been higher in north-western Europe: all the evidence we have points in the direction that when it comes to texts containing useful and reliable knowledge that was directly relevant for increasing and enhancing production, its quality and efficiency this region would be in a better position than any other part of the world.

In any case, a very interesting hypothesis from Alfred Crosby holds that by 1600 more people were thinking quantitatively in the West than in any other part of the world.<sup>702</sup> Western Europe was the first region in the world to know all sorts of 'newspapers' and it had much more of them when industrialisation took off. Let me give a couple of figures specifically for Britain from Roy Porter's very informative book about the British Enlightenment. During the 1620s, about 6,000 printed titles appeared in England, increasing to almost 21,000 during the 1710s, and to over 56,000 by the 1790s. The total of separate book and pamphlet titles published between 1660 and 1800 was over 300,000, with an estimated 200 million copies sold. By the 1770s, when there were nine dailies in London and 50 provincial weeklies, the total annual sale of newspapers was over twelve million; by 1800 it was some sixteen million. There then were 250 periodicals in England. Ten thousand copies were printed of the third edition (1787–97) of the *Encyclopaedia Britannica*.<sup>703</sup> Differences with China or the Islamic world in this respect are striking. Western Europe had more formal and public schooling, more systems of apprenticeship and guild education and more universities, by

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699 Passin, *Society and education in Japan*, 44–47.

700 I took these figures from Clark, *Farewell to alms*, 265–266 who bases himself on data in Rawski, *Education and popular literacy in Ch'ing China*, 17–18, 90 and 140.

701 See e.g. Baten and Van Zanden, 'Book production and the onset of modern economic', and Buringh and Van Zanden, 'Charting the 'Rise of the West''. See also Van Zanden, *Long road to the Industrial Revolution*, chapters 2 and 6. For a more general overview see Burke, *Social history of knowledge I and II*.

702 Crosby, *Measure of reality*. For an analysis and critique see Goldstone, 'Whose measure of reality?'

703 Porter, *Enlightenment*, 73–92.

the eighteenth century some 150 across Europe.<sup>704</sup> Numerous publications came on the market in which craftsmen could find instructions, and that could help them to prepare for their master exams and meet the guilds' quality standards. They normally contained a mixture of practical technical know-how and elements of science and assumed much tacit knowledge, but they certainly were useful in enhancing craftsmanship. What was fixed were the *quality standards* of production rather than *what* to produce. The competition between skilled craftsmen who would become apprentices to whom and who would become master could be fierce. In this respect, the existence of guilds and all sorts of artisanal organisations and the tradition of moving around to learn one's trade certainly must have had a positive effect on skill-formation. Dutch economic historian Jan Luiten van Zanden has pointed at the interesting fact that the so-called 'skill premium', the increased income one earns because one has acquired extra skills, was lower in Western Europe than in the rest of the world and claims this would indicate that labour there overall was more skilled, that households there had access to relatively efficient labour and capital markets, and that the institutions for the formation of human capital were working well.<sup>705</sup> The fact that people married relatively late in Western Europe and often worked for several years for wages before they married, meant that they could more easily acquire all sorts of skills and some capital to set up an independent household when they married. Labour markets for skilled labour enhanced the possibilities of specialisation and the efficiency of the allocation of labour.

One must be wary, though, not to exaggerate the intellectual and skill requirements for the initial phases of industrialisation. Any take-off would require an ample supply of entrepreneurs able to run factories or other large firms, of inventors and innovators, *and* of skilled mechanics able to deal with machinery. Britain clearly had enough of these entrepreneurs, inventors and innovators and – as is not contradicted by any scholar I know – more of such skilled mechanics than any other country in the world. More people participated in a 'scientific-technological' culture there than anywhere else. In comparison to other parts of the world, knowledge in Europe was more a public and traded 'commodity'. There existed fewer barriers to its exchange. Contacts between 'entrepreneurs' and 'engineers' were closer there than anywhere else.<sup>706</sup> In 1790, there were

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704 See Huff, *Intellectual curiosity and the Scientific Revolution*, 305 – 307.

705 See, for several articles dealing with the skill premium and more generally human capital in pre-industrial Europe from a global comparative perspective, Van Zanden, *Long road to the Industrial Revolution*, in particular chapter five. I paraphrase from page 175. See also idem, 'Skill premium and the Great Divergence'. Prak and Van Zanden, *Technology, skills and the premodern economy in the West and the East* was published after I finished my manuscript, but it will certainly prove to be a very important contribution to the debate.

706 See Mokyr, *Enlightened economy*, and Jacob, *Scientific culture and the making of the in-*

already 220 academies for the promotion of useful knowledge in Britain. By the middle of the nineteenth century, the country counted 1,020 associations for technical and scientific knowledge with a membership of roughly 200,000.<sup>707</sup> But I do not want to make the claim here claim that mass education was a necessary pre-condition for Britain's take-off, or that a simple overall correlation between levels of schooling and the likelihood of a take-off existed. As indicated, there were countries with higher levels of literacy but more importantly, according to David Mitch, as late as 1841 only five per cent of the working men and two per cent of the working women had a job that required them to really be 'literate'.<sup>708</sup> In the first stages of industrialisation there overall even was a noticeable *des-killing* of the labour force as machinery and factory discipline made many jobs simpler instead of more complicated. Modern scholarship tends to subdivide the Industrial Revolution into two phases: "a first phase with skill-saving technological change and minimal educational requirements, and a second phase where technological change increases the demand for human capital as skills become necessary for production..."<sup>709</sup> Expenditure on formal education was surprisingly low in Britain and increased only very modestly during the nineteenth century. Informal education apparently must have been adequate as was a certain technological, enlightened culture. The fact that there were careers open to talent also will have had a positive effect.<sup>710</sup> And finally there is the fundamental fact that between 1750 and 1850, the British political system unflinchingly supported technological progress.<sup>711</sup> This was really different from the situation outside Europe.

In the most recent analysis of the causes of the first Industrial Revolution, in which human – and social – capital get pride of place, Leonard Dudley brings many of the elements referred to earlier on together. He sets out to explain why over the century and a half between 1700 and 1850 in certain regions of Britain – and France and the United States – there was a sharp acceleration in the rate of

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*dustrial West*. I endorse Mokyr's claim that, "what set Britain apart from other European countries was not its capacity to accumulate more and better science or even a higher propensity to invent, but the much higher level of competence of its skilled workers. Britain could draw on a large cadre of highly skilled craftsmen and technicians." See Mokyr, 'Institutional origins of the Industrial Revolution', the web-version, page 24.

707 See for these figures Musson and Robinson, *Science and technology in the Industrial Revolution*, 58, and Inkster, *Science and technology in history*, 73 and 78–79.

708 Mitch, *Rise of popular literacy in Victorian England*, 14–15.

709 Becker, Hornung and Wössmann, 'Education and catch-up in the Industrial Revolution', 95.

710 See for these comments Mitch, 'Education and skill'. For the role of guilds in skill formation see under note 377 and 705. For skill-formation in Britain via apprenticeship see Humphries, 'Rent seeking or skill creating? For the economic sectors that characterised the so-called Second Industrial Revolution, for example chemical industry and the production of electricity, Britain's informal system of skill-formation was no longer adequate.

711 Mokyr, *Lever of riches*, 256.

innovation.<sup>712</sup> He explicitly points out and shows that this was not the case in the Netherlands, that initially were both richer and more literate than Britain and France, in other countries in Europe like Germany, Belgium and the Scandinavian countries, or anywhere else in the world. He does appreciate the importance of the presence of a certain institutional setting, cheap energy or skilled labour and the existence of markets of a certain size but thinks none of those suffice to on their own give a satisfactory explanation. In his view the final and fundamental explanation must be sought somewhere else. In his fascinating, but quite repetitive, study he ascribes this acceleration in those regions to the expansion of social networks of co-operation and trust in which suspicion was overcome. In his view, innovation thrives in a context of openness, diversity *and* indeed co-operation. Successful major inventions and innovations as a rule are not the result of the efforts of isolated, fiercely competitive individuals but of synergy between differing mind-sets and concrete ideas and co-operation between people. Following Malcolm Gladwell, he refers to three types of persons that are indispensable to turn new ideas into major innovations: mavens, connectors and salesmen. A maven is an individual who accumulates information and willingly shares it with others. A connector in turn is an individual with a talent for bringing people together to share their common interest. A salesman is an individual who convinces people who are initially unconvinced by a particular message.<sup>713</sup> The innovative regions he studies had an extraordinary amount of such people, who moreover – and he believes this to be of the utmost importance and forms the main new angle in his approach – could profit from the fact that their co-operation was facilitated and enhanced by the existence of a shared, standardised, national language. In emphasising this, he builds upon ideas he already put forward for a much broader context in his *Information revolutions in the West*.

## 10. Human capital: labour and discipline

It has often been suggested that Western labour was more disciplined and industrious and therefore became more productive than labour in other parts of the world. David Landes was quite explicit in that respect: "... what counts is work, thrift, honesty, patience, tenacity ... too many of us work to live and live to be happy. Nothing wrong with that; it just does not promote high productivity. You want high productivity? Then you should live to work and get happiness as a by-product. Not easy. The people who live to work are a small and fortunate

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712 Dudley, *Mothers of innovation*.

713 Gladwell, *Tipping point*.

elite.”<sup>714</sup> Niall Ferguson, in his book on Western civilisation, thinks there is a Western “work ethic” (and “word ethic”) that was one of what he calls “Western killer applications” that caused Western wealth and dominance.<sup>715</sup> That discipline and disciplining played a fundamental role in Western society in the period under discussion here as well as earlier on, i. e. during the early modern era and some would even say already in the high Middle Ages, is indisputable. Many different labels have been used to describe quite similar and in any case related forms of social disciplining. Weber focused on what he called rationalisation, Elias on civilisation, Foucault on disciplining and normalisation, many scholars on reform, and reformation of manners. People were affected as subjects of their rulers, as believers, as government officials, as members of the military and as participants in a popular culture that according to all sorts of elites had to be reformed, and so on.<sup>716</sup> Especially interesting from the perspective of the economic historian are the numerous initiatives to create a disciplined labour force. Those efforts became ever more pressing and more a matter of public policy as people increasingly began to work for wages on behalf of other people who were *not* family. Concepts of work, leisure and poverty (were) changed.<sup>717</sup> The idea that work was a job, maybe even a calling, but in any case a duty, began to prevail. Workhouses, poor houses, prisons and the like were created all over Europe to ‘reform’ those who did not comply.<sup>718</sup> They were forced to work in an effort to create, in Foucault’s terms, ‘docile bodies’.<sup>719</sup> Begging and vagabondage became punishable offences. Not to work was now considered a crime. Penal workhouses proliferated throughout Northern Europe. They became quite numerous in the Netherlands, Germany and Austria, where they were called *tuchthuizen* (in the Netherlands) and *Zuchthäuser* (in Germany and Austria), both translate as ‘houses of discipline’. In England, by 1750, almost every market town and industrialised parish had its own workhouse. European states were very active when it came to disciplining their subjects to become

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714 The quotations are from Landes, *Wealth and poverty of nations*, 523. On page 478 he had already written about economically successful Chinese in Malaysia: “... they live to work. ... Members, then, of a rare aristocracy: most people work to live.”

715 Ferguson, *Civilization*, chapter 6. For the term ‘killer applications’ or ‘killer apps’, see page 12.

716 The amount of literature on social disciplining in early modern Europe is staggering. I just refer to the following, somewhat older syntheses: Burke, *Popular culture in early modern Europe*; various publications by Robert Muchembled, originally all in French, though there is a translation of one of his books under the title *Popular culture and elite culture in France, 1400 – 1750* and Pieter Spierenburg, *Broken spell*. A book that I found fascinating in this context is Bauer und Matis, *Geburt der Neuzeit*. More recent is Gorski, *Disciplinary revolution*.

717 See for a broad overview Lis and Soly, *Worthy efforts*.

718 See for a general survey e.g. Jutte, *Poverty and deviance in early modern Europe*.

719 Foucault, *Discipline and punish*, 135 – 170.

‘active’ and instigating ‘a reformation of manners’. These policies, poverty and new patterns of consumption led to an increase in the number of people who worked, in the number of hours they worked, and in the intensity of their work. With the coming of factories, having disciplined labourers – not by accident were they often simply called ‘factory *hands*’ – became even more urgent and systematic. One cannot imagine a factory without discipline. There is a substantial amount of literature in which the importance of a disciplined labour force in modern industry is highlighted. A scholar like Stephen Marglin would go as far as to claim that the primary reason to build factories was to ensure that ‘bosses’ could really control the production process and thus discipline their labour force.<sup>720</sup>

This kind of discipline always goes with the efficient use of time. Exactly measuring labour productivity is impossible if one cannot exactly measure time. It is no accident that the clock became the symbol of the factory for many who worked there. As Lewis Mumford already put it: “The clock, not the steam-engine, is the key-machine of the modern industrial age,”<sup>721</sup> not just as the prototype of a machine but just as much as the facilitator of a more efficient ordering of daily life. Many Western scholars have already pointed at the Western obsession with time, time keeping and increasingly time saving.<sup>722</sup> The eighteenth century in this respect too was an age of accelerating change. This is what Douglas Allen writes about the situation in Britain: “By the end of that century [i.e. the eighteenth century] and certainly by the middle of the nineteenth century, pocket watches were not only accurate to within minutes each day, but were priced so that an ordinary individual could own one. There was, for all practicality, a collapse to zero in the variance of time measurement between 1750 and 1850. For the first time in history, it actually meant something to tell someone to be at a specific place at a specific time.”<sup>723</sup> In this context one can also point at the standardisation of measures and weights, also an example of Weber’s

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720 For introductory literature on the disciplining of labour in general and the specific problems related to disciplining factory labour, with a focus on Britain see, in alphabetical order: Biernacki, *Fabrication of labour*; Deakin and Wilkinson, *Law of the labour market*; Furniss, *Position of the laborer in a system of nationalism*; Gauci, *Regulating the British economy*; Lis and Soly, *Poverty and capitalism in pre-industrial Europe*, and *Worthy efforts*, chapter 7, in particular 468–478: ‘Employment and the active society’; Marglin, ‘What do bosses do?’; Pollard, *Genesis of modern management*; Rule, *Labouring classes in early industrial England*; Steinfeld, *Invention of free labour*; Thompson, *Making of the English working class*; idem, ‘Time, work-discipline and industrial capitalism’, and Voth, *Time and work in England*.

721 Mumford, *Technics and civilization*, 14–15.

722 I just refer to Landes, *Revolution in time*; Le Goff, *Time, work and culture in the Middle Ages* and of course Thompson, ‘Time, work-discipline and industrial capitalism’, for developments at the beginning of industrialization.

723 Allen, *Institutional revolution*, 31. See for further comments, *ibidem*, 28–31.

rationalisation of life that had efficiency-enhancing effects.<sup>724</sup> For Britain in particular we see many measures to standardise production and products. They, interestingly enough, often were instigated because the existing system of tax collecting required them.<sup>725</sup> That is also true for many measures to rationalise the system of land taxation and to give it a firmer base in a cadastre of sorts.<sup>726</sup> In general, there was an increasing interest in fact-finding and information gathering, in statistics, public records and the creation of economic facts.<sup>727</sup> The importance here of the state and its policies is obvious. Many European rulers in the eighteenth century, especially the ‘enlightened’ ones, would agree with Habsburg Emperor Joseph II: “If one is to rule countries well, one must first know them exactly.”<sup>728</sup>

References to Western discipline, industriousness and punctuality have always been stock in trade in discussions of Western exceptionalism. Interestingly enough, an author such as Prasanna Parthasarathi, who is not exactly enthusiastic about European exceptionalism, recently also pointed out that Western labour was ‘successfully’ subjected to much harsher discipline than labour in India and he clearly thinks that explains in part why Europe grew rich whereas India did not. But he does not expand on how exactly this would have made a difference and how much.<sup>729</sup> Gregory Clark is far more explicit. According to him, workers in poor countries lack the qualities of “discipline and engagement” and “...differences in labor productivity must stem from differences in the quality of labor in production across societies, differences that stem largely from the local social environment.” Specifically about the situation in India, he writes: “The socially induced lethargy that afflicted Indian labour may have extended throughout the society: had the deficiency been limited to the ranks of Indian managers and entrepreneurs, these inputs could have been relatively easily imported...”<sup>730</sup> Clark’s book has been extremely controversial but in that sense

724 For Europe see Roland Wenzlhuemer ‘The history of standardization in Europe’ in: *Euro-päische Geschichte Online* (2010) <http://www.ieg-ego.eu/wenzlhuemer-2010-en>, with ample references. For Britain see Hoppit, ‘Reforming Britain’s weights and measures’. For an extensive discussion see Velkar, *Markets and measurements in nineteenth-century Britain*.

725 Ashworth, *Customs and excise*, Part 5.

726 Kain and Baigent, *Cadastral map in the service of the state*. In this respect, Britain was not exactly a frontrunner, far from.

727 See, for an introduction, Headrick, *When information came of age* and Poovey, *History of the modern fact*. Specifically for Britain, see Higgs, *The information state in England*; Palmer, *Economic arithmetic* and Rothschild, ‘English Kopf’. Very interesting for the Dutch case is Lesger, *Rise of the Amsterdam market and information exchange*.

728 I found this in Kain and Baigent, *Cadastral map*, 195.

729 Parthasarathi, *Why Europe grew rich*, e.g., 146–147.

730 See Clark, *Farewell to alms*, 15, 352 and 365. See also Clark and Feenstra, ‘Technology in the Great Divergence’. There is a comment by Joel Mokyr in the same volume in which their text appears, pages 314–321.

also influential.<sup>731</sup> We will discuss his ideas later on in this text under the heading of ‘culture’ as he presents his views on industriousness and discipline as part of his analysis of how, in his opinion, culture works and cultural traits are transmitted.

As indicated, an increase in ‘industriousness’ as such definitely was *not* a uniquely European phenomenon. But as I see it, the setting in which people in Europe worked often differed substantially. Let us again focus on the comparison between Britain and China. The Chinese state, too, was quite concerned with disciplining and instructing its people, but from an economic perspective, the disciplining and instructing of Western states was more important because, apart from anything else it may have intended, it had a very clear focus on *efficiency* whereas, to put it somewhat simplistically, the Chinese focus was much more on *decency*. China’s government certainly showed interest in the behaviour of its labour force. The overwhelming majority of that labour force, however, was rural and worked in the setting of a household-economy. Administration of discipline was not lacking there. But it was carried out by the (male) head of the household, to whom an almost unrestricted freedom had been delegated *by law* to do as he saw fit, not by some unacquainted stranger or by an abstract state.<sup>732</sup> In Britain, working with or for non-family was quite normal. In China it certainly was not. Proletarian wage labour, which had become a substantial part of the entire labour force in Britain as early as the eighteenth century, was next to absent in Qing China.<sup>733</sup> For its rural households, China’s rulers systematically promoted the canonical gender division of labour, which stipulated that spinning and weaving was women’s work while cultivating the land was men’s work.<sup>734</sup> Irrespective of whether this was met with much success, I would regard such advice much less an expression of concern with economic efficiency than with decency and tradition.

As is so often the problem, how can one connect discipline to growth and in

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731 In this respect too Clark’s book, overall, was not very well received. The role of skills and discipline in countries that tried to catch is referred to briefly in Amsden, *Rise of the rest*, 46–49.

732 See for example, Wolf, ‘Europe and China: Two kinds of patriarchy’ and De Moor and Van Zanden, ‘Girl power’.

733 See for further details page 340.

734 For the thesis that there was a strong cultural pressure to keep women at home see, for example, Huang, *Peasant family and rural development in the Yangzi Delta*, under ‘women’; Mann, *Precious records*, chapter six, and Goldstone, ‘Gender, work and culture’. See also for some examples my *Zur politischen Ökonomie des Tees*, 112. For a less negative interpretation stressing that women, whether at home or elsewhere, did more than their share of production, see Bray, *Technology and gender* and Pomeranz, ‘Women’s work, family and economic development in Europe and East Asia. Robert Gardella points at the widespread existence of female wage labour in the production of tea. See his *Harvesting mountains*, 172–173.

particular to modern growth in a measurable, 'verifiable' way? Suppose we accept the existence of even substantial differences in productivity between workers in British and Indian cotton textiles factories and in British and Indian railways in the beginning of the twentieth century (the example Clark mainly builds upon) using identical machinery and having similar management. The main question then, of course, is how much of the more than seven-to-one gap in real GDP per capita between those countries in 1913 can be explained by such differences in labour quality. Although Clark claims that total output per person in Britain was about eight times higher than it was in India and the total efficiency of Britain's economy, that is the amount of output per unit of all inputs, some five times higher, that question as such still seems to be open.<sup>735</sup>

## 11. Consumption

As indicated in my introductory comments, an increasing number of scholars have begun to realise that in studying modern economic growth and its emergence, one cannot confine oneself to the supply-side but has to take consumption on board as well. Of course, this focus is not completely original. Elizabeth Gilboy wrote about the role of demand in the Industrial Revolution as early as the 1930s, and Joel Mokyr wrote a kind of reply to her article in which he contrasted demand and supply and their importance for that revolution in the 1970s.<sup>736</sup> At the moment, some of the most interesting debates on the origins of modern growth explicitly tackle the importance of consumption and often even refer to a 'consumer revolution' that would have preceded or accompanied the industrial one. Changes in consumption patterns, implying a switch to more 'semi-luxurious' or 'popu-lux' and in any case *new* goods were a global phenomenon in the early modern world. To refer to just a couple of non-Western examples: one can also find them in Tokugawa Japan and in the empires of the Qing, the Ottomans and the Safavids.<sup>737</sup> What to my view, however, set the West

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735 See Clark, *Farewell to alms*, 328–351. The figures I refer to are on page 336.

736 See Gilboy, 'Demand as a factor in the Industrial Revolution' and Mokyr, 'Demand versus supply in the industrial revolution'. For a very compact 'refutation' of the demand-side explanation of the Industrial Revolution see Mokyr, 'Editor's introduction', 59–66.

737 For the early modern era, Jan de Vries confines the connection between industriousness and consumerism to north-western Europe and its American settlements. Bayly, in contrast, tends to look at it as a phenomenon that – admittedly within limits – also occurred in China and Japan. See his *Birth of the modern world*, 56–59. See further for China, Pomeranz, *Great Divergence*, chapter 3; for the Ming period several publications by Timothy Brook and Craig Clunas, and for the Qing publications by Antonia Finnane, plus the somewhat older Adshead, *Material culture in Europe and China*. For Japan see Francks,

apart, and again in particular Britain, is that these changes in consumption gave clear stimuli to change *production*, especially via import-substitution. That word is used here for lack of a better expression, because the process actually involved much more than just substituting. We are *not* talking about a mechanical reflex but about a considered choice for a certain strategy that also could *not* have been made and that also could have *failed*. Actually there were two varieties, although the expression is usually exclusively confined to the first one, i. e. direct import substitution. In this case, the importing of *manufactured* commodities induced a process of reallocation of labour at home in order to start producing the imported goods there. A similar motivation, diminishing one's dependency on imports, was behind Western efforts to get a grip on the production of the *raw materials* one imported from abroad. An example of this would be the creation of plantations for their production in colonies – or for that matter 'peripheries', where one's grip was more informal but nevertheless clearly present.

In Europe mercantilist governments – which in the early modern era means just about all governments – were not fond of importing products from abroad, least of all when these products had a high value added or were considered luxuries. They therefore tried, where possible, to prohibit such imports, keep them at a minimum, or best of all, substitute them with products made at home. Britain, actually a far more systematic and successful mercantilist power than France, after an extended period of protecting its own market managed to produce several goods, e. g. cotton and silk textiles, porcelain and iron that had been imported from India, China and Sweden, at home. It also started to take care itself of the production of some raw materials it imported, e. g. sugar from the West Indies, and later on, from the 1840s onwards, tea from British India and Ceylon as a substitute for tea from China, or indigo from Bengal, when it was no longer imported from the former colonies in North America. With the passing of time in the nineteenth century, India became an important source of raw cotton. These systematic policies of import substitution and manipulation via tariffs, bans and taxes on consumption and production, are a very important and quite idiosyncratic characteristic of Western European mercantilism, first and foremost and most successfully in Britain.<sup>738</sup> Their importance for industrialisation can hardly be overestimated. Because of the tendency amongst economists and economic historians to assume that such 'mercantilist' policies simply *must* have

*Japanese consumer.* For the Ottoman Empire see e. g. Quataert, *Consumption studies and the history of the Ottoman Empire*. For the Safavid Empire see Matthee, *Pursuit of pleasure*.

738 See for manipulation via tariffs, bans and taxes in this respect Ashworth, *Customs and excise*; Nye, *War, wine, and taxes*; O'Brien, 'Taxation for British mercantilism from the Treaty of Utrecht (1713) to the Peace of Paris (1783) and idem 'Triumph and denouement of the British fiscal state For Britain's mercantilist policies more in general see under note 1159.

had a negative impact on growth, systematic and detailed analyses of how they might actually have worked out quite well for the British and others are still few and far between.<sup>739</sup>

It would of course be interesting – and relevant – to know whether similar strategies were tried elsewhere in the world and with what results, and if not, why not. Let us again focus on the comparison between Great Britain and China, based on the understanding that most of what is said here would also, be it to a somewhat lesser extent, apply to other Asian Empires. For the Chinese, there simply was not much import to substitute. When we confine ourselves to manufactured goods for mass consumption, imports were negligible. The bulk of China's relatively small imports from the West consisted of silver and, after 1800, when silver began to leave the country, of opium. For the first product, one did not look for a substitute and a potential alternative would in all probability not have created much of an industry. For opium, one did *in the end*, late in the nineteenth century, but that simply meant that more opium was grown in China. This case is also interesting because here a closer parallel with developments in north-western Europe can be drawn. According to several scholars, the enormous increase in its consumption, in particular by the elites, can often be described in terms of “*yanghuo re*”, i. e. “the craving for foreign stuff” which are reminiscent of the fascination of European consumers with ‘exotic’ goods.<sup>740</sup> But both imports here did not trigger any direct positive spin-offs or challenges for manufacturing. It has even been pointed out, correctly in my view, that those massive silver imports may actually have had a negative impact on China's economy as the Chinese had to produce a lot of commodities to only get back ‘money’ i. e. silver, that they also might have printed themselves almost for free.<sup>741</sup> Chinese who wanted to purchase ‘luxury’ goods, by and large could do so by buying domestic products or certain ‘exotica’ from other parts of Asia.<sup>742</sup> The country produced cotton, silk, porcelain, sugar, tea and tobacco itself, so there was no need to import them or to try to get colonies or peripheries in order to produce them there. Government never embarked on policies of import substitution in the period discussed in this book. Such policies were all but absent outside Western Europe and its colonies. In the Ottoman Empire, government at times went so far as to actively promote *imports*. It, in any case, was not permanently keen on thwarting them.<sup>743</sup>

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739 Recent work by economists like Ha-joon Chang and Reinert and historians like Ashworth and O'Brien indicates, however, that things might change.

740 See Zheng, *Social life of opium in China*, 8.

741 See e.g. Flynn and Giráldez, ‘Money and growth without development’ and Li Xiantang, ‘Paradoxical effect of silver in the economies of Ming and Qing China’.

742 See e.g. Tagliacozzo and When-chin Chang, *Chinese circulations*.

743 One of the main characteristics of the economic policies of the Sublime Porte in the

Many recent studies have dealt with the economic effects of changing consumption patterns in Britain and in particular with the question to what extent they might have functioned as a kind of trigger to industrialisation through their impact on production. Studying the topic at the moment is very fashionable and the results promising. Most scholars would agree that changes in consumption triggered changes in production and led to successful import-substitution, and that Britain in particular was quite successful in these respects.<sup>744</sup> Consuming new commodities – often very highly taxed and coming from other continents – of course is only possible when one has enough purchasing power. This brings us to the question of accumulation: how were the consumption and the production of the first industrial revolution and all that we associate with it, paid for?

## 12. Accumulation, income and wealth

Everyone who was ever introduced to economics was told that increasing production as a rule means investing and thereby increasing or improving the stock of (fixed) capital. The money to make those investments has to come from somewhere. If it is not borrowed, it has to come from savings or more broadly from accumulation, any ‘amassing of resources’ that in principle can be invested. To acquire more or better capital goods, you need funds. The inference that poor countries are poor because they lack sufficient capital and then get stuck in a poverty trap is thus easily drawn. For decades, development aid was defended with the argument that it would help the poor to get out of this trap by providing them with extra funding or resources or by ‘teaching’ them how to acquire those

Ottoman Empire was its ‘provisionism’. This is the principle that the government was responsible for seeing to it that the populace at large and the army and capital in particular could be sure that they would not be short of their necessary means. This implied a policy of supporting imports while controlling exports. See Genç, ‘Ottoman industry in the eighteenth century’. This policy was very explicit in the Ottoman Empire but, as I see it, no region of the world was so much *anti-import* as the mercantilist West. See my ‘Governing growth’. See for a brief comparison, for example, Pearson, ‘Merchants and states’. See for a brief discussion of different reactions to cotton imports from India in Britain, France and the Ottoman Empire, Parthasarathi, *Why Europe grew rich*, chapter 5.

744 For a personal selection from an enormous amount of literature, see Berg, *Luxury and pleasure in eighteenth-century Britain*; Berg and Eger, *Luxury in the eighteenth century*; Brewer and Trentmann, *Consuming cultures, global perspectives, historical trajectories, transnational exchanges*; Brewer and Porter, *Consumption and the world of goods*; Overton, a.o. *Production and consumption in English households*; Trentmann, *Oxford handbook of the history of consumption* and Jan de Vries, *Industrious revolution*. Very interesting in this respect is the role of fashion: i.e. whether people in their consumption were guided by changing collective tastes and whether they were allowed to buy and consume what they wanted without being bothered by all sorts of sumptuary laws. For the case of textiles, see Belfanti, ‘Was fashion a European invention?’.

themselves. Before industrialisation and modern economic growth, the main fixed capital goods consisted of land, buildings, ships, implements or animals. Most of the ships and implements, and many of the buildings, were so perishable and wore out so quickly that the difference between fixed and liquid capital was rather fluid. The bulk of economic investment was in liquid capital. Industrialisation, so the classic story goes, implies a substantial increase of the entire capital stock, but in particular of fixed capital like machines, factories and infrastructure. This is how John Hicks succinctly put it: “What happened in the Industrial Revolution, the late eighteenth-century Industrial Revolution, is that the range of fixed capital goods that were used in production, otherwise than in trade, began noticeably to increase.”<sup>745</sup> In this line of reasoning, the absence of economic growth points to a lack of investment. The main way to counteract that, assuming there were sufficient possibilities to profitably invest, was finding the means to invest more.

In current debates on the Great Divergence, ‘accumulation’ in all its varieties certainly still plays a role, although in many studies the focus is now much less explicitly on ‘How has it all been paid for?’ than it used to be. One way in which the importance still attached to it shines through is in the many efforts to determine the exact wealth of various parts of the world on the eve of the First Industrial Revolution. Even if it is not stated explicitly, one cannot help thinking that those worldwide comparisons of GDPs and real-wages are undertaken based on the assumption that a country needed ample resources to be the first to take off and that with its wealth its chances to industrialise would increase.<sup>746</sup> Both claims are not correct. Let us begin with the second claim. The richest nations, let alone the richest regions, were not necessarily the first ones to industrialise or to witness substantial and sustained growth. When Britain started to industrialise, average per capita real income in the Dutch Republic was higher. In 1913 that was no longer the case. In the middle of the eighteenth century, in all probability, Japan was somewhat poorer than China and not as developed; in 1913, the tables had clearly turned. In the long nineteenth century, growth in most countries did not strongly correlate with wealth.<sup>747</sup> When it comes to the first claim: the amounts of money Britain actually needed to take off were not yet staggering, although of course they would increase with the passing of time. In strictly monetary terms, several countries could have afforded the investments that Britain made during take-off, at least until the railway age. There were quite a few countries where sufficient amounts of money were available to pay for the re-

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745 Hicks, *Theory of economic history*, 142 – 143.

746 See for examples note 78.

747 See Maddison, *World economy*, 265, where he presents annual average compound growth rates for twenty countries and regional totals for the entire period 0 – 1998. See also for GDP figures page 264.

quired investment *and* whose average real income was high enough to, in principle, find the consumers without whom new modes of producing made no sense. Many investments in Britain actually were paid for out of profits that were ploughed back. This means there was no need at all for any major previous primitive accumulation. Whether money was invested in new ways of producing was far more a matter of the *allocation* of capital – what alternatives were available and what preferences existed – than of its sheer *availability*.

Some figures for Britain in its early stage of industrialisation can convincingly show that. The following comparison by John Brewer is quite enlightening

The capital assets of a large business in the early eighteenth century rarely exceeded £10,000. Ambrose Crowley's iron works, regarded as the wonder of their age, had a fixed capital of £12,000. A substantial multi-storey cotton spinning mill built at the end of the century cost a mere £5,000. By comparison naval vessels cost a small fortune. In the late seventeenth century the navy spent between £33,000 and £39,000 to build a first-rate ship, between £24,000 and £27,000 to build a second-rate, and between £15,000 and £17,000 to construct a third-rate vessel. By the second half of the eighteenth century the cost of constructing the largest ships had nearly doubled. In 1765 the 100-gun first-rate *Victory* cost £63,174 to build. Even the smaller royal naval vessels were more expensive than most industrial plant.<sup>748</sup>

A new, seventy-four gun ship, fully outfitted, might typically cost almost £50,000 in the 1780s.<sup>749</sup> Just to be able to put things in a broader perspective, three other comparisons might also be helpful. One is with the value of sugar estates on Jamaica. A medium-sized estate on Jamaica in 1774, including 200 slaves, was worth some £20,000. A big one with 300 slaves at the time might well cost some £30,000. Towards the end of the century, some sugar plantations on the island were even worth as much as £70,000.<sup>750</sup> Another one concerns the incomes one could earn in government service. For Britain, I found these figures for 1773: most government officers then had a yearly income of a couple of hundred pounds sterling. The Secretary of State, however, per year had an income of £8,000, whereas the Receiver General, who was in charge of the collection of customs revenue in England and Scotland, earned £2,100 per year.<sup>751</sup> An ordinary working-class family in London at the time may have earned some thirty

748 Brewer, *Sinews of power*, 34.

749 Baugh, 'Naval power: what gave the British navy superiority?', 238. The costs of a seventy-pieces carrying man-of-war to be built in Amsterdam in 1781 were estimated at 510,000 guilders, i. e. some 40,000 pounds. See Brandon, *Masters of War*. 133.

750 Blackburn, *Making of New World slavery*, pages 410, 415 and 419.

751 Shawn Ni and Pham Hoang Van, 'High corruption income in Ming and Qing China', Part Two: Historical evidence of low salaries and high corruption. A pound sterling was the equivalent of some 111 grams of silver.

pounds sterling per year.<sup>752</sup> Differences remained huge. The Superintendent of British trade in China in 1833, William Napier, had a salary, at ambassadorial level, of £6,000 per annum.<sup>753</sup> A building labourer in London at that time earned fifty pounds per year at best, working 300 days. A couple of examples from a completely different kind of government service: when the British defeated the Spanish in 1762 at Havana, the commanders in chief each received £70,000. In 1799, three frigates brought two Spanish ships to Plymouth. Each frigate captain got £40,700, each lieutenant £5,091, each warrant officer £2,478, each midshipman £791, and each seaman and marine £182 4 s. A seaman's pay at the time was about fourteen pounds sterling per year.<sup>754</sup> As a last example, I refer to the incomes of peers in Britain over the eighteenth century. For the end of the seventeenth and the beginning of the eighteenth centuries, estimates of their average income ranged from £2,800 to £6,030 per year. Several peers at the time had an income of over £25,000 per year. By 1801, the average annual income of a British peer was £8,000 per year, ten times as much as an average merchant. There was no lack of rich people in Britain, the bulk of them interestingly enough not earning their money in industry but, until the 1840s in public office, and – mostly in combination with office holding – by owning land. In 1850, to present one last figure, 7,000 people owned four fifths of the land of the British Isles.<sup>755</sup> Many inventors and industrialists, surprisingly enough, did not become rich. The really big fortunes continued to be found someplace else, in agriculture or services, i. e. trade, finance and public service.

In terms of money, the 'business' of war completely dwarfed all other businesses. That applies to all major European countries. Let me again extensively quote John Brewer for the situation in Britain:

In the first half of the eighteenth century the British navy boasted twenty ships of the first and second rates, approximately forty vessels of the third rate, as well as an additional 120 smaller vessels of the fourth, fifth and sixth rates. If we assume that the costs of ship construction had not risen since the late seventeenth century, then the entire fleet amounted to a capital investment of nearly 2.25 million whose replacement cost was approximately four per cent of national income. This can be compared with the total fixed capital in the 243 mills in the West Riding woollen industry in 1800, which has been estimated at £402,651 with an average of £1657 per textile mill. The fixed capital in one of the largest sectors of the nation's most important industry was

752 If we assume the male breadwinner worked some 250 days a year and the rest of the family would add some twenty-five per cent to his income.

753 Lovell, *Opium War*, 1.

754 All these examples come from Allen, *Institutional revolution*, 121.

755 I took all these figures from Allen, *Institutional revolution*, chapter 3, pages 71–76. For other striking incomes, see e.g. *ibidem*, 121 and 194.

therefore a mere eighteen per cent of the fixed capital required to launch the British navy.<sup>756</sup>

This is what Peter Mathias writes about the total costs of the French Wars of 1793 – 1815 in an article about financing the Industrial Revolution:

...the total military costs of the French wars for Britain between 1793 and 1815 amounted to approximately £1,000 million pounds sterling, with over £500 million in mobilized savings produced for government loans by way of the long-term capital market, spread over twenty-two years, whereas the total accumulated capital in the canal system, from 1750 to 1820 was about £20 million. Moreover, transport investment was one of the 'lumpiest' forms of productive investment to be undertaken. In 1809 – 1810 it was reckoned that the annual investment in fixed capital in the entire cotton industry was £0.4 million. This was less than one per cent [sic]! of the military budget of £45 millions, spent during that year.<sup>757</sup>

For the rest of Europe, similar stories could be told.<sup>758</sup> One can, of course, start a debate here discussing to what extent investment in the military was conducive to economic growth, a question that in any case would be very hard to settle *in principle* and very complicated even to satisfactorily tackle *in practice*. Investing in the military meant investing in ships, armaments, ammunition and all sorts of provisions for military and other personnel. Some of the invested money might otherwise have been 'idle'. It offered employment to people who might otherwise have been unemployed. One can think of all sorts of 'military Keynesianism'.<sup>759</sup> Such investments could provide all sorts of direct and indirect spoils of war, help to conquer markets or protect trade, or simply be inevitable because without them one would be defenceless. The costs are obvious. I do not intend to enter that debate here, as it is not relevant for the point that I want to make here, which is that Western-European countries as such were not so starved of money that they could not possibly have paid for industrialisation before they actually did.<sup>760</sup>

756 Brewer, *Sinews of power*, 34 – 35.

757 Mathias, 'Financing the Industrial Revolution', 72.

758 See, for the absolutely staggering amounts of money that European states spent on war, Bonney, *Economic systems and state finance*; Bonney, *Rise of the fiscal state*; Storrs, *Fiscal-military state in eighteenth-century Europe* and Torres Sánchez, *War, state and development*.

759 See, for an attempt to chart the positive effects of warfare and preparation for warfare on Britain's industrialisation, O'Brien, 'The contributions of warfare with Revolutionary and Napoleonic France to the consolidation and progress of the British Industrial Revolution'. We will come back to this topic briefly when we analyse the role of the state.

760 See for further information my 'Governing growth'. For the costs of war for (Great) Britain and China see my 'Die Staatsfinanzen Chinas und Großbritanniens im langen 18. Jahrhundert. The article was also published, in English, as working paper no 167/12 on the website of the Department of Economic History at the London School of Economics and Political Science <http://www2.lse.ac.uk/economicHistory/workingPapers/economicHi>

The ample availability of liquid capital in Great Britain and later the United Kingdom also shows in the fact that governments there had an enormous public debt that was overwhelmingly shouldered by their own subjects, and on which the government never defaulted. Over the entire period from 1750 to 1850, that debt was never lower than Great Britain's GDP. Just after the Napoleonic Wars, it was more than 2.5 times as big. Britons held the bulk of it – as a rule over eighty per cent. Let me just provide a couple of figures with no other purpose than to give an idea of orders magnitude: On average public debt of the United Kingdom over the period 1802–1850 amounted to about £800 million. Debt charges, almost entirely paid to wealthy British subjects, over that same period amounted to on average twenty-seven million pound sterling per year. In 1850, Great Britain's national income was less than £600 million. Income from mining, building and manufacturing in total was £179 million. Investment in railways during the railway boom of 1846–1848 was about the same size as debt charges at the time, some thirty million pound sterling. Gross domestic fixed capital plus net foreign investment together in 1860 – I found no data referring to previous years – amounted to some ninety million pounds sterling.<sup>761</sup>

At the beginning of industrialisation, (fixed) capital requirements overall were quite low particularly in comparison to costs of, for example, warfare, and in many countries, the required amount of money could have been found. This remained the case for decades. The rate of gross investment in capital formation to national income did indeed rise in industrialising Britain as much more money was invested. It rose from an estimated five to six per cent in the 1760s to an estimated ten to twelve per cent a century later.<sup>762</sup> My point is that this was not very problematic. Investment in *liquid* capital, moreover, continued to be a surprisingly large part of total capital investment for quite some time. In 1760, in England, fixed capital in the form of machines and equipment for transport made up only eight per cent of total fixed capital (excluding residential buildings). Most fixed capital therefore consisted of buildings. In 1830, fixed capital costs had risen to fourteen per cent and in 1975 to forty-five per cent of total capital costs.<sup>763</sup> In Britain's cotton textile industry in the 1830s, fixed capital still only amounted to twenty to twenty-five per cent of total capital outlay.<sup>764</sup>

Great Britain clearly was not exactly caught in a poverty trap. The same

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story/home.aspx. Literature dealing with fiscal-military states in Europe and their enormous expenditures on warfare is abundant. I refer to note 15 of this article.

761 For all these figures see Mathias, *First industrial nation*, 463, 478, 283 and 458.

762 I want to emphasize that these are estimates, as the calculation is fraught with difficulties and wide margins of error. I took this estimate, which is in the orders of magnitude that one finds in all the relevant literature, from Feinstein and Pollard, *Studies in capital formation in the United Kingdom*.

763 Malanima, *Pre-modern European economy*, 320–321. The exact figures are on page 321.

764 Crouzet, *First industrialists*, 9. With the railway-age, things of course began to change.

applies to other European countries. In the beginning of the nineteenth century, Dutch investors annually derived more than fifty million guilders as income from foreign investments. That is roughly twenty-five guilders – or some 2.5 pounds sterling – per capita at a time when national income per capita amounted to 150 to 200 guilders. Total *foreign* investment per capita at that time was an estimated 1.75 times as big as GDP per capita. Total investment in domestic and foreign government debts, to give another indicator of Dutch liquidity, amounted to more than 1.5 billion guilders. That is the equivalent of 400 million taels, far more than the entire annual income of China's government at that time.<sup>765</sup> The late industrialisation of the Netherlands certainly was not caused by an overall lack of money.

In all the more advanced economies of the world in the eighteenth century *as such*, more than enough liquid capital was available to pay for factories and all those other things we associate with the First Industrial Revolution. There was more than enough surplus, even if one allowed elites to enjoy their conspicuous consumption and rulers their wars, *in principle* to be able to find liquidity. According to William Easterly, the existence of a poverty trap is part of a legend that gave birth to and was used as a justification of development aid. He refers to the situation in the twentieth century when, in his view, even the poorest countries were not so poor that they could not invest in development and growth.<sup>766</sup> I think that applies even more to the situation in the eighteenth century, in any case for all those countries that one could call 'advanced organic economies'.

'Poor' China, to make the comparison with that country once again, had enough wealthy individuals. Between 1738 and 1804, the so-called 'factory merchants' and 'transport merchants', who held the monopoly of producing, transporting and selling salt from the Liang-Huai salt district had to pay nearly forty million *taels* as official exactions to the imperial treasure. Considering the fact that their yearly profits have been estimated at between six and seven million *taels*, this burden must have been quite bearable.<sup>767</sup> A *tael* is some thirty-seven grams of silver, which is one third of a pound sterling, which itself is equal to some 111 grams of pure silver. We know of individuals in China during the eighteenth century who had a personal capital of more than ten million *taels*, mostly earned in trading salt.<sup>768</sup> The aggregated profits of the salt merchants of Yang-chow in the second half of the eighteenth century have been estimated at

765 De Vries and Van der Woude, *First modern economy*, chapter 4.3.2.

766 Easterly, *White man's burden*, chapter 2. Robert Allen, in contrast, as we already saw, believes in the existence of such a trap for poor countries. See Allen, *Global economic history*, 13.

767 Feuerwerker, *China's early industrialization*, 50–51.

768 Osterhammel, *China und die Weltgemeinschaft*, 75.

something like fifty million *taels*.<sup>769</sup> To put things in perspective: the total sum of taxes, including the so-called surcharges, that were levied for central government at the time, has been estimated at between fifty million and eighty million *taels*.<sup>770</sup> The total value of Chinese goods exported via the British East India Company between 1722 and 1833 never surpassed 6.2 million *taels* per annum.<sup>771</sup> In the nineteenth century, too, one could still make a fortune: in 1834 the Howqua house of foreign trade had amassed some twenty-six million silver dollars which is more than five million pounds sterling in terms of silver. That, according to contemporaries, made merchant Howqua the owner of the largest mercantile fortune on earth.<sup>772</sup> Overseas trader Pan Youdu in 1820 had accumulated a family fortune of ten million Mexican dollars i. e. 7.3 million *taels* or 27,000 kg of silver, equivalent of more than two million pounds sterling.<sup>773</sup>

The income of the Chinese gentry-class was enormous. According to an estimate, the total average income of an official in China in the 1880s was about 5,000 *taels* annually: some 500 *taels* of it official income, the rest 'extras'. A provincial governor could in total earn about 180,000 *taels* per year, a district magistrate some 30,000. A secretarial assistant serving a district magistrate could still bring home 250 *taels*. At the time, an ordinary agricultural labourer earned some five to ten *taels* annually plus food; his total income would never amount to more than twenty *taels*. At the end of the nineteenth century, there were some 1.5 million gentry in China.<sup>774</sup> Ruan Yuan, a very successful official, who ended his career in the highest rank, earned over six million *taels*, that is 150,000 *taels* per year in total over the period of 1793 to 1835, excluding three years from 1809–1812. At that time, subsistence for an adult man in China's towns was less than fifteen *taels* per year.<sup>775</sup> The tiny official incomes were replenished by legal extras, so-called honesty-nourishing fees, by 'customary fees' the population had to pay for services, and by whatever payments officials could collect.

Let me give just two examples from India. It is claimed that Mulla Abdul Ghafur, one of the richest merchants of Surat, conducted trade equal to that of the entire East India Company of Britain. When he died in 1718, he left an estate worth about one million pounds sterling in terms of silver.<sup>776</sup> We have to realise

769 I found this figure in Hsü, *Rise of modern China*, 71. Hsü refers to a text by Ping-ti Ho that I was unable to consult.

770 Vries, *Via Peking back to Manchester*, note 102, page 97.

771 Zhuang *Tea, silver, opium and war*, 158–159.

772 I found this figure in Hsü, *Rise of modern China*, 71. Hsü refers to a text by H.B. Morse that I was unable to consult. A silver dollar at the time was about twenty-five grams.

773 Deng, 'Foreign staple trade of China in the pre-modern era', 281.

774 Chung-li Chang, *Income of the Chinese gentry*, 42, 197 and 12.

775 Wei, *Ruan Yuan*, 301.

776 Das Gupta, *Merchants of maritime India*, XII and 111. For the immense wealth of some

that the wealth of rulers could be far higher! Mahmed Amin Khan – one of the most powerful men of the Mughal court – in 1684 bequeathed in cash and valuables alone a sum estimated at 110 million rupees which is about eleven million pounds sterling in terms of silver. To compare: All assets of the Dutch East India Company in Asia at the time had a value of about thirty-two million guilders, or some three million pounds sterling in terms of silver. And that was still apart from his vast flocks (more than 8,000 camels alone), immense possessions in Bengal and on the Coromandel coast and innumerable other estates belonging to his family. Aside from those main pursuits, Amin Kahn also had some shares in ships on the Coromandel coast.<sup>777</sup> There are always and everywhere potential surpluses available. What counts is what is done with them.

A fundamental question that raises itself in the context of my analysis after referring to this wealth is what the relationship between inequality and growth might be. In the literature, one comes across two main viewpoints. Inequality implies a high level of accumulation in the hands of a small group of people and thus the wherewithal for investing. When it indicates high returns for extraordinary efforts or qualities it might stimulate efforts by all to try and better their human capital. In that case, its effects overall will be positive. If, however, inequality is an effect of rents, for example, when a small group of people owns relatively fixed resources, the effects are rather the opposite.<sup>778</sup> This clearly is the situation that scholars like Sokoloff, Engerman, Acemoglu, Johnson and Robinson have in mind when they emphasise that inequality would be bad for development, in Latin America, the case the most often refer to, but also in other instances. Implicitly and often even explicitly, most institutionalist economists claim that ‘too much’ inequality is bad for development and growth and impedes a take-off. In discussions about the catching-up of Asian countries such as China, India, and in particular Korea or Taiwan, scholars often refer to the positive impact of the fact that in those countries inequality of income and wealth was much lower than in Latin America.<sup>779</sup> The debate about the existence

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Indian merchants, which dwarfed the wealth of European merchants, see further, for example, Habib, ‘Potentialities of capitalist development in the economy of Mughal India’, 71–73. For the wealth of Dutch merchants, see De Vries and Van der Woude, *First modern economy*, chapter 11.5. In Amsterdam there were only a couple of people owning more than a million guilders in the 1630s. Burgomaster of Amsterdam Jeronimus de Haze de Georgio was considered extremely wealthy. When he died in 1725, he left 3.3 million guilders, the equivalent of some 300,000 pounds sterling. See page 589 of the book.

777 Barendse, *Arabian Seas, 1640–1700*, 118. One rupee equals some eleven grams of silver and thus about one tenth of a pound sterling.

778 I here base myself on some comments in Williamson, *Trade and poverty*, 164–165.

779 Amsden, *Rise of the rest*, the Index under, ‘Income’, distribution of. This equal income distribution then is normally connected to the fact that those Asian countries experienced extensive programmes of land reform. This is the case in Amsden’s work but even more in the recent book by Studwell on the development of East Asian economies. Fascinatingly

of a general relation between inequality and growth and what that relation would look like is actually not settled. Elhanan Helpman synthesizes his even-handed analysis of the existing literature very cautiously: “My tentative conclusion is that inequality slows growth.”<sup>780</sup> Joseph Stiglitz just published a book in which he cautions against the dangers of increasing inequality in particular for American society at the moment.<sup>781</sup> Considering the fact that no country has ever existed where there was no inequality at all, the real question seems to be how much inequality would be ‘too’ much to enable a country to take-off. As a corollary to that question one would have to deal with the question of whether taking-off would by definition not cause a temporary increase of inequality, as Simon Kuznets claimed.<sup>782</sup>

Apart from the fact that the matter apparently has not been settled in *theory*, there are some major problems in *practice*. It for example – and that of course touches upon the essence of our analysis – is not at all clear that income and wealth in Britain just before and during its take-off would be more equally distributed than in other, non-industrialising countries, as is constantly suggested in (neo)institutionalist literature referring to Britain’s take-off after 1688. Recent research suggests rather the opposite, as for example can be deduced from the information in Table 29.<sup>783</sup>

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enough in the case of industrialising Britain they were both absent. Britain at the eve of its take-off had a high inequality of income and a high concentration of the ownership of land. In its case, however, these are normally presented as *favourable* to development – be it not for many Britons – as they are assumed to enable accumulation and create a capitalist wage economy. Again, apparently context determines outcome. Studwell very explicitly time and again makes the claim that household farming was the recipe for success in East Asian economic development. See *How Asia works*, Part I: ‘The triumph of gardening’ and his ‘Epilogue’. For Amsden’s view see e.g. her *Rise of the rest*, 16–18.

780 Helpman, *Mystery of economic growth*, 93.

781 Stiglitz, *Price of inequality*.

782 See for the debate on the so-called Kuznets-curve Helpman, *Mystery of economic growth*, 86–87, where the thesis that in periods of emerging modern economic growth, inequality would always first increase and then decrease is rejected. That is also the case in Milanovic, *The haves and the have-nots*. See under ‘Kuznets, Simon’ and ‘Kuznets, hypothesis’. For the situation in early modern Europe, that seems to be much more in accordance to Kuznets’ expectations, see Van Zanden ‘Tracing the beginning of the Kuznets curve’.

783 I would also like to refer here to the income-tables on Peter Lindert’s website <http://gpih.ucdavis.edu/Distribution.htm> and Hoffman Jacks, Levin, and Lindert, ‘Real inequality in Western Europe since 1500’.

Table 29: Pre-industrial Gini-coefficients and inequality extraction ratios

<i>Country / region, year</i>	<i>Gini</i>	<i>Inequality extraction ratio (%)</i>
Roman Empire, 14	39.4	75.0
Byzantium, 1000	41.1	94.1
England and Wales, 1290	36.7	69.2
Tuscany, 1427	46.1	66.6
South Serbia, 1455	20.9	64.8
Holland, 1561	56.0	76.3
Levant, 1596	39.8	57.6
England and Wales, 1688	45.0	57.1
Holland, 1732	61.1	71.7
Moghul India, 1750	48.9	112.8
Old Castile, 1752	52.5	88.0
England and Wales, 1759	45.9	55.4
France, 1788	55.9	76.1
Nueva España, 1790	63.5	105.5
England and Wales, 1801	51.5	60.6
Bihar (India), 1807	33.5	76.7
Netherlands, 1808	57.0	68.5
Naples, 1811	28.4	53.7
Chile, 1861	63.7	83.0
Brazil, 1872	43.3	74.2
Peru, 1876	42.2	78.1
Java, 1880	39.7	72.8
China, 1880	24.5	55.2
Japan, 1886	39.5	58.8
Kenya, 1914	33.2	96.8
Java, 1924	32.1	48.0
Kenya, 1927	46.2	100.0
Siam, 1929	48.5	78.1
British India, 1947	49.7	96.8
<b>Average</b>	<b>44.3</b>	<b>74.9</b>

Source: Jeffrey G. Williamson, *Trade and poverty. When the Third World fell behind* (Cambridge Mass. and London 2011) 149. A Gini coefficient of zero expresses perfect equality, where all values are the same (for example, where everyone has an exactly equal income). A Gini coefficient of one (100 on the percentile scale) expresses maximal inequality among values (for example where only one person has all the income). The extraction rate indicates how much of available societal surplus above subsistence is extracted by the existing elite. See for further explanation Williamson, *Trade and poverty*, chapter 9.

In the end, for the take-off phase, the question of how big a part of the population could afford to buy certain industrial commodities is, in all probability, more important than the question of how unequal income and wealth were spread. It

now seems firmly established that ‘ordinary’ people in the West, in particular in north-western Europe and (what was to become) the USA had more purchasing power than their counterparts on the rest of the globe. The thesis that societies in those regions, moreover, would have had a relatively bigger group of ‘middle-incomes’ so important in the beginning of their consumer revolution is finding broad support.<sup>784</sup> The mass market without which industrial capitalism seems inconceivable in principle was there to be exploited. The rest of the world may have been poorer, but it still contained a huge number of people wealthy enough to buy the mass consumer products of the First Industrial Revolution whose prices tended to sink rather fast and in this way also created for themselves a market in ‘poor’ countries fairly soon. Overall, it therefore is not at all obvious that Britain industrialized because its entrepreneurs had a larger market for their products. We will return to this question later on.<sup>785</sup> What to me is clear is that Britain had a large middle-income market, maybe not larger than in other parts of Western Europe but certainly than in China, India or the Ottoman Empire, which developed into a mass market as prices sank. Frank holds the view, without providing any data to support it, that the major Asian economies on the eve of Great Divergence had a “polarised distribution of income” that “constrained effective domestic demand for mass consumer goods.”<sup>786</sup> But, and I think that is quite relevant: the consumer revolution that triggered so much innovation *began* as a broad middle-class phenomenon.

### 13. Primitive accumulation: bullion and slaves

In *global* histories dealing with industrialisation and the origins of modern economic growth in the West, unsurprisingly, the focus is not so much on *whether* accumulation had taken place but on the extent to which it was *external*. The fact that the first industrial nation ruled over a big empire and was the world’s major trading nation, almost inevitably led many scholars to wonder whether these facts were connected. The idea that they were has always been quite popular and found expression in the claim that the West became rich ‘over the back’ of the Rest or even actively underdeveloped the rest of the world in order to be able to take off. Discussing the many questions related to the (assumed) connections between industry, trade and empire, means entering a web of very complicated debates in the knowledge, moreover, that one in all probability will never come up with answers that will convince all parties partic-

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784 See e.g. Lindert’s website note 783.

785 See pages 350–358.

786 Frank, *ReOrient*, 301.

ipating in them. In my view, the main problem in analysing the emergence of modern economic growth from this angle consists in the fact that it is all but impossible to really disentangle causes and effects and to sharply distinguish between 'supernormal' turnovers and profits as a result of manipulation or even coercion and luck on the one hand and (super) normal turnovers and profits obtained in a process of free, fair and voluntary trade.

Those turnovers and profits obtained on a free and fair market are basically part of the thing to be explained, not of the explanation. If some people make profits by trading freely and fairly, that as a rule is a *sign* of the strength of their economy rather than its *explanation*. In specific cases, outlets and profits could be 'super-normal' in such a situation too, due to specific luck or natural monopoly. The distinction drawn here in theory is often extremely difficult if not often impossible to make in practice. For the West, we are discussing the Age of Mercantilism in which 'power' and 'profit' often were almost inseparably connected. In case of doubt, I have always opted for the strategy to consider turnovers or profits as the results of what we would now call *unfair trade* in order to maximally support a thesis that I myself actually do *not* endorse, to wit, the thesis that the contribution of the periphery to the rise of Western Europe would have been fundamental in terms of the accumulation it made possible. In my view there is a tendency to suggest or imply that European exchange with the rest of the world in the early modern era would *always* have been non-consensual or at least manipulated in such a way that as a rule the profits for the Europeans were above normal and more like 'rents' than like real profits. That, however, is not true for many trade relationships in Asia. In their trade with China, Japan, and the Mughal, Ottoman and Safavid Empires, to mention only the big Asian players, the Europeans simply were a party on a market for most of the period discussed here. They were not in any way able to forcefully impose their will and had to pay prices they could not themselves fix. The same goes for the buying of slaves in Africa and trade with the United States after its independence.

Let me begin with some general comments on the overall likelihood of the thesis that 'the West' became rich over the back of 'the rest', a thesis which is meant to convey that exploitation and coercion were *the* or at least a *fundamental* basis of Western wealth and the main motor of its growth. As a general, straightforward claim this thesis clearly is indefensible: the correlations and the numbers simply do not fit. The economies of the countries in the West with the biggest, super-normal, 'windfall' incomes, Portugal and Spain, never seem to have really profited from them and ended up being quite poor and underdeveloped. Portugal had a huge and very profitable slave trade and in no country more slaves were employed to work for Western employers than in its colony Brazil, a colony that became a major sugar producer and moreover exported enormous amounts of gold to Portugal. Nevertheless, Portugal continued to be

poor and underdeveloped, which by the way was also the case for Brazil, notwithstanding the fact that after its independence, it continued to import slaves and set millions of them to work.<sup>787</sup> Anyone thinking in terms of (primitive) accumulation will have to deal with the question of why Portugal – the longest running European colonial empire – continued to be so poor whereas Switzerland – a landlocked country which never had any overseas colonies – became so rich.<sup>788</sup> A similar question can of course be raised with regard to Spain; a country that acquired enormous amounts of bullion and land, but that according to the most recent estimates saw a *decrease* rather than an *increase* in real income per capita over the entire early modern era and where economic development was not exactly impressive.<sup>789</sup> The Conde-Duque de Olivares already in 1631 wondered whether discovering the New World had been a blessing for ‘Spain’: “If its great conquests have reduced this Monarchy to such a miserable condition, one can reasonably say that it would have been more powerful without that New World.”<sup>790</sup> New World bullion brought inflation and financed many wars that were not exactly successful for Spain and, on top of that, created a lot of havoc all over Europe. Over the entire early modern era and on a per capita base no country in Europe had a larger amount of trade with the non-European world than the Dutch Republic. But whereas that trade became even more important for its economy during the eighteenth century, its per capita real income stagnated or even declined then and the country’s economy did not take off.<sup>791</sup> The part of Indonesia’s net national income or GDP that the Dutch siphoned off in the period 1868 to 1930 was far bigger than the part of national income or GDP that the British ever managed to drain from India between 1801 and 1930. As compared to Spanish extraction in New Spain, at the end of the eighteenth century, again expressed as a percentage of the income of the region, Britain’s overall drain to India was also relatively low.<sup>792</sup> For Britain, during take-off, colonies were not more relevant – rather less so – than for several other European countries at that time. As Eltis and Engerman point out: “...France’s Caribbean plantations produced forty-three per cent more crops by value than did Britain’s on the eve of the American Revolution. The phenomenal expansion of St. Dominique between 1770 and 1791 meant that that French planters widened the

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787 For the economic history of Portugal, see, in Portuguese, Lains and Ferreira da Silva, *História económica de Portugal, 1700–2000*.

788 I paraphrase <http://lorenzo-thinkingoutaloud.blogspot.com/2009/08/great-divergence.html> consulted 5–1–2012. Blog of 7–8–2009.

789 For development of real income per capita, see e.g. Malanima, *Pre-modern European economy*, 290. For a relatively *optimistic* analysis of Spain’s economy during the very long eighteenth century, see Ringrose, *Spain, Europe and the Spanish miracle*.

790 Elliott, *Spain and its world*, 25.

791 De Vries and Van der Woude, *First modern economy*, chapters 10 and 13.

792 See Williamson, *Trade and poverty*, 163–165.

gap dramatically.<sup>793</sup> France's economy, of course, was much larger than that of Britain. But when it comes to fractions of the national economy the colonies of Spain and Portugal at the time definitely were more important for their motherlands than those of Britain were for Britain.<sup>794</sup> That country took off at a time when it no longer ruled what became the United States, from which, after independence, it increasingly began to import its raw cotton. Countries that industrialised quite early, such as Belgium and Switzerland or, somewhat later, Germany, that with its huge population became an industrial super power, had no or hardly any colonies and were not exactly global traders.

Having colonies did not necessarily make you rich, as according to several scholars also shows in Japan's experiments with colonialism. Not having them did not doom you to poverty. *Being* one definitely increased your chance of ending up poor, as in particular the case of Africa quite convincingly shows. Real income per capita overall clearly tends to be higher in non-colonized countries than in countries with a colonial past. We are talking about correlations here. That means there are exceptions. We, moreover, have to realise that correlation need not be causation and that neither colonising nor colonised countries were identical so that many different factors may have played a part. But there can be no doubt that the colonial heritage of bad institutions and extractive elites in particular had a negative impact on growth and development in colonised countries.<sup>795</sup> Overall, Western colonialism clearly had many negative effects on the economies of the countries it affected. But, as indicated, here, too, there are differences according to time and place, and colonizing power. Countries that were held longer as colonies perform relatively better today and are relatively more democratic. Colonies of the British perform relatively 'better' than colonies of the French.<sup>796</sup> Japan and China definitely profited from the fact that they have never been actually colonised. But here, too, there are exceptions. The real per capita income of the USA was already a little above that of Western Europe in 1820, less than fifty years after it had become independent. The country then was just as rich as Denmark and what we now call Belgium. In Western Europe. only the Netherlands and Britain were richer.<sup>797</sup> Other settler colonies of Britain, such as the dominions Canada, Australia and New Zealand, also did not fare badly.

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793 Eltis and Engerman, 'Importance of slavery and the slave trade to industrializing Britain', 123 – 144, 130 – 131.

794 *Ibidem*.

795 I here want to refer in particular to Bertocchi and Canova, 'Did colonization matter for growth' and, somewhat less explicitly, Rodrik, Subramanian and Trebbi, 'Institutions rule'. For more information – in particular for Africa – see under note 61 and Gozzini, *Idea di giustizia*, chapter four, 'Colonialismo e ineguaglianza'.

796 See Fenske, 'Causal history of Africa', 22 – 26.

797 Maddison, *Contours of the world economy*, 382.

Economically speaking, *in the end*, colonial experience was a good thing for Taiwan and Korea.<sup>798</sup> The Newly Industrialising Countries in Asia and post-1978 China took off without colonies. Real income of countries in Latin America developed quite differently in the first century after independence, rising in some countries and declining in others. All these comments do not *prove* or *refute* the existence of specific connections between foreign exploitation and the rise or decline of specific countries: what they do, however, is show that general statements in terms of ‘the West climbed over the back of the Rest’ are simplistic and indefensible. As such, it is also striking that during the nineteenth century, *apart from Britain*, Europe’s overseas trade was smaller as a percentage of GDP than it had been in the previous century.<sup>799</sup>

Modern economic growth is not simply a matter of having easy income at one’s disposal – although that of course might help. But let us try and figure out the orders of magnitude of ‘primitive accumulation’ – and focus on two examples. They will refer to the two forms of Western exploitation and windfall profits that have kindled the imagination most. They are also very illuminating in showing how small even the biggest ‘windfalls’ are as compared to the entire economies whose development or non-development we want to explain. We of course are only talking in terms of orders of magnitude. First of all there is bullion. The idea that shiploads of bullion must have made those who received them rich is almost irresistible. But what amounts are we actually talking about, and what is their value as compared to the national incomes of the countries whose wealth they are supposed to explain? According to the best available estimates, total bullion production in the Americas in silver equivalents (i. e. silver *plus* gold, expressed in silver equivalents) over the entire period from 1493 to 1800 amounted to 130,000 to 150,000 tonnes.<sup>800</sup> Let us take the highest figure and assume a total production of 150,000 tonnes; that is 150 billion grams of silver over roughly three hundred years. That boils down to 500 million grams per year on average. What is relevant here is the amount that reached Europe, as not the entire production was exported. Let us, moreover, not look at Europe as a whole but only at its Western half, where bullion first arrived. Taking Europe in its entirety would of course reduce the amounts per capita. During the second half of the eighteenth century, exports reached their

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798 See e. g. Amsden, *Rise of the rest*, the Index under ‘Korea’, Japanese colonialism and ‘Taiwan’, Japanese colonialism. This of course, but I hope that is obvious, is not a justification of colonialism, which cannot be justified, nor a whitewashing of many crimes.

799 Etemad, ‘Colonial and European domestic trade’.

800 All the information about bullion in this and the next paragraphs is taken from: Barrett, ‘World bullion flows’ and all the information about silver wages in Europe from Allen, ‘Great Divergence in European wages and prices.’ After 1800, silver production in and exports from the Americas dwindled.

highest point ever, on average 600 tons per year over the fifty years period. That is some 600 million grams of silver-equivalents for the roughly 100 million people that were on average living in Western Europe at the time. That would amount to six grams of silver per person per year. How much is that? Let us compare this amount of money to the wages of unskilled labourers over that same period as Robert Allen reconstructed them. According to him, London's unskilled labourers had the highest wage rate of all European cities he discusses: 11.5 grams of silver per day. The lowest rate he found in Krakow, 2.9 grams of silver per day. In the last quarter of seventeenth century, when Western Europe had some 80 million inhabitants, on average some 370 tonnes of silver equivalent reached the region, more than ever before. That would boil down to some 4.5 grams per capita. The highest daily wage rate for unskilled labourers then again was that of London, to wit 9.7 grams of silver per working day; the lowest again that of Krakow, at 2.7 grams.

Table 30: Average annual estimates (in tonnes) of production and movement of silver and silver equivalent, 1501 – 1800

	1 <i>American Production</i>	2 <i>European Arrivals</i>	3 <i>Col.1 minus col. 2</i>	4 <i>Exports from Europe</i>	5 <i>net balance col. 2 minus col. 4</i>
1501 – 1525	45	40	5		
1526 – 1550	125	105	20		
1551 – 1575	240	205	35		
1576 – 1600	290	205	85		
1601 – 1625	340	245	95	100	145
1626 – 1650	395	290	105	125	165
1651 – 1675	445	330	115	130	200
1676 – 1700	500	370	130	155	215
1701 – 1725	550	415	135	190	225
1726 – 1750	650	500	150	210	290
1751 – 1775	820	590	230	215	375
1776 – 1800	940	600	340	195	405

Source: Ward Barrett, 'World bullion flows' in James D. Tracy, ed., *The rise of merchant empires. Long-distance trade in the early modern world 1350 – 1750* (Cambridge 1990) 224 – 254, pages 242 – 243.

Table 31: Nominal wages of ordinary labourers (grams of silver per day)

	1500–49	1550–99	1600–49	1650–99	1700–49	1750–99	1800–49
<b>North America</b>							
Boston			4.7	5.0	5.7	9.8	20.9
Philadelphia					8.5	13.8	24.5
Maryland				6.2	6.4	9.9	

<b>Latin America</b>							
Potosi				17.0	12.8	12.8	13.0
Bogota			3.2	3.5	6.4	6.4	6.9
Mexicourban					9.1	9.1	10.1
Mexicorural	0.3	1.9	4.3	5.6	5.4	5.5	6.1

<b>North-western Europe</b>							
London	3.2	4.6	7.1	9.7	10.5	11.5	17.7
South English Towns	2.5	3.4	4.1	5.6	7.0	8.3	14.6
Antwerp	3.0	5.9	7.6	7.1	6.9	6.9	7.7
Amsterdam	3.1	4.7	7.2	8.5	8.9	9.2	9.2

<b>Southern and Central Europe</b>							
Valencia	4.2	6.6	8.8	6.9	5.7	5.1	
Madrid		6.3	8.0		5.1	5.3	8.0
Florence	2.9	3.8	4.7				
Milan			5.9	4.1	3.2	2.9	3.1
Naples	3.3	3.5	5.3	4.8	4.8	3.8	3.8
Leipzig		1.9	3.5	3.9	3.7	3.1	4.4
Vienna	2.7	2.6	4.4	3.5	3.2	3.0	2.1

<b>Asia</b>							
Beijing					3.5	3.4	2.8
Lower Yangzi			3.4	3.4	3.3	3.2	3.2
Delhi		0.8	1.3	1.6			2.1
Bengal					0.7	0.9	0.8

Source: Robert C. Allen, Tommy E. Murphy and Eric B. Schneider, 'The colonial origins of the divergence in the Americas: A labour market approach', *The Journal of Economic History* 72, 4 (2012) 863–894, Online Appendix page 29, Table 2.

The bullion imports, impressive as they are in absolute terms, were quite small as compared to total income, even if we assume that in an average family more than one person would bring in some income. A lot of all this bullion, moreover, left Europe. Over the entire period from 1600 to 1800, an estimated 400 tonnes of silver equivalent were exported to the Levant, 461 tonnes via the English and Dutch East India Companies to the Far East, and 459 tonnes to the Baltic, all in exchange for imports from those regions. The bulk of imports from Asia consisted of products that Europe could easily have done without. The annual net balance in the end per inhabitant of Western Europe was some 3 grams of silver in 1700 and some 4.5 grams in 1800. Even though the Portuguese and Spaniards did their utmost to profit as much as possible from the bullion they appropriated in Latin America, its extraction was not a free lunch. There were substantial costs involved in mining and transporting all that bullion, which of course *as far as possible* were paid for via additional extraction. But the actual gains must have been smaller than the figures presented here – which only refer to total gross production and transfers – suggest. Besides, as already indicated, an increasing amount of bullion stayed in the continent in the form of tax income that was spent there.<sup>801</sup>

Whether the amounts mentioned are big or small can always be turned into a matter of debate, but I fail to see how they might be regarded as *the* cause or even a major cause of the emergence, let alone the permanency of modern economic growth in north-western Europe. Portugal and Spain, which, however one wants to look at it, must have had the easiest and biggest windfall gains, were not set on a road to take-off. They, in particular the Spanish government, spent most of their bullion in war, and in that way, as indicated, wreaked havoc and destruction all over Europe. But waging war was what basically all governments did with most of their income. The rest of Europe acquired most of its bullion by selling something to the Iberians: that is as payment for products, not for free. Lots of the bullion disappeared as payments for goods from elsewhere that were not necessities. One might even consider this bullion as ‘wasted’. Scholars like Dennis Flynn, Arturo Giráldez, Andre Gunder Frank and several others claim – incorrectly – that so much – more than half or even two-thirds – of the silver Europe imported ended up in China that those who want to think in terms of ‘primitive accumulation’ might well wonder why China didn’t profit more from all that silver.<sup>802</sup> If we are to believe Frank, it was with the bullion from the

801 See Barrett, ‘World bullion flows’, 242–243, plus the comments by Grafe and Irigoien referred to on page 39 about taxes leaving the continent.

802 For my critique on this thesis see my ‘California School and beyond’ and my *Zur politischen Ökonomie des Tees*, 61–78. For an estimate of the total amount of American silver that ended up in China, see Jan de Vries, ‘Connecting Europe and Asia’, 81. He estimates those imports even when they were at their highest, between 1725 and 1750, at not more than

Americas, especially silver, that "... the Europeans bought themselves a seat, and then even a whole railway car on the Asian train".<sup>803</sup> That of course is a nice metaphor, but what can it mean? That Europe became richer and more developed by buying products from Asia? The logic and implied causality of such a claim escape me. Per capita, much more bullion stayed in Latin America, that around 1800 still had only some twenty million inhabitants, than ever reached Western Europe. Why then did that region not take off?<sup>804</sup>

A specific way in which all the extra bullion might have helped Western Europe is in making money cheaper. Even if the extra bullion may have had some effect in this respect, it cannot explain the overall development of interest rates in various countries and their differences. Money in Europe overall was cheapest in Great Britain and the Dutch Republic, much cheaper than in Spain or Portugal, because those first two countries acquired a substantial stock of bullion via their trade, but also and probably even more because they developed a sophisticated financial and monetary system in which the direct dependency on (semi-) precious metals lessened. Interest rates for commercial loans as well as for government bonds, as far as those existed at all outside Europe, were the lowest in the world, far lower than they were in Asia.<sup>805</sup> That clearly is not irrelevant: Schumpeter defines capitalism as "...that form of private property economy in which innovations are carried out by means of borrowed money, which in general, though not by logical necessity, means credit creation."<sup>806</sup> But again, in Western countries where interest rates were low, that certainly was not just an effect of massive bullion imports, which – again – were not just some windfall but had to be paid for.

The second 'windfall' for the economies of Western Europe, even more than the previous one based on brute coercion and easily connected with increasing wealth, consisted of the slave trade and the use of slave labour.<sup>807</sup> Here too, some

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thirty per cent of Latin American production. See also note 741 for possible negative effects of silver imports in China. China received no gold at all from the Americas.

803 Frank, *ReOrient*, 277.

804 For the size of the populations of Western Europe and Latin America see Maddison, *World economy*, 241.

805 For figures on interest rates and further references see Van Zanden, 'Road to the Industrial Revolution', 342–345 and here under notes 627–628. I am not convinced by the quite complicated and far-fetched arguments of Wong and Rosenthal, in chapter 5 of their *Before and beyond divergence*, that in terms of costs of borrowing, differences between Western Europe and China in practice would be fairly small or irrelevant.

806 Schumpeter, *Business cycles*, 223.

807 For general introductory literature on the Atlantic slave trade, see: Klein, *Atlantic slave trade*; Northrup, *Atlantic slave trade* and Olivier Pétré-Grenouilleau, *Les traits négrières*. For a more analytical, econometric approach, I refer to publications by Nathan Nunn dealing with the slave trades originating in Africa and their consequences. See Nathan Nunn [http://www.economics.harvard.edu/faculty/nunn/papers\\_nunn](http://www.economics.harvard.edu/faculty/nunn/papers_nunn). For the impact of slave trade and slave labour, see Benjamin, *The Atlantic World*, which gives a very readable and

basic figures again, indicating *orders of magnitude*, can give an impression of how relevant the phenomenon may have been from a macro-economic perspective.

Table 32: Slave Carriers

Portugal, including Brazil	4,560,000
Britain	2,600,000
Spain, including Cuba	1,600,000
France, including French West Indies	1,250,000
Dutch Republic	500,000
British North America and United States	300,000
Denmark	50,000
Other	50,000

Source: Hugh Thomas, *The slave trade. The history of the Atlantic slave trade: 1440 – 1870* (London and Basingstoke 1998; originally 1997) Appendix Three, page 805.

Table 33: The slaves were delivered to

Brazil	4,000,000
Spanish Empire, including Cuba	2,500,000
British West Indies	2,000,000
French West Indies, including Cayenne	1,600,000
British North America and United States	500,000
Dutch West Indies, including Suriname	500,000
Danish West Indies	28,000
Europe, including Canary Islands, Madeira, Azores etc.	200,000

Source: Hugh Thomas, *The slave trade. The history of the Atlantic slave trade: 1440 – 1870* (London and Basingstoke 1998; originally 1997) Appendix Three, page 805.

Looking at the destinations of the slaves who made the Middle Passage, it again is striking how big the involvement of the Spanish and Portuguese and their descendants in Latin America was and how little this apparently contributed to laying the basis of a lasting acceleration of development in the mother countries as well as in the (former) colonies. In that respect one might of course also wonder why not for example Russia, where many millions of serfs were ruthlessly exploited, did not see successful primitive accumulation and then take off. To determine the potential economic contribution of slave labour to wealth, we need to know what kind of labour slaves performed.

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clear synthesis of what is now known about Atlantic interconnections. Also highly informative is Blackburn, *Making of New World slavery*.

Table 34: First employment of slaves in the Americas

Sugar plantations	5,000,000
Coffee plantations	2,000,000
Domestic labour	2,000,000
Mines	1,000,000
Cotton fields	500,000
Cocoa fields	250,000
Building	250,000

Source: Hugh Thomas, *The slave trade. The history of the Atlantic slave trade: 1440 – 1870* (London and Basingstoke 1998; originally 1997) Appendix Three, page 806.

The final impact of slave imports on the economies in which the slaves were forced to work of course also depended on their mortality and fertility. In that respect, differences were enormous. The British Caribbean imported about 1.6 million slaves between 1700 and 1800. At the end of the eighteenth century, its slave population counted less than 600,000. Jamaica imported half a million slaves between 1700 and 1774. In that period of time, its slave population increased by little over 150,000. French Saint Dominique imported about 800,000 slaves between 1680 and 1776. In 1776, its total slave population nevertheless ‘only’ numbered 290,000. Slaves in these colonies apparently did not reproduce themselves. The situation in Brazil and the Spanish colonies was similar. There were a million and a half of them in Brazil in 1800, whereas up until then, more than two million had been imported into the country. In Spain’s American colonies in 1800, the total number of slaves was 250,000, only half the number of slaves that had entered the region since the beginning of slave imports. British North America in this respect was the exception to the rule. Whereas the number of slaves imported there up until 1800 amounted to some 300,000, its slave population in 1800 was over 850,000. In 1820, it numbered 1.5 million and in 1860 almost four million.<sup>808</sup>

In this context, it has to be pointed out that there is an increasing awareness that the Atlantic slave trade was not the only major slave trade. More attention to Western slave trade in other regions than the Atlantic, e. g. the slave trade of the Dutch East India Company in ‘the East’ is needed.<sup>809</sup> Europeans, moreover, were not the only ones who enslaved Africans. Arabs and Muslims transported millions of them eastward via the Red Sea, the Swahili Coast and several Trans-

808 Blackburn, *Making of New World slavery*, 423, 424 and 441, and Benjamin, *Atlantic World*, 626 and 642.

809 See e. g. Vink, “‘World’s oldest trade’”. The number of slaves involved was quite substantial, the amount of money, however, much less so. Vink estimates that, for the seventeenth century, the volume of the total Dutch Indian Ocean slave trade was fifteen to thirty per cent of that of total Atlantic slave trade.

Saharan routes. Exact figures for these trades of course are hard to get but there are several estimates that all point to very high numbers. Olivier Pétré-Grenouilleau has come up with an estimate suggesting that seventeen million enslaved Africans would have been taken eastwards between the year 650 and 1910/1920; some 9,000 per year during the eighteenth century and no fewer than some 43,000 per year during the next century. He bases his findings to a large extent on figures by Ralph Austen, who later in his work came up with a lowered estimate of some twelve million.<sup>810</sup> Nathan Nunn thinks that some six million African slaves were transported along these three routes between 1400 and 1900.<sup>811</sup> The number for the period before that, from the seventh century onwards, must in any case have amounted to a couple of million.<sup>812</sup> John Wright in his recent publication, which, to me, looks the best substantiated of all, estimates that between 600 and 1900, some six million slaves were transported through the Sahara.<sup>813</sup> It, in any case, is not certain that Western, i. e. European slave trade was more extensive than Eastern Arabic-Muslimic slave trade.<sup>814</sup> It would be interesting to know what happened with the money paid to those Arabic-Muslim slave traders. If the slave trade and slavery are supposed to have been so important for Western economic development, why would that not be the case in other instances?<sup>815</sup>

Slavery is here discussed in the context of the debates on the Great Divergence.<sup>816</sup> That means we have to discuss its relevance for Britain's industrialisation. The coming paragraph will focus on that question. The debate on the contribution of slave trade and slavery to Britain's take-off, often waged as a

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810 Pétré-Grenouilleau, *Traites négrières*, 145–162. Tidiane N'Diaye, in his *Der verschleierte Völkermord*, comes up with the same figures for about the same time span and points at the fact that many millions of Africans must have died in the course of the hunt for these slaves. See pages 211–214 of that book.

811 See [http://www.economics.harvard.edu/faculty/nunn/files/empirical\\_slavery.pdf](http://www.economics.harvard.edu/faculty/nunn/files/empirical_slavery.pdf)

812 To get an idea of what is behind these figures about a trade of which so little is known see N'Diaye, *Verschleierte Völkermord*. I refer to this book for an explanation of the rather clumsy expression 'Arabic-Muslimic' slave trade.

813 Wright, *Trans-Saharan slave trade*, 39 and 168.

814 See also Bairoch, *Economics and world history*, under 'slave trade'. For the Berber slave trade in white slaves, see Davis, *Christian slaves, Muslim masters*. It is estimated that in total more than a million white slaves were involved. For most of the nineteenth century the number of slaves imported into the Ottoman Empire excluding Egypt, is estimated at around 10,000 per year. See Toledano, *Ottoman slave trade and its suppression*, 90. Slaves were regularly manumitted and slave breeding not practised, therefore the system needed permanent replenishment.

815 See for the functioning of slavery in other economies, for example, Campbell, *Structure of slavery in Indian Ocean Africa and Asia*; Clarence-Smith, *Economics of the Indian Ocean slave trade in the nineteenth century* and Toledano, *As if silent and absent*.

816 For a recent general analysis, see Zeuske, 'Historiography and research problems'.

debate about the so-called Williams-thesis, is still very much alive.<sup>817</sup> It probably will never be settled. We have to distinguish here between the gains from slave trade as such, those of slavery as a mode of production and eventual further spin-offs. Let us begin with the first question: how profitable was it to trade slaves? Calculations made for the situation in Britain, which shipped about half of all the slaves that crossed the Atlantic Ocean in the eighteenth century, do not show super-normal profits: on average they would have been between five to ten percent, probably somewhat closer to ten. This implies that as a percentage of GDP they must have been tiny, especially considering the fact that most estimates still use figures for Britain's GDP over the eighteenth century that are too low. Slave trade profits can never during the entire eighteenth century have amounted to more than a few tenths of a percent of GDP, at best. Roger Anstey estimated that over the period 1761–1807, the total *gross* profits of the British slave trade – that is the difference between the total amount of money one paid for slaves when buying them and the total amount of money one received when selling them, *without subtracting other costs!*, amounted to forty-nine million pounds sterling, on average some one million pounds sterling per year. Britain's GDP over these years increased from over 100 million annually to over some 250 million pounds sterling annually.<sup>818</sup> To put things in perspective in a different way: in the last decades of the eighteenth century, Britain had some 14,000 seafaring ships. Of these, never more than 204 were engaged in trading slaves. In the Dutch slave trade, the total *gross* profits over the entire period from 1595 to 1829 have been estimated by scholars who want to show *how big* they were at between sixty-three to seventy-nine million guilders. There were yearly averages

817 See Williams, *Capitalism and slavery* and two edited volumes discussing his thesis: Solow, *Slavery and the rise of the Atlantic system* and Solow and Engerman, *British capitalism and Caribbean slavery*. A brief, clear and nuanced discussion of the wide range of questions involved can be found in Morgan, *Slavery, Atlantic trade and the British economy*.

818 For this estimate see Anstey, 'Volume and profitability of the British slave trade', 21. I want to emphasise that what I am referring to is *slave trade*. For estimates with regard to the profitability of trading slaves for Britain see, in alphabetical order, Blackburn, *Making of New World slavery*, chapters 9 to 12, with a low estimate of direct trade profits but a very high estimate of indirect effects; Eltis, *Rise of African slavery in the Americas*, 270–271; Eltis and Engerman, 'Importance of slavery and the slave trade to industrializing Britain'; Etemad, *De l'utilité des empires*, for a general discussion chapter 7; Klein, 'Economic aspects of the eighteenth-century Atlantic slave trade'; Morgan, *Slavery, Atlantic trade and the British economy*, with a brief but helpful analysis 36–48; Pétré-Grenouilleau, *Traites négrières*, 317–327, and Solow, 'Caribbean slavery and British growth'. For estimates of Great Britain GDP over the period 1688–1815, see O'Brien, 'Political preconditions for the Industrial Revolution', 126–127. There is however an emerging consensus that the estimates of GDP like those by O'Brien for the eighteenth century are too low. See e.g. Steven Broadberry and others <http://www.cepr.org/meets/wkcn/1/1714/papers/Broadberry.pdf>, consulted 15–9-2012, where it is indicated that Great Britain's GDP already in the 1760s crossed the 100 million pounds sterling boundary and continued to rise afterwards.

of between 200,000 and 600,000 guilders. At the very end of the seventeenth and the second half of the eighteenth century gross profits at times reached levels of way above one million guilders, with an absolute, all-time peak of 1.6 million Dutch guilders. But one has to realize that in the second half of the eighteenth century, total Dutch overseas trade was an estimated 300 million guilders per year, which is in about the same order of magnitude as Dutch GDP at that time.<sup>819</sup> In French slave trading, one was considered very lucky when average profits of an enterprise were some six per cent.<sup>820</sup> Trade with Africa, where it bought its slaves, took up to fifteen per cent of the ships and thirteen per cent of the tonnage that France devoted to colonial trade in 1788 and some ten per cent of the value of its total international trade.<sup>821</sup> Information about the Portuguese-Brazilian case is very limited. That is unfortunate, as it was the biggest and according to Robin Blackburn “may have been the most profitable branch of the eighteenth-century slave traffic.”<sup>822</sup> Profits in the trade in general were not ‘supernormal’, because it was an open, competitive business on the European side and slaves were bought on a market where supply and demand ruled. Europeans could not fix prices. Here, too, of course one would like to know more about other people involved apart from Westerners. What about the profits of those who sold all these millions of slaves? Very probably, however, all the parties that were involved made ‘normal’ profits.

What about the gains from slave labour? Slavery in this context for Britain first and foremost meant sugar and then from the end of the eighteenth century increasingly cotton, imported from the independent United States. The case of sugar, its production and trade, is a good illustration of how complicated it is to determine what figures about prices mean in a setting that is not one of free and fair competition and to untangle causes and effects in historical analysis. Sugar prices – and those of rum – were artificially high as British sugar barons had a monopoly on the markets of Britain and those parts of America that belonged to the British Empire. Their gains to a substantial part were earned over the back of costumers, mostly from Britain, who were deprived of the possibility to buy cheaper sugar from other sellers. This ‘sugar planter’s subsidy’ amounted to several hundreds of thousands of pounds sterling per year in the third quarter of

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819 I took all these figures from Van Rossum and Fatah-Black, ‘Wat is winst?’ For those who read Dutch, I can also refer to Emmer, *De Nederlandse slavenhandel*. For information on the same topic in English I refer to Postma, *The Dutch in the Atlantic slave trade*.

820 Pétré-Grenouilleau, *Traites négrières*, 318 and 324.

821 Klein, ‘Economic aspects of the eighteenth-century Atlantic slave trade’, 301.

822 Blackburn, *Making of New World slavery*, 391. Strikingly enough, however, Blackburn who devotes so much energy to showing the importance of slavery and slave-trade for accumulation and industrialization in Britain, simply makes this comment in passing and does not even pause to consider what it might mean for his thesis.

the eighteenth century. Only looking at the 'private' gains of sugar barons, at least from a macro-economic perspective, is also rather misleading in another respect: the British taxpayer had to pay the sometimes huge costs involved in defending the sugar islands and their trade against foreign threats. When it comes to determining cause and effect, there is the complicating factor that many slave regions inside and outside Great Britain's empire became good outlets for British products but could only pay for them with money they had earned in selling products to Great Britain. The Navigation Acts turned trade between the 'motherland' and the colonies of the British Empire almost inevitably into a kind of communicating vessels. To count the imports from slave-regions and what the British did with them as well as the export to these regions both as gains from trading with them and having slaves there as Blackburn does in his table printed here on page 260, can easily become a form of double counting. It is very doubtful whether it will ever be possible to determine the exact amount of profits or value added for those sectors where slaves provided the labour force. For the main question at hand here, that fortunately is not necessary. The value added produced and the profits made in selling the slave-produced goods may well have been big enough to have functioned as a lever of riches igniting industrialisation. The substantial amounts of money that were earned in trading and employing slaves could in principle very well, in Eric Williams's own words, have "provided one of the main main streams of that accumulation of capital in England which financed the Industrial Revolution"<sup>823</sup>. But, and that is my main point, finding the money for investment was not a main bottleneck for Britain's economy as *many* sectors could have provided it and escaping from the Malthusian constraints that characterised the old economic regime was not simply and primarily a matter of having more funds. What is relevant here is that you cannot build an entirely new economy on a relatively small sector that only contributes a relatively small sum to total GDP *and*, very importantly, has relatively few backward and forward linkages.

Let us briefly enter the numbers game and look at a very high estimate, by Robin Blackburn, of the profits accumulated via slave trade and slave labour by Britain at the eve of its industrialisation.

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823 Williams, *Capitalism & slavery*, 52. Williams actually in his text often is much more nuanced than many of the defenders of 'his' thesis. See e.g. on pages 105–106 of that same book, where he writes: "But it must not be inferred that the triangular trade was solely and entirely responsible for the economic development. The growth of the internal market in England, the ploughing-in of the profits from industry to generate still further capital and achieve still larger expansion, played a large part."

Table 35: Direct and indirect profits in the triangular trade in the 1770s: a *too* optimistic (i. e. for the British economy) estimate

	£	£
<b>Basic estimates</b>		
<i>Direct profits/surplus</i>		
Plantation profits	1,307,000	
Slave trade profits	115,000	
<i>Subtotal</i>	<i>1,422,000</i>	
<i>Indirect profits/surplus realization</i>		
West Indian trade	1,075,000	
African trade	300,000	
<i>Subtotal</i>	<i>1,375,000</i>	
<b>Grand total</b>		<b>2,797,000</b>
<b>Upper bound estimates</b>		
<i>Direct profits/surplus</i>	<i>1,911,000</i>	
<i>Indirect profits/surplus realization</i>		
West Indian trade	1,915,000	
African trade	300,000	
North American plantation trade	150,000	
Brazil/Portugal trade	60,000	
<i>Subtotal</i>	<i>2,425,000</i>	
<b>Grand total</b>		<b>4,336,000</b>

Source: Robin Blackburn *The Making of New World Slavery. From the Baroque to the Modern 1492 – 1800*, London/New York 1998, 541.

Those estimated *upper bound* and *grand total* £4,336,000 for the profits of the entire triangular trade – which of course is a very broad interpretation of the profits from *slave trade* and *slavery* – would amount to some four per cent of Great Britians's GDP, if we accept the estimate for 1770 of some 100 million pounds sterling. I came across several estimates that were substantially higher.<sup>824</sup> Profits as well as the total amounts of money involved increased substantially in absolute terms up to 1815, but so did Great Britain's population and the size of its economy. Besides that, its price level rose substantially. *Mutatis mutandis* the orders of magnitude of this table also apply for later decades.<sup>825</sup>

824 See O'Brien, 'Political preconditions for the Industrial Revolution'; Steven Broadberry and others <http://www.cepr.org/meets/wkcn/1/1714/papers/Broadberry.pdf> and Mokyr, *Enlightened economy*, 167.

825 Total West Indies planting profits according to Blackburn, *Making of New World slavery*, 538, have to be estimated at some 13.9 million pounds in 1812. He bases this estimate on information he claims to have taken from Colquhoun, *Treatise on the wealth, power and*

Some comments are in order to more realistically assess the importance of the figure provided. Firstly, it is very important that Blackburn in this calculations takes on board indirect profits or as he calls it 'surplus realization' via

...backward linkages, or the inducement to invest in the production of such plantation inputs and transportation equipment as ships, textiles, hardware and foodstuffs; forward linkages, or the inducement to invest in sugar refineries and textile mills which used the output of the export industry; and final demand linkages, or the inducement to invest in metropolitan industries which produced consumer goods for factors in the plantation supply and processing sectors.<sup>826</sup>

This, of course, means that the concept 'profits of the triangular trade' – which already provides a quite 'broad' interpretation of profits of slave trade and slavery – itself is also stretched *to* if not *over* its limits. Applying this strategy systematically, i.e. to every sector of an economy, would in the end lead to absurdly high GDP figures. Secondly, we have to realize that in that figure, all *incomes* are included, but no '*hidden costs*' are deducted: that is, monopoly subsidies paid by consumers to sugar producers and overhead costs for defence.<sup>827</sup> If one wants to measure the impact of the 'New World' and all its ramifications on *GDP* and not on private wealth, that in my view is an omission. On top of that, I do not think it is correct to include all the trade referred to as a full side effect of the New World slavery. In my view, that clearly leads to exaggeration. Finally, one may wonder whether there would have been alternatives. Can one simply deduct the entire income from the triangular trade from national income in case it would not have existed? Would all its inputs then simply have been idle? The net financial transfer from India to Great Britain during the period from the 1770s to the 1820s at its height amounted to little over one million pounds sterling, that is less than two per cent of Great Britain's income in manufacturing, mining and building in 1800 and less than half a per cent of Great Britain's *GDP* at the time.<sup>828</sup>

To attribute great importance to a relatively small sum, a strategy very popular with those who want to attack the 'small ratio's argument', by claiming e.g. "X may not be much as compared to *GDP* but it is as compared to gross investment or net investment", is futile, as it in principle would make *every* rel-

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*resources of the British Empire*, 59 and information with regard to average profits. I am not able to reconstruct his argument and his estimate looking at Colquhoun's treatise and the information it provides on pages 59, 379 and 380. *GDP* then definitely was far over 300 million pounds sterling.

826 Blackburn, *Making of New World slavery*, 533. The quote is from Sheridan, 'Wealth of Jamaica', 59.

827 See the comment on the costs of military 'protection' incurred by the Dutch East Indian Company on page 267.

828 See Esteban, 'British balance of payments, 1772 – 1820', Table 1, page 60.

atively small sum much more important.<sup>829</sup> Here I can refer to Eltis and Engerman, when, in discussing this strategy of ‘magnifying’ the profits Britain made for the slave trade and sugar production, they write: “But what could have been true for the slave trade or sugar could, under the same assumptions, also have been the case for many other economic activities, both at home and abroad.”<sup>830</sup> The claim that “X may not be much as compared to GDP but it nevertheless is very important because it has so many backward and forward linkages” only is a decisive counterargument when other variables that might be important have far less impact in that respect. In this regard, I endorse the position taken by David Eltis and Stanley Engerman: “If the value added and strategic linkages of the sugar industry are compared to those of other British industries, it is apparent that sugar cultivation and the slave trade were not particularly large, nor did they have stronger growth-inducing ties with the rest of the British economy.”<sup>831</sup> There is, however, theoretically at least, a way to support the argument that small incomes from the periphery actually were greater, in the sense that they are more relevant than they appear in pure amounts of money and that is by claiming that early modern Britain, or Europe, had *no* alternative source of income – or nothing that comes sufficiently close to it – for the income it earned in its periphery. Personally I tend to think that this is exaggerated and that in any case to a substantial extent, alternatives at home or elsewhere could and would have been found.<sup>832</sup> The backward and forward linkages of colonial products like sugar and tobacco were quite small. With cotton, things, of course, were different but in this case from the end of the eighteenth century onwards the independent United States became by far the most important supplier, so Britain simply had to pay the same market prices as everyone else and in that respect had no special advantage over other countries.

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829 Let me refer to just three examples amongst many: Blackburn, *Making of New World slavery*, Chapter XII; Pomeranz, *Great Divergence*, 87–88, and Solow, ‘Caribbean slavery and British growth’, 105. See for the logic of the counterargument McCloskey, *Bourgeois dignity*, 222 and 229.

830 Eltis and Engerman, ‘Importance of slavery and the slave trade to industrializing Britain’, 135.

831 Eltis and Engerman, ‘Importance of slavery and the slave trade to industrializing Britain’, the Abstract.

832 Interestingly enough, O’Brien and Engerman in their article think there indeed were *not* many alternatives.

## 14. Intercontinental trade

We began our discussion of the importance of exchanges between Western Europe and in particular Britain – where industrialisation began – by discussing clear cases of ‘unequal exchange’ in which the role of coercion and monopoly is obvious. That does not mean, though, that it would be easy to exactly determine the impact of that coercion. There simply are no ‘real’ market prices with which the ‘manipulated’ prices can actually be compared and often it is not even obvious *that* and *how* prices were manipulated. There is a tendency in historiography to in general identify non-European trade with ‘unequal exchange’ and intra-European trade with ‘ordinary’ trade, even though it is patent that in the latter, there were all sorts of mercantilist intervention. Many parts of ‘the rest’ of the world, however, were not in any sense ‘peripheral’, in the Wallersteinian sense of the word, to Western Europe or Britain when that country began to take-off. Their commercial contacts with Europe, though often closely watched and regulated, in the end were a matter of supply and demand in an exchange in which Westerners did *not* have any special leverage. Large parts of Asia traded with Westerners under no extra-economic pressure whatsoever until far into the eighteenth and in the cases of, for example, China and Japan even the nineteenth centuries. In those two countries, the Europeans were only present on sufferance. The Ottoman Empire still was quite autonomous up until at least the last decades of the eighteenth century and only signed its ‘unequal treaties’, which basically dictated its tariff and custom’s policies, in the 1830s.<sup>833</sup> The United States of America was independent since 1776, so trade connections with that region were ‘consensual’. Buying slaves in Africa, as indicated, was also done under market conditions. Much of the intercontinental trade of the British was not based on coercion but a matter of free exchange. That means that (a) in principle Britain’s actual trade partners could also profit and that, (b) in principle, other parties could just as well have been involved. If Britain profited from such free exchange, in whatever way, that in principle was more an *effect* of economic superiority than a *cause*.

On the other hand, however, large parts of Europe actually functioned as ‘peripheries’ for its north-western core, not – apart from the case of Ireland till at least the first decades of the nineteenth century – in the sense of being politically and formally dependent but in the sense that the British and other west-Europeans often bought products in other parts of Europe that were produced by un-

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833 I here refer to Anglo-Ottoman Treaty of 1838, sometimes referred to as the Treaty of Balta Liman. Duties were set at three per cent on imports, three per cent on exports, nine per cent on transiting exported goods, and two per cent on transiting imported goods. The Ottoman government also agreed to the abolition of all monopolies.

free labour or brought to markets in conditions of un-free exchange. That of course is common knowledge, but the implications of this fact are still ignored or taken for granted in many analyses. A systematic analysis of intra-European core-periphery relationships would be most welcome: a great deal of Britain's ghost acreage, for example, actually was in Ireland and Central and Eastern Europe and *not* outside Europe. To the extent that it indeed imported *subsistence goods* to ease its Malthusian constraints, Britain did so primarily from its Gaelic periphery and parts of Europe like Prussia and Russia over which it had no political leverage whatsoever rather than from the Atlantic region.<sup>834</sup> Imports into Great Britain of grains, meal and flour, to give one example, over the period 1800–1814, amounted to in total twenty-one million quarters, one third from Ireland, one third from Prussia and 'Germany', and the rest from 'Holland', the United States, Russia and other countries.<sup>835</sup> Until 1824–1826, trade with Ireland counted as foreign in the statistics of (Great) Britain. It was quite substantial. Exports of Great Britain to Ireland had a value of about one million pounds in 1772 and about 1.6 million pounds in 1797. That was 9.9 and 9 percent of total exports. Imports from Ireland in those years amounted to 1.4 million pounds and 3.2 million pounds or 10.6 and 13.1 per cent of total imports.<sup>836</sup> In the 1820s, exports to Ireland amounted to more than four million pounds, more than eleven per cent of total exports.<sup>837</sup> Of imported grains, meat and butter in Great Britain in the period 1814–1816 until 1844–1846, some seventy per cent on average came from Ireland. Their value amounted to an average of some ten per cent of the total income of Britain in agriculture, forestry and fishing. On top of that there was the import of a couple of millions worth of livestock.<sup>838</sup>

We have to realise that before the transport revolutions of the nineteenth century, intercontinental trade by and large meant overseas trade on sailing ships. Most of that trade was in the hands of Europeans. The total tonnage of their fleet was low. It is estimated at about one million tonnes in 1600 and about one and a half million tonnes in 1670. At the very end of the eighteenth century, it still was less than four million tonnes. Ships were small. The average tonnage of ships going to Asia from Europe during the early modern era was 600 to 700 tonnes. Oil tankers nowadays can measure as much as 500,000 tonnes. Transport on such ships was slow. During the eighteenth century, it took a ship of the Dutch East India Company an average of 235 days to go from the Netherlands to Batavia. To Canton it was 225 days. Over the entire seventeenth and eighteenth

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834 See Thomas, 'Food supply in the United Kingdom during the Industrial Revolution' or, with basically the same information, idem, 'Escaping from constraints'.

835 Brinley Thomas, 'Food supply', 143.

836 Etemad, *Utilité des empires*, 146.

837 Evans, *Forging of the modern state*, 417.

838 Brinley Thomas, 'Escaping from constraints', 182–183.

centuries, the total tonnage of outbound ships heading for Asia was less than seven million tonnes. Of ships coming back from Asia to Europe, it was only some five million tonnes. Total turnover of the port of Rotterdam alone at the moment is over 400 million tonnes! As indicated, trade over the Atlantic overall became much more important for Europe than trade along the Cape, but it nevertheless is striking that shipping along the Cape in total amounted to less than six per cent, at best, of total European shipping. Even for the most important West European trading countries, intercontinental imports were surprisingly small. At the beginning of Britain's take-off in the 1770s, total overseas imports from the Western hemisphere and Asia, expressed in grams of silver per capita per year, amounted to some 120 grams of silver in the case of Britain, some 170 grams of silver for the Dutch Republic and some 30 to 35 grams of silver for France. Please note: these figures refer to total imports, *not* added value or profit.<sup>839</sup> They are quite flattered as a substantial part of those imports was re-exported, often after some processing that in turn added value.<sup>840</sup> Referring to absolute sums in the end need not always be the best way to show impact. Looking at the amounts of money involved in terms of percentages of GDP can certainly also be enlightening. One indeed often encounters figures in the literature in which total foreign trade, imports or exports are compared with GDP. These are the estimates that have been made for a couple of countries that are of central importance for our analysis.

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839 De Vries, 'Connecting Europe and Asia', 92–93.

840 For Britain's re-exports see Deane and Cole, *British economic growth 1688–1959. Trends and structure*, 320–321, and Evans, *Forging of the modern state*, 416. These two publications together cover the period from 1700 to 1870. In the 1770s re-exports on average amounted to roughly forty per cent of the total value of imports at first costs. In France, too, re-exporting of colonial imports was very substantial. In 1775–77, no less than 77.3 per cent of total colonial imports were re-exported, in 1785–1789, 72.8 per cent. See Blackburn, *Making of New World slavery*, 445. In terms of value, they amounted to 17.7 per cent of total foreign trade in 1717 and 33 per cent in 1787. See Pétré Grenouilleau, *Traites négrières*, 350. The Dutch Republic re-exported two-thirds of its trans-oceanic imports in terms of value in the 1770s. See De Vries and Van der Woude, *First modern economy*, table 10.12. It added ten million guilders in value to those imported goods that it re-exported. The value of total transatlantic imports annually amounted to sixty-two million guilders, which is roughly equivalent to six million pounds sterling.

Table 36: Total exports plus imports as share of GDP, in percentages

	c. 1720	c. 1755	c. 1790	1820	1830	1840	1850	1860	1870
Austria					11.4	14.2	13.2	18.7	29.0
Belgium						19.0	26.7	31.3	35.6
Denmark				7.5	17.5	27.5	36.5	29.7	35.7
France	5.5	14	20	9.8	8.2	10.7	13.0	20.2	23.6
Germany							19.2	23.2	36.8
Netherlands	82.0	84.0	110.0	33.0	25.8	53.4	64.0	96.4	115.4
Spain			16.0		6.0		8.5	10.6	12.1
Sweden					5.7	6.8	13.8	20.0	29.4
United Kingdom	19.0	20.0	24.0	21.4	18.8	25.2	27.8	41.8	43.6
Best guess at total European trade-to-GDP ratio				13.5	11.5	15.4	18.1	24.8	29.9
Ibid., net of intra-European trade					3.8		6.4	8.9	9.2

Source: Kevin H. O'Rourke, Leandro Prados de la Escosura, and Guillaume Daudin, 'Trade and empire' in: Stephen Broadberry and Kevin H. O'Rourke, eds., *The Cambridge Economic History of Modern Europe. Volume I: 1700 - 1870* (Cambridge 2010) 96 - 121, page 106.

When it comes to (Western) European trade with other parts of the world there is a huge amount of literature to which I can refer the interested reader for details.<sup>841</sup> When we look at Britain, this is how Phyllis Deane and William Cole describe the situation there at the time that is crucial for our analysis:

At the end of the seventeenth century [total] domestic exports of England and Wales were between five and six per cent of national income and imports between nine and ten per cent. By the end of the eighteenth century these proportions had more than doubled - to about thirteen per cent and twenty-one per cent respectively - but in the period of rapid industrial growth which followed the end of the Napoleonic Wars the home market seems to have responded more readily than the overseas trade and United Kingdom domestic exports averaged ten per cent or less of national income for most of the first half of the nineteenth century. Imports began to expand in the late 1840s...<sup>842</sup>

841 See for information on Western foreign trade, including Britain and in alphabetical order: Bairoch, *Economics and world history*, Part Two. 'Major myths on the role of the Third World in Western development'; Emmer, Pétre-Grenouilleau and Roitman, *A deus ex machina revisited*; Etemad, *Possessing the world*. The book was originally published in French as *La possession du monde. Poids et mesures de la colonisation, XVIIIe - XXe siècles* (Brussels 2000) and idem, *De l'utilité des empires*; O'Brien and Prados de la Escosura, *Costs and benefits of European imperialism*; O'Brien, 'Foundations of European industrialization'; De Vries, 'Connecting Europe and Asia' and idem, 'Limits of globalization in the early modern world'.

842 Deane and Cole, *British economic growth*, 309 - 310.

For Britain, *total* exports as a percentage of GDP over the period 1780 to 1850 hovered between nine and twenty per cent, total imports between ten and twenty-five per cent.<sup>843</sup>

Actually, however, these comparisons, popular as they are, in a certain sense are quite misleading when it comes to the actual direct contribution of trade to GDP. What should be compared with GDP is not total turnover in terms of money, as is done in all the figures just referred to, but only the *value added* in foreign trade. What is *produced* in trade is only the mark-ups between buying prices and selling prices, as far as they accrue to domestic income, *not* total turnover. That means that one has to deduct the imports used in the production of the exports from those exports to know how much value has really been *added*. The differences can be enormous. The latest figures for the Netherlands referring to 2011 indicate that in terms of value about forty per cent of total Dutch exports consisted of re-exports and only about sixty per cent of value added *in* the Netherlands.<sup>844</sup> We have seen that re-exports were very important for several Western European economies. For the period we are dealing with in this book, overall, Europe's first imports from other continents increasingly consisted of raw materials that were then processed. This meant that the bulk of added value ended in European hands – and was paid for by Europeans. With industrialisation and the transport-revolution an increasing amount of finished manufactured products also found their way into the emerging Third World. To really measure that added value, one should also take into account that in the early modern era in intercontinental trade protection, costs were quite high. To give just one example: for the entire period 1613 – 1792, military expenditure in the East by the Dutch East India Company is estimated to have been 257 million guilders. That is about thirty per cent of all the company's overseas investments.<sup>845</sup> Often it was not or not entirely the traders who paid them, not even in case of the chartered companies that were armed. This means there were many hidden costs carried in particular by the armies and navies of the countries involved. In fact, the highest private gains were often obtained in exchange for the highest social costs. What further complicates an exact assessment of the amounts of income involved is the fact that the prices at which commodities

843 See for specific information on Britain's foreign trade, in alphabetical order: Esteban, 'Comparative patterns of colonial trade: Britain and its rivals'; Engerman, 'British imperialism in a mercantilist age'; Morgan, *Slavery, Atlantic trade and the British economy*; O'Brien, 'Exports and the growth of the British economy from the Glorious Revolution to the Peace of Amiens' (together with Stanley L. Engerman) and idem, 'Inseparable connections: trade, economy, fiscal state, and the expansion of empire, 1688 – 1815'.

844 [http://statline.cbs.nl/StatWeb/publication/?DM=SLNL&PA=70905NED&D1=a&D2=a&D3=\(1-14\)-I&VW=T](http://statline.cbs.nl/StatWeb/publication/?DM=SLNL&PA=70905NED&D1=a&D2=a&D3=(1-14)-I&VW=T)

845 Gaastra, "'Sware continuerende lasten en groten ommeslagh", 87 – 88.

were obtained often were below market level in cases where Europeans could enforce extra-economic pressure, whereas on the other hand the prices at which European (semi-) monopolists sold those commodities in the end in Europe may often have been above market level.

When it comes to accumulation, most attention of course is devoted to the profits the West made in its intercontinental trade. It has often been claimed on the basis of anecdotal evidence that they were 'supernormal', for example by Braudel: "Long-distance trading was not everything, but it was the only doorway to a superior profit level."<sup>846</sup> Now according to even very magnanimous estimates they appear to have been relatively small as compared to total earnings and investments and fairly 'normal' as compared to profits made in other sectors of the economy. I can refer here to recent work by Jan de Vries for the Cape-route trade by the big, chartered companies from Europe,<sup>847</sup> or to various texts by Patrick O'Brien, who shows that even if the profits in intercontinental trade, in his case that with all other continents, would have been supernormal, they would still have been small as compared to GDP of Britain or other major European trade nations.<sup>848</sup> Trade with Asia was more monopolised than that with the Americas, whose importance, on the other hand, for Western Europe, apart from the Dutch Republic, quickly became much bigger over the eighteenth century than that with Asia. In trade with the Americas, Britain of course lost its hold on the USA when they became independent, whereas Spain's government over time increasingly had to 'liberalise' the trade between the motherland and its colonies. Seville lost its position as sole port to Cadiz and in the eighteenth century, several private companies received monopolies for privately trading also from other ports. In the 1760s, major trade reforms began that in 1778 resulted in a situation in which, in principle and with several exceptions, trade with the

846 Braudel, *Civilization & capitalism, 15<sup>th</sup>-18<sup>th</sup> century, II*, 601.

847 De Vries, 'Connecting Europe and Asia', 82–91. According to De Vries annual net profits for the two biggest East India Companies, the Dutch and the English ones, are very difficult to calculate. For the Dutch East India Company, literature speaks of a long-term deterioration of profitability in the eighteenth century. Profits in *the Netherlands* fell steadily from nearly three million guilders in the 1710s to a loss of 87,000 guilders a year in the 1750s. A downward trend also characterised EIC profits. The profit calculations we have for the period from 1710 to 1745 show annual profits of in total 399,000 pounds in the 1710s and of only 164,000 pounds in the period 1740–1745. The return to invested capital by Chaudhuri's reckoning fell from 12.5 per cent per annum in the 1710s to 5.7 per cent per annum in the decade from 1736 to 1745. Compare Steensgaard, 'Commodities, bullion and services in intercontinental transactions before 1750', 15, where he presents figures for net profit rates of thirteen ten per cent for the English company and ten per cent for the Dutch company for the period 1740 to 1745. For some further comments see De Vries, *Economy of Europe in an age of crisis*, 139–144.

848 For O'Brien's view see O'Brien, 'European economic development: the contribution of the periphery' and idem, 'Foundations of European industrialization'.

Americas became fully liberalised for all *Spanish* merchants and even more closed than it already had been for all non-Spaniards.<sup>849</sup> There is no need here to refer to all countries involved. What is striking and relevant in this context is the comment by Niels Steensgaard: “Most companies were failures. Practically all companies were failures ... the problem is why were only few companies very successful, the Dutch and English East India Company?”<sup>850</sup> Even these two companies, I would add, often incurred big losses. The Dutch East India Company in the end went bankrupt, the English one often had to be supported by the state. Increasingly, the money these companies made came not from trade but from ruling territories.<sup>851</sup>

The question that come up when calling something great or small, relevant or less relevant, of course, always is ‘as compared to what?’ As compared to total GDP, every specific economic activity tends to be fairly small. As compared to the monetised part of the economies discussed, the amount of money involved in intercontinental trade and the profits made there, of course already look more impressive. The fact that in the economies of Western Europe, intercontinental trade was the most dynamic sector of trade and even of the economies in their entirety must also have had major consequences. But what does this prove other than that the economies that profited from it were dynamic and ‘knew’ how to trade? In other words, again, is all this not part of what needs to be explained rather than of the explanation?

As we already pointed out earlier, the economic importance of commodities need not be identical to their monetary value. Some commodities have much more economic potential and impact than others. The nature of the goods that Western Europe imported overall during its rise was not such that they could be considered ‘necessities’ that in one way or another were *indispensable* for growth. Think for example of sugar, coffee, tea, cocoa, tobacco, spices, textiles and porcelain, which together formed by far the bulk of total and new imports from outside Europe. They all entered the European markets as (semi-) luxuries, although with the passing of time, they tended to become more ‘normal’ consumer goods. Paying for them meant a drain of ‘good’ money for ‘superfluous luxuries’, regretted and even abhorred by many contemporaries. It, indeed, is easy to imagine that it would have been better for Europe *not* to import them. One may of course also wonder whether certain imported goods might in one way or another trigger development. Some definitely did, first and foremost silk, porcelain and cotton. This does not as such explain why they figured so

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849 Ringrose, *Spain, Europe, and the Spanish miracle*, chapters 4 and 5.

850 See his comment in: Cavaciocchi, *Prodotti e tecniche d'oltremare nelle economie Europee secc. XIII–XVIII*, 717.

851 De Vries, ‘Limits of globalization in the early modern world’, 727–728.

prominently in *Britain's* industrialisation. Many countries imported them and even more could have done so. We already referred to the important effects that the import of overseas commodities had on consumption and production, in particular in Great Britain, when we discussed the consumer revolution and the industrious revolution and the concept of import substitution. We saw that, however important they were, it would be far too simple to claim that importing certain goods from overseas *caused* the Industrial Revolution. Goods imported from overseas also happened to function as sources of revenue for governments that usually taxed them very heavily. But that only shows that many Western European consumers were willing and able to buy heavily taxed goods. Inter-continental trade gave birth to many institutional innovations and clearly was of essential importance for the development of mercantile capitalism and all that implies. But again, that is not simply a matter of being lucky and not a simple automatism, as this formulation might hold: Global trade gives you the chartered company. Others could also have traded worldwide and developed all sorts of institutions.

Let me try and synthesise what seems to have become the current consensus by heavily paraphrasing the conclusions by Colin White in his recent *Understanding economic development* and the main theses and arguments by Paul Bairoch in his *Economics and world history*. I fully endorse their positions. The following quotations are from White's *Understanding economic development*: "The overwhelming weight of the evidence on the quantitative aspect of the external trading sector, and the specific experiences of those countries which have seen the inception of modern economic development, favour a largely internal determination of a successful transition [to modern economic growth]." He claims one should "... focus attention on the internal rather than the external economy. ... The general case is that the external sector represents a market which is small relative to the internal market. ... even in the most favourable cases, the contribution of the external sector does not seem decisive, being at best, only supportive."<sup>852</sup>

The following claims and arguments come from Paul Bairoch's, *Economics and world history*, Part II, 'Major myths on the role of the Third World in Western development.'<sup>853</sup> During the period of 1800 to 1938, total exports from all developed countries were only some eight to nine per cent of their total GNP. Exports to the Third World represented only 1.3 per cent to 1.7 per cent of the

852 For all these quotes see White, *Understanding economic development*, 234–235.

853 See chapter 5: 'Were Third-World raw materials central to Western industrialization?'; chapter 6: 'Were colonial outlets crucial to Western industries?'; chapter 7: 'Was colonialism important in triggering the Industrial Revolution?' and chapter 8: 'The balance sheet of colonialism.' For the thesis that trade is hardly ever the engine of economic growth, see *ibidem*, 136–138. Trade *in the end* is about re-allocation, not about adding value.

total volume of their production; about half of those exports went to colonies. If we confine ourselves to Europe, the figures are somewhat higher. Its exports to the Third World, again over the period of 1800 to 1938, amounted to about 1.4 per cent to 1.8 per cent of GDP. In the exceptional case of Britain, the figure was substantially higher: four to six per cent. For the period in which Britain began its take-off, the 1720s until the 1780s, exports to non-European countries only amounted to some two to three per cent of total demand in Britain. When it comes to imports from the Third World into the developed world, the bulk of them raw materials, we can only conclude that they were not as such crucial to the process of industrialisation. The motor of modern economic growth is energy. Up until the end of the 1930s, the developed world produced more of it than it consumed. It had a sizable net export surplus in it, one of the main exporters being the United Kingdom. The story is very similar for the major minerals. In fact the only type of important raw material for which the developed countries depended on a Third World production surplus was textile fibres, but even here the dependency was limited. We already discussed Britain's imports from regions outside Europe more in detail.

There definitely is no clear general connection between colonialism and the emergence of modern economic growth in the sense that colonies would be a necessary or sufficient precondition for take-off. Even for Britain, where overseas unequal exchange did play a substantial role, such a thesis cannot be upheld, for the many reasons already presented but also because such a thesis does not fit chronologically. Britain had already acquired large parts of its empire, including large parts of India, *before* it industrialised, and had already lost its most important colony, the United States, when it took off, whereas the conquest of several other parts was a *result* of industrialisation rather than a cause. The developed world imported little as compared to its GDP from peripheries. The peripheries, however, exported a lot as compared to their GDP and the impact of their exports on their economies was much bigger and quite often not very positive. That formal and informal colonialism, whatever else it may have done, caused a lot of economic damage in what became the Third World is obvious. It caused deindustrialisation. Much of the industry it did have was in hands of foreign firms and (too) much of its production became concentrated in traditional sectors. Economic globalisation clearly did not per se cause overall global convergence. Globalization in this period of roughly the 1820s until the 1930s overall enhanced the further divergence between rich and poor economies. The reasons why globalisation did or did not increase wealth in non-Western countries, however, could vary. The predicament of several underdeveloped countries may well have been to blame on the fact that they were *not* sufficiently

integrated in the emerging global economy.<sup>854</sup> There however are good reasons to believe that in many cases globalisation and the Great Divergence were closely interconnected in the sense that many countries did *not* profit from the enormous increase in global trade or in any case far less than other countries. In the following paragraphs I will show and explain this for many readers probably quite unexpected connection.<sup>855</sup>

## 15. Globalisation and Great Divergence: How the Third World came into existence

For mainstream economists almost without exception, trade is regarded as positive for economic development and growth. That means that one might expect that with the global trade boom that began in the 1810s when global mass markets began to emerge, all countries involved would profit and global convergence would set in. As Jeffrey Williamson, who is my primary source for my description of the connection between global trade and global divergence, shows, this in many respects and for many countries was *not* the case. What happened? With industrialisation and with increasing incomes in industrialising countries, there was an enormous increase in demand for raw materials and primary products. The transport revolution of the nineteenth century made global trade in basic commodities possible and the overall lowering of tariffs stimulated it. Industrialising countries sought outlets for their cheapening products and therefore opened their own markets while at the same time pressuring other countries to open theirs. The nineteenth century could in this way witness a global trade boom with *improving* terms of trade for countries exporting raw materials and primary products up until the 1870s. The prices of their exports rose, whereas those of manufactured goods exported by developed countries fell. The Prebisch-Singer thesis that there would exist a secular decrease of the terms of trade of primary products, in any case does not apply to this period. In the emerging world economy, there were gains of trade for *all* parties involved. With it emerged a clear global division of labour, the so-called 'Great Specialisation'.<sup>856</sup> In 1880, of total 'Third World' exports ninety-eight per cent consisted of primary products whereas, to give the most striking counterexample, Great Britain's exports consisted of some ninety per cent in manufactured goods as early as the 1830s. This division of labour brought with it a

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854 For a brief overview and comments going in that direction see Lindert and Williamson, 'Does globalization make the world more unequal?.'

855 I will in particular base my thoughts on Williamson, *Trade and poverty*.

856 For this term see Robertson, 'The future of international trade', 6.

division of wealth. The industrialised or at least industrialising countries were rich; the poor countries were those that were *not* industrialised.

Table 37: Trade in primary products: regional shares, 1876–1913 in %

Region	1876–80		1896–1900		1913	
	Imports	Exports	Imports	Exports	Imports	Exports
UK and Ireland	29.7	3.1	25.8	3.9	19.0	6.2
NW Europe	39.3	22.6	45.0	27.6	43.1	25.2
Other Europe	11.2	20.2	10.4	18.1	12.3	14.7
US and Canada	7.2	16.1	8.5	18.7	11.3	17.3
Rest of world	12.6	38.0	10.3	31.7	14.3	36.6
World	100.0	100.0	100.0	100.0	100.0	100.0

Source: A.G. Kenwood, A.G. and A.L. Lougheed, *The Growth of the International Economy, 1820–1960* (London 1971) 98.

Table 38: Trade in manufactures: regional shares, 1876–1913 in %

Region	1876–80		1896–1900		1913	
	Imports	Exports	Imports	Exports	Imports	Exports
UK and Ireland	9.1	37.8	10.4	31.5	8.2	25.3
NW Europe	18.1	47.1	20.3	45.8	24.4	47.9
Other Europe	13.3	9.2	12.2	10.3	15.4	8.3
US and Canada	7.7	4.4	9.6	7.4	12.1	10.6
Rest of world	51.8	1.5	47.5	5.0	39.9	7.9
World	100.0	100.0	100.0	100.0	100.0	100.0

Source: A.G. Kenwood, A.G. and A.L. Lougheed, *The Growth of the International Economy, 1820–1960* (London 1971) 98.

In contrast to what most mainstream economists would expect, the gains of trade were spread very unevenly and we see far more cases of asymmetrical development than of convergence. Overall, of course with differences according to time and place, enormous differences emerged in development and growth between countries focusing on the production of primary products and countries focusing on manufactured goods. This divergence between industrial, wealthy countries and primary products producing, poor countries was not only a global phenomenon. It *also*, as far too often is forgotten or simply ignored, occurred in Europe.

Table 39: GDP growth and composition of exports 1870 to 1939

	GDP per capita			Exports		
	1870	1939	Average growth	Value ('000s)	Primary products (%)	
					1870	1939
Core						
Austria	974	4,123	2.03	1,918	28	36
France	1,858	4,748	1.77	7,000	44	41
Germany	1,913	5,549	2.17	5,017	38	18
Italy	1,467	3,444	1.18	1,096	88	45
United States	2,457	6,568	1.46	4,488	86	48
United Kingdom	3,263	5,979	0.91	11,811	11	24
European periphery						
Denmark	1,927	5,766	1.74	355	96	85
Greece	1,295	2,687	0.94	84	94	94
Norway	1,303	4,108	1.62	217	97	58
Portugal	1,085	1,739	0.73	183	96	61
Russia	1,023	2,237	1.27	2,456	98	82
Sweden	1,664	5,029	1.95	411	91	56
Serbia	822	1,412	0.83	59	96	86
Spain	1,376	2,127	0.73	796	71	84

Source: Jeffrey G. Williamson, *Trade and poverty. When the Third World fell behind* (Cambridge Mass. and London 2011) 186.

Jeffrey Williamson's analysis of the emergence of this gap is solidly neoclassical, apart from his emphasis on increasing returns in industrial activities. Overall, industrialising countries for many decades tended to have higher growth rates than non-industrialising ones. There apparently were – and are – self re-enforcing mechanisms in industrial development. Williamson starts from the fact that in the first decades of the nineteenth century, some countries were industrialised or at least industrialising, whereas others were not. Why this is the case does not concern him in his analysis. The few comments he devotes to the chronology and explanation of the Great Divergence make it clear that he does not endorse the 'surprising-resemblances thesis'. In his view, a substantial income gap between Western Europe and a poorer periphery (a gap in terms of two to one) already existed in 1820. This means that the search for an explanation of that gap must in any case be before the industrial revolution; even, so he claims later on, before 1700.<sup>857</sup> On the other hand the nineteenth century witnessed, as he puts it, an "accelerating divergence".

<sup>857</sup> Williamson, *Trade and poverty*, 2–4.

Thus it is clear that divergence has been with us for 500 years of more, but while it took western Europe many centuries to achieve incomes per capita double those of the periphery in 1820, it took only one century to drive up the figure to 3.5 times in 1913 ... Thus the nineteenth century looks like a period of exceptionally rapid divergence between core and periphery, and that divergence was most dramatic over the half century 1820 to 1870.<sup>858</sup>

This accelerating divergence and the ways in which it might be related to the world trade boom of the nineteenth century, form the subject of his book.

He regards it as quite logical that industrialising rich countries and non-industrialising poorer countries specialised according to their comparative advantages and concentrated on producing what they, relatively speaking, could produce best, manufactured goods or primary products. Manufacturing in non-industrial countries tended to succumb to the competition of modern industry in industrialising countries which means that all the non-industrialising countries tended to 'de-industrialise', or more correctly but less catchy, lose much of their manufacturing sector.

Table 40: Comparative de-industrialisation: Textile import penetration in the Third World, 1800s to 1880s (in %)

	<i>Home textile market supplied by</i>	
	<i>Foreign imports</i>	<i>Domestic industry</i>
India, 1800	-6 to -7	106 to 107
India, 1833	5	95
India, 1877	58 to 65	35 to 42
Ottoman Empire, 1820s	3	97
Ottoman Empire, 1870s	62 to 89	11 to 38
Indonesia, 1822	18.1	81.9
Indonesia, 1870	62	38
Indonesia, 1913	88.6	11.4
Mexico, 1800s	25	75
Mexico, 1879	40	60

Source: Jeffrey G. Williamson, *Trade and poverty. When the Third World fell behind* (Cambridge Mass. and London 2011) 65.

Those countries with un-competitive manufacturing sectors had to find an answer to the challenges that Western industrialisation confronted them with. They by and large did as Eli Heckscher and Bertil Ohlin, building on Ricardo's theory of comparative advantage, predicted: countries with relatively few people and many resources began to focus more on exporting primary resources, whereas countries with relatively speaking many people and few resources began

858 Williamson, *Trade and poverty*, 4. On that same page he uses the expression "accelerating divergence"

to focus on labour-intensive production. If only for those reasons, globalisation tended to have very different effects depending on whether a country was already industrialised or not, but also according to its specific factor endowments and specialisation, and as we will see later on.

Let us first comment on Japan, China and India. The two first countries both had a relative abundance of people and were both relatively short on resources.<sup>859</sup> Japan, after it was 'opened', experienced a trade boom and steeply rising of terms of trade. It began its labour-intense industrialisation. Here apparently, as we will discuss more extensively later on, globalisation in the end had positive effects. The impact of the global trade boom was relatively weak in China. Foreign trade continued to be relatively small as a percentage of its GDP. The country had already been fairly open before 'opening' (as compared to Japan) and, what is quite exceptional, its terms of trade fell. The country's exports were becoming cheaper as compared to its imports. In the first half of nineteenth century, its main import product, opium, was getting more expensive not cheaper like manufactured goods, the 'normal' import goods for non-industrial countries. The price of its main export product, tea, in contrast, did not rise on international markets. There were some de-industrialisation effects, e.g. in cotton spinning, but domestic mills and handicraft still supplied more than eighty-one per cent of the domestic market for cloth in the 1870s and until 1831 England purchased more 'nankeens' (that is, cloth manufactured in Nanking and other places in the lower Yangzi region) each year than it sold British-manufactured cloth to China.<sup>860</sup> The decline of Indian manufacturing had already set in before 1800. The reasons initially were internal: a less productive agriculture and an increase of nominal wages – connected to climate change and the negative effects of the disintegration of the Mughal Empire – caused a loss of competitiveness against the rest of world. The country's competitive edge had already been eroded *before* Britain had developed a full-blown textile industry. Problems only increased when the country was confronted with cheap imports from Britain, with new high tariffs in its export markets, and with its inability to defend its own market with high tariffs because of British rule. Around 1800, the export of Indian textiles amounted to between four and twelve per cent of total production. Williamson thinks six to seven per cent would be the most likely estimate. The country had already then lost much terrain on the world market. Actual de-industrialisation began already early in the nineteenth century, most of it in the first half. De-industrialisation via globalisation was *relatively weak*.<sup>861</sup>

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859 See for Williamson's comments on these two countries, *Trade and poverty*, 71–74.

860 Feuerwerker, *Studies in the economic history of late imperial China*, 125.

861 For de-industrialisation in other emerging Third World countries elsewhere in the world see Williamson, *Trade and poverty*, chapters 5, 6, 7 and 8.

Findlay and O'Rourke, in their survey of the last millennium of economic development, also point at a very substantial growth of world trade over the long nineteenth century. They, however, are less pessimistic about the effects of the global division of labour in that period when it comes to its effects on countries exporting primary products.<sup>862</sup> In their view openness was not an insuperable obstacle to growth or even industrialisation. Overall, so they claim, there was a clear increase in trade in primary products that, be it with big differences according to place and time, did not yet see a clear deterioration of their terms of trade. They too, like Williamson, think that until the last decades of the century, those terms of trade overall *improved*, after which they then, overall, with several exceptions and with difference between different products, deteriorated. They strongly qualify the existence of a 'resource-curse' and of 'Dutch-disease effects' in countries exporting primary products at the time. In many countries, there had never been much 'industry' to begin with, so they simply could not suffer from serious 'de-industrialisation'. In their view, trade could function as an engine of growth. It, so they point out, did in North America that did not suffer a resource-curse at all, as it actually used much of its resources itself. Parts of Latin America profited from the combination of improving terms of trade and a supply of labour that was *not* unlimited to begin with and kept rather limited via immigration laws. The New World preferred labour from Europe, where wages were relatively high and often rising, and therefore had to offer fairly high wages itself. In resource-rich regions in Asia, the supply of labour was often so abundant that wages stayed low. We already referred to the quite different types of logic of development in China and Japan, and to the situation in India that because of its colonial situation in turn also developed differently. Africa's exports, according to Findlay and O'Rourke, increased substantially, but up until then they had been very low. Following in the footsteps of Lewis, Findlay and O'Rourke thus tend, given favourable circumstances, to be more optimistic about the possibilities of resource-led growth in countries where the supplies of land and labour are sufficiently elastic. Often though, they admit, that growth was mainly extensive: the combination of more land and more people led to more production and more export but not necessarily to more real income per capita. In the end, they too cannot ignore that most resource-producing countries fell behind, even if they did not fall back. This means their position turns out to be not that different from that of Williamson after all. Overall, the position that specialising in the production and exports of primary products in the long

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862 See Findlay and O'Rourke, *Power and plenty*, chapter 7, in particular 414–428. See also Roland Findlay and Mats Lundahl, 'Resource-led growth – a long-term perspective: the relevance of the 1870–1914 experience for today's developing economies', WIDER Working Paper 162.

run as a rule had and has negative consequences is finding increasing support amongst economists. We encounter it not only in Jeffrey Williamson's work but also, very eloquently and convincingly, in the work of Erik Reinert, where he points at the difference between 'right' and 'wrong' kinds of specialisation and the product-specificity of economic development.<sup>863</sup>

Williamson is not an institutionalist. Institutions and institutional differences in his view cannot explain when, exactly, certain developments will occur and what will be their intensity. In his analysis, external terms of trade play a very prominent role and thus the question of what commodities are produced and exported. That according to him, however, is not a matter of choice but rather an outcome determined by geography, factor endowments and international demand. Institutions, so he thinks, hardly matter in this respect.<sup>864</sup> In Williamson's view, basically, for most less advanced countries the global trade boom did not and could not mark the beginning of a take-off. To my view, he has a point regarding many regions, but he should in a really global analysis allow for many exceptions – which he would – and not *exclusively* interpret his findings in terms of factor endowments.<sup>865</sup> Several countries industrialised or at least became wealthy *notwithstanding* their factor endowment and their specific comparative advantage and did so in a way in a way that would be inexplicable without reference to their institutional set-up and the policies of their rulers. The work of Sokoloff and Engerman, and of Acemoglu and colleagues, to my view shows that, when it comes to explaining the different trajectories of the economies of the USA and Canada on the one hand and those of Spanish America on the other, factor endowments definitely did matter but were not as such decisive. When it comes to factor endowments and comparative advantage, *no* region in the Americas was destined to industrialise. Adam Smith advised the inhabitants of Britain's colonies, in what were to become the United States, to continue to invest in agriculture where he considered its capital was best and most effectively employed and to not divert it into manufacturing. He thought that would “retard instead of accelerating the further increase of the value of their annual produce, and would obstruct instead of promoting the progress of their country towards real wealth and greatness.”<sup>866</sup> Most economists would now admit that Smith's advice was not very good.

Often in countries specialising in the export of primary products, the supply

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863 See page 92.

864 Williamson, *Trade and poverty*, 213–214 and 190.

865 See for critique of his approach the reviews by Nicolas Crafts in *The Economic Journal* February 2013, 193–197, and by Tirthankar Roy on EH.net, Economic History Association July 2011 [http://eh.net/book\\_reviews/trade-and-poverty-when-third-world-fell-behind](http://eh.net/book_reviews/trade-and-poverty-when-third-world-fell-behind)

866 Smith, *Inquiry into the nature and causes*, 367. This simply means he thought the comparative advantage of the thirteen colonies lay in agriculture.

of labour was so abundant that wages continued to be low, which then did not stimulate efforts at innovation and the development of domestic technology. Low wages normally hamper the development of a domestic mass market, a necessary precondition for the development of strong and broadly based *national* industries, and they normally have negative effects on the level of schooling. In a country such as the United States in the nineteenth century, a country that might have turned into a raw materials-exporting economy, however, labour was scarce. That actually stimulated the development of technology. In principle, exporting staples can give a boost to development, but then the exporting sector must develop sufficient backward and forward linkages with the rest of the economy and create technological and financial spin-off that actually is used *domestically* to diversify the economy. Without diversification and upgrading of production, which require the creation of a domestic banking sector, countries that have a large sector that exports primary products can easily end up in a dead-end street. A strategy that has been successfully employed in several cases to avoid this has been to shut oneself off from expensive imports via import-substitution. This strategy was, as most advocates of the free-market love to forget, for example successfully implemented in industrialising Britain and many other countries that became rich. It could of course only be tried in countries that were in charge of their own economic policies and where elites were willing to shoulder it. But even when that was the case, and in this respect proponents of free trade do have a point, import substitution policies and the creation of a diversified, developed economy failed more often than not. With increasing capital outlays, production units needed to have a certain minimal size for an import substitution strategy to be efficient and it therefore increasingly only made sense in economies with an accordingly large domestic market. Protectionism against foreign competition, a not unproblematic policy anyhow, obviously was not enough to develop industries of one's own. Tariff and money policies could matter, but most of the Third World countries were not autonomous in that respect. Strikingly enough, tariffs in the periphery often were higher than in the core. Latin America already had the highest tariffs in the world at the end of the nineteenth century. Not so much to protect any 'infant industry' but as a form of rent seeking or simple protection for labour-intensive sectors.

One can only conclude that one has to be wary of unspecified general statements about factor endowments and trade, even in connection with institutions. That also shows in the following brief analysis of developments in East Asia, as interpreted by the influential Japanese economist Kaname Akamatsu (1896–1974), who claims that opening up to global trade in that region provided major chances for catching up. He already in the 1930s presented the main elements of his 'flying geese model of economic development', in his words "a sort of for-

mula for the industrial development of less-advanced countries after they have opened trade ports and entered into large-scale trade relations with the advanced Western European countries".<sup>867</sup> It derives its name from the fact that it depicts the relationship between more developed and less developed countries as that of a group of geese flying in formation with the less advanced countries following (and chasing) those ahead of them. The comparison with flying geese suggests that the position of the leading goose will be taken over by one of the following geese. This however is more suggested by the metaphor than actually claimed and in any case is not what happened in practice. All the countries in the Asian formation went through the stages from importing manufactured products, to domestic import substitution, and then export but in that permanent process of upgrading leaders did not necessarily lose primacy, but they did leave those sectors of production where they no longer had a clear advantage and monopoly-profits to others. Important from a global history perspective is the fact that, according to Akamatsu, there were (and are) several of such formations in the global economy in which countries can integrate themselves with Japan leading one in Asia, and the United States and Western Europe leading two other ones. For him global economic history is not a matter of 'the West' versus 'the Rest' or 'North' versus 'South'.

Akamatsu's model clearly is a model of catching-up and I discuss it here because it connects this catching up to what Williamson describes as the global trade boom but, in contrast to Williamson, focuses on the *positive* effects of that trade boom and on *other* countries than Williamson does. For Akamatsu the process of the opening up of the markets of less-developed countries by more advanced countries was a process in which European capitalism "awakened the less developed areas of the world to modern economic development".<sup>868</sup> For him, the imports from those more advanced countries primarily were a challenge, even a necessary condition, for the less advanced countries to catch up. He focuses far less on their potential negative long-run consequences than, for example, dependency theorists or Jeffrey Williamson do and tends to write as if it would be 'logical' for the 'awakened' countries to in several stages catch up.

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867 Akamatsu, 'A historical pattern of economic growth in developing countries', 11. Akamatsu himself often refers to "a wild-geese flying pattern". I took my information about Akamatsu from this article plus his 'A theory of unbalanced growth in the world economy' and from the synthesis in Bachinger and Matis, *Entwicklungsdimensionen des Kapitalismus*, chapter 3.2.

868 Akamatsu, 'A historical pattern of economic growth in developing countries', 3.

Figure 7: The development model of Akamatsu

<i>Stage of Development</i>	<i>Industrial Structure</i>	<i>Trade Structure</i>
1. Stage		
Underdevelopment	Opening of markets by more 'advanced' countries. Destruction of local manufacturing	Import-dependency. Imports of consumer goods from advanced countries. Development of local markets for imported goods.
2. Stage		
Imitation	Beginning of the development of light industries producing consumer goods.	Beginning of import-substitution of consumer goods. Import of capital goods from advanced industrial countries.
3. Stage		
Advance	Development of industries producing capital goods. Copying of products from advanced industrial economies. Competitive advantage because of low production costs and improved quality of products.	Increasing export of domestic consumer goods, but continued dependency on imported capital goods.
4. Stage		
Leadership	Domestic capital goods industry and production of high-quality end products.	Exports of capital goods to countries that originally were more advanced, decreasing exports of consumer goods. Direct investments abroad.

Based on: Kaname Akamatsu, 'A historical pattern of economic growth in developing countries' in: *The Developing Economies. The Journal of the Institute of Economics Volume 1* (1962) 3–25 and taken from Bachinger and Matis, *Entwicklungsdimensionen des Kapitalismus*, 299. The translation in mine.

In his model, the opening-up of less advanced countries puts strong pressure on their domestic production of goods that are also produced by more advanced economies and initiates a process of de-industrialisation. This, however, in Akamatsu's model, triggers a process of import substitution for the imported consumer goods, whereas at the same time the less advanced country begins to import capital goods. The emerging domestic demand for the (new) import goods challenges domestic producers to start producing these themselves. Considering the low overall production costs, it becomes possible to copy products from other countries and increasingly sell them at home and even export them. Meanwhile, one can begin to build up a domestic capital goods industry and start the production and export of advanced consumer goods. Akamatsu's model basically is a stylized description of the successive stages of Japan's economic development after its opening, made possible by its perma-

ment interaction with economically more advanced economies and an ensuing division of labour with them and in Asia.

Although Akamatsu, as indicated, tends to present the process just described as a logical, smooth succession of stages, it actually involves, as he knows and admits, a lot of agency and strategy, the success of which to a large extent, in any case in Japan, depended on the presence of a number of preconditions. This means that in practice many less-developed areas did not – and could not – manage to catch up as Akamatsu suggests they could. In the period before the First World War, the best example of a country that did and the one that Akamatsu normally has in mind in his writings would be Meiji Japan. I, too, will focus on that country, in which catching up and even becoming a leading economy clearly was *not* just a spontaneous process of emulation and import substitution that in turn might be simply explained by its factor endowment. As the goal of my text is not to be encyclopaedic but to illustrate different kinds of ‘logic’ of growth and non-growth, this selectivity is not a problem.

In Japan, certain preconditions were present that were fairly typical for the country and without which success would have been far more problematic. Firstly, a certain mental flexibility was needed. I will only mention a willingness to buy foreign goods and then try and substitute them with domestic products and more in general a willingness – that in Japan even took the form of a genuine eagerness – to learn new ‘Western’ ways, develop a ‘spirit of industrialism’ and modernise the country. Then there is the country’s specific factor endowment. It had a numerous, cheap and very industrious labour force. It also already had a developed market economy and an income distribution that was much less unequal than in many underdeveloped countries, which means that its domestic market could absorb part of domestic industrial production. It, moreover, already had a fairly high level of general education. Additionally, Meiji Japan had acquired a state that infrastructurally was very strong<sup>869</sup> and had an efficient, large bureaucracy that could effectively implement and find wide support for its policies of ‘Fukoku kyōhei’, meaning ‘rich country and strong army’. The government was not and did not want to be dependent on foreign capital. Basically, the country’s development under the Meiji was a matter of domestic capital, domestic firms and domestic entrepreneurs. Japan’s population had been used to paying fairly high taxes under Tokugawa rule and now much tax revenue was used to directly or indirectly support development, i.e. for creating material infrastructure, including (model) factories and funding education and the import of capital goods. Government in this case could not erect a protective wall of tariffs. That was prohibited by the unequal treaties, which were imposed on the country in the years 1854–1858 and were only abrogated at the very end of Meiji

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869 See for that concept pages 378–379.

rule in 1911. But, all in all, this is a series of pre-conditions that set Japan – and several other Asian countries later on – very much apart from most less-advanced countries and that indicates that there was far more to its economic modernisation than just being opened to trade.

The example of Japan, in my view, is fascinating as it shows how in actual processes of development and growth mono-causal approaches fail. What happened to the Meiji-economy is not simply a matter of specific factor endowment (abundant cheap labour and scarce resources), the presence of the right human capital (hard working, skilled labour), capital accumulation ('forced saving' via high taxes), a division of labour and trade (the opening up of the country to international competition), institutions (the presence of a market economy and a developmental state) and a certain culture (economic nationalism and an industrial spirit) but the combination of all these factors. For many countries – including 'peripheral' countries in Europe – trade acted more as a *trigger* of relative impoverishment than as an engine that got modern economic growth started. Expanding global trade of course could and did contribute massively to growth in parts of the global economy, but even there, I would not regard it as the actual *engine* of modern growth. The best general rejection of that claim can be found in the book by Deirdre McCloskey *Bourgeois virtues*, where she convincingly shows that foreign trade – and global exploitation – cannot have been the main causes of Britain's industrialisation in particular and the 'rise of the West' in general. Trade *ceteris paribus* is about reallocating production to its existing optimum, but does not as such shift that optimum *itself*. This means that absent *technical and organizational change* the increasing returns caused by specialisation will necessarily reach their limit fairly quickly.<sup>870</sup> In the pre-industrial world, the ability to extend the market and to determine which gains were possible with trade was always quite confined, considering the very high costs of transport and communication. The tyranny of distance that characterised that world may be a thing of the past but not the impact of distance per se. Many goods and services are not tradables. Even now you do not go from Vienna to a hairdresser in Mongolia, even if he is cheaper. Most countries continue to trade more with countries nearby than with countries far away. In that respect again, the question of why *foreign* trade is so important arises. If a few hundred thousand customers in the West Indies make such a difference for Britain's economic development as, for example, Blackburn or Pomeranz claim, then what to think of the over three-hundred million customers on China's domestic markets? But even on a market that would be unlimited, the gains of trade in the end are limited if lacking innovation. This of

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870 McCloskey, *Bourgeois dignity*, chapters 23–29.

course is not meant to deny that the extension of the market can in principle be an enormous stimulus for innovation.

Let me conclude these paragraphs on accumulation over (unequal) exchange with a couple of general synthesising comments in which the fundamental question of free trade versus protectionism will also be separately addressed. The major cause of the Great Divergence does not reside in the existence of major differences in the availability of physical or monetary resources between those countries that became rich and those that stayed poor. In several advanced organic economies, the availability of these resources *as such* was not a major impediment for taking off. The resources to make a take-off possible in principle could have been mobilised. In my view, the importance of international trade to the Great Divergence therefore does not reside in the accumulation it might have facilitated for countries that 'made' it. Trade, of course, provides all sorts of gains. But even if a country earned much by trade, what does that mean as an *explanation* of its economic primacy? As indicated, trading in a setting of free and fair competition is an economic activity that yields most to those who are best at it. Everyone could do it in principle: one cannot 'blame' someone for doing it or turn it into an unfair advantage *per se*. It is a 'moveable feast' as the expression goes. The French, or for that matter the Chinese or Indians, could also have traded more with others.

It is clear, however, that *without* expanding demand the expanding supply that characterised Britain's Industrial Revolution – and that characterises modern economic growth in general – would have been useless and that growth would then have petered out. Much of that expanding demand was abroad. It is also clear that much of Britain's increased specialisation and exports would not have been possible without imports. Findlay and O'Rourke use this angle to claim that, in the end, trade was fundamental for the first industrial revolution, so it is relevant to reconstruct their argument.<sup>871</sup> In their view, foreign trade ensured that technological change translated in a more sustained growth experience than otherwise would have been possible. Without its possibilities to import and export – much of the latter facilitated I would point out, by the fact that the prices of the exported manufactures fell – Britain's growth would have come to a halt during the eighteenth century. When it comes to technological innovation, the importance of which they certainly do not ignore, they claim that this at least to some extent also depended on the openness of the economy. Without the growth of trade, the incentives to innovate would also have been much smaller. That sounds quite convincing and I think it is even true. But what does it mean for an *explanation* of the Industrial Revolution as it occurred in Britain? Some comments are in order here. Without the imports and exports that

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871 Findlay and O'Rourke, *Power and plenty*, chapter 6.

trade provided, growth would have hit a ceiling, so Findlay and O'Rourke claim. But that of course applies to *all* countries in the world. Why exactly did Britain have the trade it needed? Are Findlay and O'Rourke not simply *assuming* what they have to *explain*? Most of the growing exports went to countries that *voluntarily* bought British goods because they apparently were value for money. One must be wary not to exaggerate the importance of non-consensual trade in the entire trade of Britain during its take-off. In my comments on the 'windfall advantages' that, according to, for example, Pomeranz, Britain supposedly owed to its ghost acreages, I will extensively discuss and criticise the way of arguing that underlies the claims by Findlay and O'Rourke as well as Pomeranz and his followers in this respect.<sup>872</sup> Besides, but more about that later too, if, as they claim, British military success artificially extended Britain's markets and was therefore so important in explaining why Britain became the first industrial nation, then how can we explain that military success? Is that not in the end largely a matter of disposing over more resources? When they state that innovation was stimulated by Britain's openness and its growing markets, one can of course immediately ask why in the eighteenth century innovation would not have been stimulated in the Netherlands or in France, a country where at times intercontinental trade was growing even faster than in Britain, or why the enormous growth of China's domestic market had not provided a stimulus for Chinese innovators.

If one per se wants to regard 'exchange' in the widest sense of the word and the accumulation it made possible as the motor of economic growth and more specifically of modern economic growth – which I do not think it is – the question would simply become: Why were certain countries that 'happened' to all lie in the West so good at (global) trading that it provided them with the wherewithal to take off and to sustain their growth? The answer can then only be something that made their economies more efficient in terms of producing, trading or both. This means that if trade were *the* or *a* major cause of economic success, the relevant question would simply become what made that trade so successful. Things, of course, are different to the extent that the 'exchange' we are talking about was *unfair*, i. e. to the extent that coercion and manipulation would be at the basis of Western advantage in it. For certain exchanges with certain regions, this definitely was the case. The next obvious question is how this rather small part of the world in terms of population and surface that we call 'the West' – basically until the 1850s only Western Europe – could successfully and profitably apply all that coercion. At the end of the eighteenth century, when the real divergence set in and Great Britain began its age of industry and empire, the world had about one billion inhabitants; Great Britain had some ten million! The

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872 See page 290–298.

other major European colonial nations also were dwarfs when it comes to population and size. The Netherlands then had about two million inhabitants, Portugal some three million, Spain some eleven million and France, in the European context a giant, some thirty million. The successor states of Mughal India that Britain confronted and that one by one were defeated or cajoled into some kind of submission, around 1800 together had over 150 million inhabitants. Bengal, which after the battle of Plassey of 1757 provided Great Britain with such a handsome income, had over thirty million inhabitants, more than France, whereas the population of England, Wales and Scotland combined at the time will have been no more than seven million. This was at a time that Great Britain had no technological advance whatsoever on Indian armies. The impact of industrialisation in warfare only began to be felt after the Napoleonic Wars. When Great Britain confronted China in the first Opium War, that country had some 400 million inhabitants and Great Britain some twenty million. Great Britain sent a couple of thousand troops and a couple of steam ships to China and it won.<sup>873</sup> If the thesis would be that coercion played a role in Britain becoming the first industrial nation – which to my view it certainly did – the question would simply become how such a small country with such a small population could become so powerful, without as yet any clear technological advantage. If Britain industrialised because it was a centre exploiting a periphery, then how did it manage to become centre? Even when India was incorporated in the British Empire, that entire empire still had fewer inhabitants than China. In providing an explanation for this fact institutions and institutional efficiency and strength must have played a major role. Britain as a state and as an economy apparently had an enormous and concentrated infrastructural power.

In my view, the fundamental gains of trade or, more broadly, ‘exchanges with the external world’, when it comes to fostering development are not entirely, and I would even think not primarily, confined to ‘accumulation’. They can also reside in the more general positive effects that openness in terms of trade intensity *can* have on an economy. Countries with higher trade shares are likely to grow faster than other countries. Britain had a relatively open economy in the

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873 The question why the West already had a military strength that enabled it to conquer so much of the world before it had really industrialised its warfare, has fascinated many scholars. Westerners were already ruling over thirty-five per cent of the entire globe by 1789. Their warfare was only really ‘industrialised’ from the Crimean War (1854–1855) onwards. I regard the following texts as very informative: Black, *Military power and the fate of continents*; Black, *War in the early modern world*; Hanson, *Why the West has won*; Headrick, *Power over people and Tools of Empire*; Hoffmann, ‘Prices, the Military Revolution, and Western Europe’s comparative advantage in violence’ and ‘Why was it Europeans who conquered the World?; Lynn, *Battle*; Parker, *Cambridge Illustrated History of Warfare*, and Thompson, ‘Military superiority thesis’. For the industrialisation of Western warfare see e.g. Murray, ‘Industrialisation of war, 1815–1871’ and Boot, *War made new*, 109–204.

sense that its ratio of imports and exports to total GDP was far higher than in huge empires like those of the Qing, the Mughals and their successor states, the Ottomans, or Tokugawa Japan or Korea.

But one has to be careful in using the word ‘openness’ and always take the context into consideration. The word can refer to trade intensity but also to the level of barriers to foreign trade. When it comes to openness in terms of trade intensity we have seen that in the specific setting of the long nineteenth century, let us say from the French Revolution to the First World War, globalisation and a further opening of the economy for many countries could easily lead to de-industrialisation and relative impoverishment. Apparently, the effects of globalisation for different parts of the world could be very different. In referring to openness in terms of the existence of trade barriers, it is striking that, in contrast to what mainstream economics predict, there is no clear relation between this openness and growth in the sense that countries with low protective tariffs would have high growth. Far from it, there are a surprisingly large number of examples where the opposite is the case. In the case of intercontinental trade, the rise and primacy of the West must not simply be identified with the rise of free trade and openness. One can only agree with Findlay and O’Rourke when they write that “the association between openness and growth becomes more blurred when individual country performances are examined” and add that “simple mono-causal relationships between openness [in terms of low trade barriers] and growth are not supported by the data”.<sup>874</sup> Openness, on the other hand, has not been an insurmountable barrier to industrialisation, as the history of Japan in the nineteenth century shows. The thesis that protectionism would in principle be bad for economic growth is not supported by historical data. It can be harmful, but that need not necessarily be the case and apparently often it indeed wasn’t. Much, if not everything, depends on the circumstances, the kind of protectionism and its duration.<sup>875</sup> It should in any case not permanently keep foreign competition out. In the end, the real litmus test to decide whether production is efficient is whether it can compete on the world market. To permanently shield it off inevitably will lead to non-optimal outcomes. For the long nineteenth century, that for us is the most relevant period, there are clear indications that protectionism did not always have a negative impact on the economies of countries that applied it; far from it, this is particularly true for countries that were taking off or had already reached a high level of wealth. On the other hand, free trade very

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874 Findlay and O’Rourke, *Power and plenty*, 521.

875 See e. g. Bairoch, *Economics and world history*, chapters 2, 3, and 4; Ha-joon Chang, *Kicking away the ladder*, passim; Reinert, *How rich countries got rich*, passim, but see for example chapter two, where on page 60, quoting his landsman John Sannes he writes: “New industries need(ed) tariff protection, but the tariffs should gradually become superfluous.” and Appendix 4.

often did not have clear positive effects on the economies involved, in particular not in case of Third World countries.<sup>876</sup> For what was becoming the Third World, Bairoch even as goes as far as to claim that trade liberalism meant its “road to underdevelopment”.<sup>877</sup> Apparently there is ‘good’ and ‘bad’ protectionism.

Figure 8: Two ideal types of protectionism compared

<i>East Asian: ‘Good’</i>	<i>Latin American: ‘Bad’</i>
Temporary protection of new industries/ products for the world market	Permanent protection of mature industries/ products for the home market (often very small)
Very steep learning curves compared to the rest of the world	Learning that lags behind the rest of the world
Based on a dynamic Schumpeterian view of the world – market-driven ‘creative destruction’	Based on a more static view of the world – planned economy
Domestic competition maintained	Little domestic competition
Core technology locally controlled	Core technology generally imported from abroad/assembly of imported parts/ ‘superficial’ industrialisation
Massive investment in education/industrial policy created a huge demand for education. Supply of educated people matched demand from industry	Less emphasis on education/type of industries created did not lead to huge (East Asian) demand for education. Investment in education therefore tends to feed emigration
Meritocracy – capital, jobs and privileges distributed according to qualifications	Nepotism in the distribution of capital, jobs and privileges
Equality of land distribution (Korea)	Mixed record on land distribution
Even income distribution increased home market for advanced industrial goods	Uneven income distribution restricted scale of home market and decreased competitiveness of local industry
Profits created through dynamic ‘Schumpeterian’ competition	Profits created through static rent seeking
Intense co-operation between producers and local suppliers	Confrontation between producers and local suppliers

876 See e.g. Bairoch, *Economics and world history*, chapters 2, 3, and 4, and Findlay and O’Rourke, *Power and plenty*, 395 – 402.

877 Bairoch, *Economics and world history*, 44.

(Continued)

<i>East Asian: 'Good'</i>	<i>Latin American: 'Bad'</i>
Regulation of technology transfer-oriented towards maximizing knowledge transferred	Regulation of technology transfer-oriented towards avoiding 'traps'

Source, Erik S. Reinert, How rich countries got rich ... and why poor countries stay poor (New York 2007) 311 – 312.

To illustrate how context-dependent relations between openness and growth are, let me just refer to the results of research done by Halit Yanikkaya who looked at the connection between trade openness and growth in some 100 developed and developing countries over the period 1970 to 1999. The author used the two trade-openness measures between which I also distinguish in this text. This is from the Abstract:

The regression results for numerous *trade intensity* [italics mine] ratios are mostly consistent with the existing literature. [i.e. they find a positive link between trade-intensity and growth] However, contrary to the conventional view on the growth effects of *trade barriers* [italics mine] our estimation results show that trade barriers are positively and, in most specifications, significantly associated with growth, especially for developing countries...<sup>878</sup>

Although trade did not actually make Third World countries poorer in the nineteenth century it can hardly be called a motor of real growth and definitely did not prevent them from falling behind, so here too apparently historical circumstances matter a lot. With regard to the effects of trade barriers the author comes to these conclusions that I think are valid not just for the period he studied:

Thus, our results actually provide considerable evidence for the hypothesis that restrictions on trade can promote growth, especially of developing countries under certain conditions. It is crucial to note that in this study, we have no intention of establishing a simple and straightforward positive association between barriers to trade and growth. Rather, our main goal is to show that there is no such relationship between trade restrictions and growth. On the contrary, this relationship mostly depends on certain characteristics of countries. In other words, restrictions on trade can benefit a country depending on whether it is a developed or developing country, whether it is a big or small country, and whether a country has comparative advantage in those sectors that are receiving protection.<sup>879</sup>

Based on these figures, we may well argue that the successes of East Asian economies over Latin American economies could probably be due to the fact that incentives for

878 Yanikkaya, 'Trade openness and economic growth: a cross-country empirical investigation'.

879 Yanikkaya, 'Trade openness and economic growth', 84.

exporting sectors and import-competing sectors have been evenly distributed in East Asian economies but there have been a strong bias favouring import competing sectors in Latin American countries.<sup>880</sup>

Consequently, we believe that the question that should be addressed is actually not that of open economies versus closed economies but rather what kind of government intervention or trade policy is better. Our overall estimation results for trade barriers clearly indicate that there is no simple and straightforward relationship between trade restrictions and growth, as the existing literature claimed.”<sup>881</sup>

When it comes to openness in overall, general terms, meaning the extent to which a country is confronted at home and abroad with new products, new contacts, new knowledge and ideas, and took up the challenges and possibilities this provided, Britain of course was a far more open society than e.g. China. In this broad sense it profited far more from globalisation, the more so as it was one of its main actors instead of being acted upon.

## 16. Ghost acreages

In recent literature dealing with the Great Divergence, the importance of globalisation and in particular of the ‘periphery’ for the rise of the West tends to be discussed less in terms of sheer accumulation than in terms of the ‘ghost acreage’ it provided. This argument is particularly prominent in the work of Kenneth Pomeranz. The concept was first introduced by Georg Bostrom<sup>882</sup> and first used in the context of the problem discussed here by Jones in his *European Miracle*.<sup>883</sup> We will use it here to refer to the additional land that a country would need from *internal* sources to provide that net portion of the sustenance of its economy that it actually derives from sources *outside* its boundaries – including sustenance from the sea – or in case of fossil fuel from underground sources. According to this definition, ghost acreage is a kind of ‘phantom carrying capacity’. The recent focus on ghost acreage is to a large extent a logical consequence of the tendency to view the Industrial Revolution as an escape from Malthusian constraints. In the end, those constraints were all a consequence of the limited availability of (useful) land. Escaping from those constraints then has to involve increasing the amount of such land, by making use of the sea and in particular foreign or ‘subterranean land’.<sup>884</sup>

880 Yanikkaya, ‘Trade openness and economic growth’, 78.

881 Yanikkaya, ‘Trade openness and economic growth’, 78.

882 See e.g. Borgstrom, *Hungry planet*. For a ‘precursor’ see Webb, *Great Frontier*.

883 See chapter 4 of the book: ‘The discoveries and ghost acreage’.

884 Sieferle, *Subterranean forest*.

Table 41: Britain's foreign trade (without Ireland), 1784–1846

	1784–86	1814–16	1844–46
<b>Imports</b>			
Raw materials £s (%)	9,585 (47.0 %)	36,408 (56.2 %)	51,033 (62.2 %)
Foodstuffs £s (%)	8,657 (42.5 %)	27,602 (42.6 %)	27,386 (33.4 %)
Manufactured goods £s (%)	2,144 (10.5 %)	731 (1.1 %)	3,544 (4.3 %)
<b>Total</b>	<b>20,386 (100 %)</b>	<b>64,741 (100 %)</b>	<b>81,963 (100 %)</b>
	1784–86	1814–16	1844–46
<b>Exports</b>			
Raw materials £s (%)	867 (6.8 %)	1,460 (3.3 %)	5,177 (8.9 %)
Foodstuffs £s (%)	1,165 (9.2 %)	4,995 (11.2 %)	1,809 (3.1 %)
Manufactured goods £s (%)	10,658 (84.0 %)	38,019 (85.5 %)	51,434 (88.0 %)
<b>Total</b>	<b>12,690 (100 %)</b>	<b>44,474 (100 %)</b>	<b>58,420 (100 %)</b>

Source: Joel Mokyr, *The enlightened economy. An economic history of Britain 1700–1850* (New Haven and London) 168.

The social saving, i. e. the benefit to society provided by ghost acreage, actually can be measured. For coal as source of heating that can be done in terms of the amount of land needed for growing timber to yield the equivalent in heat. As early as 1815, coal, according to Pomeranz, provided Britain with ghost acreage of fifteen to twenty-one million acres.<sup>885</sup> He estimates the total amount of its arable land – in 1800 to be precise – at around seventeen million acres.<sup>886</sup> The importance of coal resided not only in its capacity to generate heat as fuel and cokes; with the invention of the steam engine it could also provide steam power. The steep rise in productivity in manufacturing – or for that matter in transportation – would have been impossible without it. The social saving of steam power can also be estimated, this time in terms of what would then be ‘ghost labour’. Let us assume that one horsepower equals the labour power of ten adult men.<sup>887</sup> This of course is an estimate that ignores the fact that steam power, in contrast to a human labour force, in principle – and normally also in practice – is available the entire day. It does not get tired, does not strike, drag its feet or contradict. Steam-power is more ‘reliable’ and constant than human labour power, and can accomplish things that humans are incapable of, whatever their

885 Pomeranz, *Great Divergence*, 276. Compare Wrigley, *Continuity, chance and change*, 54–55.

886 Pomeranz, *Great Divergence*, 275. Overton, *Agricultural Revolution in England*, 76, estimates it was only some 11.5 million acres, as does Robert C. Allen in his ‘Agriculture during the Industrial Revolution’ in: Floud and Johnson, *Cambridge Economic History of Modern Britain*, 96–116, page 104.

887 This is an estimate. I came across several different estimates in the literature, but this one seems to be quite commonly accepted and not extremely high or low. See for some discussion and this estimate, Smil, *Energy in world history*, 9.

number or effort. Besides, per entity produced it is cheaper than human labour otherwise it would not substitute it. The impact of steam-power thus was even much bigger than is suggested in my comparison.

Table 42: Steam horsepower and horsepower per person in terms of labour-units equivalents. The figures are rounded.

		<i>Working hours of British labour</i>	<i>Total population</i>	<i>Steam 'slaves' per Great Briton</i>
1840	620,000 HP = 17 million labour units equivalents	9 hours per day over the entire year	18 million	0.9
1870	4,040,000 HP = 121 million labour units equivalents	8 hours per day over the entire year	26 million	4.5
1896	13,700,000 HP = 411 million labour units equivalent	8 hours per day over the entire year	35 million	11.7

All figures with regard to horsepower are from David S. Landes, *The unbound Prometheus. Technological change and industrial development in Western Europe from 1750 to the present* (second edition: Cambridge 2003; originally 1969) 221. For working hours in Great Britain, I have based myself on the figures in Hans-Joachim Voth, 'Living standards and the urban environment' in: Floud and Johnson, *Cambridge Economic History of Modern Britain*, 268 – 294, page 278. According to his data, around 1840, working hours per year in cotton mills amounted to some 3400. In 1870 that figure had become lower than 3000. For the end of the century it was fairly similar. Again, my facts are stylised and only intended to show orders of magnitude.

That by 1896, engines in Europe and the United States alone provided no less than fifty eight of the sixty-six million horsepower made available by steam engines in the entire world, of course is quite telling.

This book intends to give a comparative analysis of several possible causes of the Great Divergence. That means it would be quite interesting to compare the extent to which Britain could profit from the labour power provided by steam engines in terms of 'steam slaves' with the extent to which it could profit from 'real slaves'. Again, we can only provide rough orders of magnitude, but even so the figures are telling. In total, over a period of more than two centuries, some 2.5 million slaves were imported into Britain's colonies, a figure that includes the slaves who were imported into the United States *after* it had become independent. Of course, it is not easy to exactly determine how many of them were working at one specific moment in time, but the following figures for the year 1800 would not be controversial as an approximation. For that year, it is estimated there were some 600,000 slaves in the British West Indies and some

150,000 in colonies occupied by Britain.<sup>888</sup> The total population of England, Wales and Scotland at the time was 10.4 million. That would mean that at that moment about 0.07 slave was available per Great Briton, assuming – which of course is a substantial exaggeration – that all slaves would be exclusively working to produce for Great Britons. If we would add all the 857,000 slaves living in the USA and assume they too were all working exclusively to produce commodities for Great Britons, that would mean there were 0.15 slaves working per inhabitant of Great Britain. This is a very ‘optimistic’ estimate (i. e. from the perspective of Britain’s economy!). Even slaves on plantations spent a substantial amount of their time providing for their own subsistence and in total worked ‘only’ 2500 to 3000 hours per year for their owners, which is less than British labourers in their factories did for their employers up until at least the 1850s; of course, not all their produce was exported to Great Britain. But that is fairly irrelevant to the main thrust of my comparison. For the year 1812 – 1813, we have the figure by Patrick Colquhoun who claims there then were 1,147,346, as he calls it, un-free ‘negro labourers’ in the British Empire, i. e. in the West Indies plus the colonies and dependencies in Asia.<sup>889</sup> The total population of Great Britain at the time would have amounted to some 12.5 million people. That would mean some 0.09 slaves per inhabitant of Great Britain. If we would assume that all slaves in the United States at that moment (more than one million) would spend all their working hours for Great Britain that would, in total, bring the figure at 0.2 slaves per inhabitant of Great Britain. To put things in an international perspective: the million and a half slaves working in Brazil in 1800 meant that, under the same assumptions, there was one slave for every two Portuguese. The situation for Spain was again completely different. Whereas the motherland had over ten million inhabitants in 1800, there were ‘only’ 250,000 slaves in its American colonies. Britain did not (yet) substantially profit from those slaves, as trade contacts with Latin America, apart from some cotton imports from Brazil, first a Portuguese colony and from the 1820s onwards an independent country, were negligible.

When Great Britain granted full emancipation to its slaves in 1838, their number was 750,000, in comparison with a population at home of some eighteen million.<sup>890</sup> The country put an end to its slave trade in 1807 and abolished slave labour *in its realm* in 1834 i. e., apart from, India, where slavery was not abolished until 1843. This of course did not immediately result in its demise.<sup>891</sup> For India, the number of slaves in the 1830s has been estimated at between eight to

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888 See for these and the following figures with regard to the number of slaves in 1800, Blackburn, *Making of New World slavery*, 581.

889 Colquhoun, *Treatise on the wealth, power and resources of the British Empire*, 7.

890 Walvin, ‘Freedom and slavery and the shaping of Victorian Britain’, 246.

891 Stein, *History of India*, 216 – 220.

sixteen million, but hardly any of them were working to export goods as in the USA or the Caribbean. After 1800, the number of slaves in the United States increased steeply to 1.5 million in 1820 and about four million in 1840, a number that hardly changed until Abolition. If we assume those American slaves worked for Britain for three quarters of their time, they as well as the slaves emancipated in 1838 would still ‘only’ have provided Great Britain with about 0.20 slaves per inhabitant. British cotton imports from the USA increased steeply. Whereas about one third of Britain’s cotton import came from the United States in 1800, that was about three-quarters in 1840.<sup>892</sup> Until slavery was finally abolished there in the 1880s, yet another 1.7 million slaves were transported to Brazil and 700,000 to the Spanish Antilles. Many of them also would have produced for Britain at some moment in time. Considering the steep increase in Great Britain’s population this, however, certainly will not have increased the ratio of slaves to inhabitants of Great Britain. This following table indicates the importance of several regions of the world for Great Britain in terms of exports and imports. It provides at least some indication of how important slave labour there was for Great Britain.

Table 43: The importance of several regions for British trade and in percentages of total trade in millions of pounds

<i>Export</i>	1750	1805	1855	1875	1913
Europe	8,73 (77)	15,67 (51)	31,80 (30)	90,4 (37)	181,7 (25)
North America	1,38 (12)	8,00 (26)	20,2 (19)	30,9 (13)	54,0 (8)
West Indies	0,55 (5)	4,15 (14)	3,2 (3)	6,2 (3)	5,1 (1)
South America	–	–	9,4 (9)	18,3 (7)	54,0 (8)
Asia	5,1 (5)	1,67 (5)	37,3 (36)	93,8 (36)	360,0 (52)
Africa	0,16 (1)	0,99 (4)	2,6 (3)	7,4 (3)	38,6 (6)
<b>Total</b>	<b>11,33 (100)</b>	<b>30,48 (100)</b>	<b>104,5 (100)</b>	<b>247,0 (100)</b>	<b>693,4 (100)</b>

<i>Import</i>	1750	1805	1855	1875	1913
Europe	3,6 (50)	10,00 (39)	52,7 (34)	156,4 (39)	311,2 (38)

892 Etemad, *Utilité des empires*, 145.

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<i>Import</i>	1750	1805	1855	1875	1913
North America	0,86 (12)	2,06 (8)	30,40 (20)	79,8 (19)	173,2 (21)
West Indies	1,52 (21)	7,46 (29)	6,5 (4)	9,7 (24)	6,1 (1)
South America	–	–	12,2 (8)	25,1 (6)	73,7 (9)
Asia	1,10 (16)	6,07 (24)	47,6 (31)	124,5 (30)	227,0 (28)
Africa	0,03 (1)	0,11 (0)	5,1 (3)	8,6 (2)	22,9 (3)
<b>Total</b>	<b>7,07 (100)</b>	<b>25,7 (100)</b>	<b>154,5 (100)</b>	<b>404,1 (100)</b>	<b>814,1 (100)</b>

Source: B.R. Mitchell and Phyllis Deane, *Abstract of British Historical Statistics* (Cambridge 1962) 309–327.

Pomeranz clearly has a point when he emphasises the importance of coal as a provider of ghost labour. We must, however, not forget that having *coal*, which is so central to Pomeranz's claims, of course is not identical to having *steam engines*. Without science and technology, the 'geographical good luck' of coal would have been confined to having more cheap fuel, i.e. for as long as one managed to keep mines dry without steam pumps.

What these figures do show, although they are only rough estimations, is the enormous importance of steam power – which consumed coal – for the development of Britain's economy as compared to that of slave labour and to illustrate that steam power presented absolutely unprecedented and in an organic economy simply previously unthinkable means of increasing production. The importance of 'steam slaves' dwarfs that of 'real slaves'.<sup>893</sup> The figures of course are in no way meant to present slavery as less reprehensible. They on the other hand do show that the importance of un-free labour was and for a long time continued

893 A similar calculation could be made for 'steam horses': In the late nineteenth century, some 30,000 to 40,000 km<sup>2</sup> would have been required as farmland just to feed the 1.5 to two million horses needed to replace trains for transport of goods. That is one sixth of Great Britain's total surface. Less would be needed if canals and sea routes were used too. Replacing transport by passenger trains (160 billion km per year) would take around three million horses, needing 60,000 km<sup>2</sup> of farmland just for their fodder. Taking them together, even in a low estimate over 80,000 km<sup>2</sup> would be needed just for fodder to replace the railroad in Great Britain with horses. That is over thirty per cent of the total surface of Great Britain. At the eve of the First World War, the figure would have increased to some 120,000 km<sup>2</sup>, half of its total surface. See for this calculation Sieferle, *Transportgeschichte*, 30–31.

to be substantial, the more so as the slaves we referred to were far from the only people working in or for Britain whose status as labourers was not free.<sup>894</sup>

The ghost acreage of the goods Britain imported from overseas can also be estimated. Pomeranz himself made a calculation for the most important products that Britain acquired from its New World periphery. For 1815, he estimates cotton's ghost acreage at nine million acres, suggesting that Britain would have needed that amount of land to feed the sheep to produce the wool needed to substitute for the materials that were made from cotton. The estimate for 1830 is twenty-three million acres, far more than the total acreage of British cropland. The ghost acreage needed in terms of growing flax would only have been 200,000 acres (for 1815) and 500,000 acres (for 1830). For hemp, the orders of magnitude are similar. Pomeranz claims that these materials, however, could, for various reasons not really function as substitutes for cotton.<sup>895</sup> Timber imports from the New World amounted to one million ghost acres, as compared to the 650,000 ghost acres that Baltic timber provided.<sup>896</sup> The import of sugar provided some four per cent of Britain's calorie intake around 1800. To acquire the same amount of calories Britain would have needed an equivalent of at least 1.3 to 1.9 million acres of grain in 1815. For 1831 this had increased to 1.9 to 2.6 million acres.<sup>897</sup> The total ghost acreage Britain acquired by importing cotton, sugar, and timber in 1830 was some twenty-five to thirty million acres, about the total extension of arable and pasture in Britain at that time and more than the ghost acreage thanks to coal.<sup>898</sup>

For Pomeranz, the importance of those imports for Britain's economy is even greater than that of coal. Let me give one quite explicit quotation in this respect:

... all the productivity-enhancing changes that we identify with modernity put together – technological change, organizational change, the fossil fuel revolution, a better educated and healthier workforce, and so on – had about as much influence on diverting England from a Malthusian path in the century after 1840 as the expansion of transatlantic trade did.

He regards this as a

...strong confirmation that "ghost acres" abroad helped whatever divergence may have occurred by the mid-eighteenth century to be not only sustained but grow to an unprecedented size over the next century and a half.<sup>899</sup>

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894 See pages 355 – 358.

895 Pomeranz, *Great Divergence*, 315.

896 Pomeranz, *Great Divergence*, 314.

897 Pomeranz, *Great Divergence*, 275.

898 Pomeranz, *Great Divergence*, 276.

899 Pomeranz, 'Ten Years After', 22.

Strikingly enough, considering his generally very systematic, comparative approach, Pomeranz pays no attention to the question of whether *other* countries might have had ghost acreage too. Countries like Spain and Portugal, but also the Dutch Republic had quite a lot of it.

Table 44: Western European empires: approximate square mile distribution by geographical area c. 1775 (in percentage of square miles).

Areas	Empires					
	Spanish	Portuguese	Dutch	British	French	Danish
Europe	3.9	0.9	2.5	11.3	81.8	99.1
Atlantic Isles	0.1	0.1	–	3.9	–	–
Coastal Africa	0.0	9.1	38.0	2.7	0.7	–
Americas	93.7	89.6	22.5	59.3	17.4	0.9
SE Asia	2.4	0.2	37.0	22.8	–	–
<b>Total</b>	<b>4,937,994</b>	<b>3,666,777</b>	<b>651,533</b>	<b>788,846</b>	<b>259,627</b>	<b>15,580</b>

Source: Carole Shammas, 'The revolutionary impact of European demand for tropical goods' in: John J. McCusker and Kenneth Morgan, eds., *The early modern Atlantic economy* (Cambridge 2000) 163–185, page 167.

But let us again, in consideration of the main question underlying this book, look at the case of China. As compared to acreage at home, it of course is impossible for a country as huge as China to have as much ghost acreage as Britain had. But that does not mean it had none. Mark Elvin claims that between 1785 and 1833, the single province of Guangdong imported, on average, six times the amount of raw cotton each year from India as all Britain used annually at the time of Arkwright's first water frame.<sup>900</sup> According to H.V. Bowen, 55.3 million lbs. of cotton were shipped from British India into Canton in 1805. That cotton was and continued to be substantially cheaper than Chinese cotton. At that time, the retained imports of 'wool cotton' into Great Britain stood at 58.9 million lbs.<sup>901</sup> According to Prasannan Parthasarathi, to give a final example, in 1815, the amount of Indian cotton that China imported via Canton roughly equalled Britain's cotton imports at the time.<sup>902</sup> In terms of silver, that cotton from India was no doubt much cheaper than that from America. In any case, it was substantially cheaper than that from China itself.<sup>903</sup> On top of that, China produced

900 Elvin, *Pattern of the Chinese past*, 312–313. That water frame was patented in the 1760s.

901 Bowen, 'British exports of raw cotton from India to China', 115–116. I take the expression 'wool cotton' from Bowen.

902 Parthasarathi, 'Review article: the Great Divergence', 283–284.

903 In the year 1793–1794, raw cotton from India cost ten to twelve taels (37.8 grams of silver) per *picul* of 60.4 kilos. Raw cotton produced in China cost three to five taels more. According to two sources from 1804 and 1813, Indian raw cotton still remained cheaper than Jiangnan cotton by around one *picul* per tael. See, for this information and references Bowen, 'British exports of raw cotton from India to China', 124–125.

enormous amounts of very cheap cotton at home. It was still the largest cotton producer in the world in the eighteenth century. In the USA in 1860, total cotton production after decades of increasing production and exports reached a level of about 1.9 billion pounds.<sup>904</sup> China at about that time, in 1870, grew about 1.8 billion pounds. Kenneth Pomeranz estimates the consumption of cotton yarn in China for the period around 1750 at 6.2 to 8.0 pounds per capita. If we assume that China at that time had 200 million inhabitants, that would be 1.24 billion to 1.6 billion pounds of cotton yarn.<sup>905</sup> Why exactly did that massive availability of land-intensive raw material not turn the province of Guangdong in which Canton lies into a Chinese Lancashire of sorts? If the explanation has to be that Guangdong had no coal, then why did it not at least lead to the development of large-scale concentrated production in manufactures, i.e. a kind of factories without steam engines? It is Pomeranz himself who writes that

By about 1750, at least three macro-regions (of China PV) – Lingnan, the Southeast Coast, and above all the Lower Yangzi – depended on outside supplies of various ecologically sensitive goods. All three of these regions imported significant amounts of food (thirteen to eighteen per cent of total supply for the Lower Yangzi); all three imported timber; and at least the Lower Yangzi ... also imported large amounts of bean-cake fertilizer from Manchuria.

Lingnan, he adds,

...imported most of its cotton and also began to import much more bean-cake in the nineteenth century...<sup>906</sup>

In his book on agricultural development in Jiangnan, Bozhong Li devotes an entire chapter, called ‘The externalisation of agriculture’, to the importance for the economy of that region of imports of grain and bean-cake from other parts of China.<sup>907</sup> When discussing the economy of the Pearl River Delta, Robert Marks comments: “... the system as a whole was not sustainable without greater and greater inputs from outside.”<sup>908</sup> If we are to believe the figures presented in the publications of these Californians, China’s heartland in fact was *more* dependent on its ‘internal periphery’ than Britain was on its overseas periphery, in any case for the period we are discussing here. What does that tell us? We will discuss the exact extent to which China used its ghost acreages and its ‘own’ internal’ resources later on.<sup>909</sup>

904 William H. Phillips, ‘Cotton Gin’, EH.Net Encyclopaedia table 2.

905 Pomeranz, *Great Divergence*, 334–338.

906 Pomeranz, *Great Divergence*, 226. See also his ‘Beyond the East-West binary’, 583–584.

907 Bozhong Li, *Agricultural development in Jiangnan*, chapter six.

908 Marks, ‘Commercialization without capitalism’, 76.

909 See pages 344-350.

## 17. Innovation provides the key rather than accumulation or ghost acreage

My main critique, however, of the ghost acreage approach when it comes to importing land-intensive products as raw materials for manufacturing, is of a more fundamental nature. In my view, that import is an *effect* of industrialisation rather than its *precondition*. I severely doubt the causal connection that Pomerez makes. As Jack Goldstone says,

It is true, of course, that by 1800 cotton grown in the New World was a major input into the British cotton industry, one of the vanguards of British industrialization. However, it was not raw cotton that made the industry but innovations in British machinery and the harnessing of waterpower and steam power that made it worthwhile for Britain to import cotton, spin it, and weave it into fabrics. If not for that machinery, it would have made no sense to import raw cotton to England, as the cost of the finished product would have been far greater than that of cotton textiles produced by raw cotton-producing countries such as India and China. The new British machinery made it profitable to import raw cotton, whether from India, Egypt, Turkey or the Americas.<sup>910</sup>

What goes for cotton *mutatis mutandis* of course also goes for other land-intensive products Britain imported. Jan de Vries thinks likewise and claims that (a) Britain never imported much raw cotton from its colonies and (b) that the rise of cotton production in the United States was induced by Britain's industry. He moreover adds, quite correctly, that Britain had access there to cotton on the same terms as any other country.<sup>911</sup> So why, then, did other countries not profit from that capability and start a cotton-revolution of their own? In Mokyr's view, the increased import of raw cotton was undoubtedly "an effect, not a cause, of the developments in cotton technology".<sup>912</sup> Improvements in that technology were impressive. Raw cotton prices from 1784 to 1830 fell from 2 shillings to 0.645 pence, while the price of cotton yarn over the same period fell from 10.9 to 1.2 shillings. The trend in raw cotton prices accounted for just fourteen per cent of the fall in the price of cotton yarn.<sup>913</sup> Whereas, according to Robert Allen, the *real* costs of raw cotton remained almost identical over the entire period from 1760 to 1836, the *real* price of spinning one pound of cotton thread declined from seven pennies to 0.34 pennies.<sup>914</sup> The price of cotton textiles declined so much that only the enormous increase in demand, also stimulated by lower tariffs and transport costs, prevented the cotton revolution from being aborted. Strikingly enough, we

910 Goldstone, *Why Europe*, 67.

911 De Vries, 'The Great Divergence after ten years: justly celebrated yet hard to believe', 15.

912 Mokyr, *Enlightened economy*, 150.

913 This is an almost literal quote from Eltis and Engerman, 'Importance of slavery and the slave trade', 136, note 42.

914 Allen, *British Industrial Revolution*, 185, 188 and 208.

never hear any complaints about the structurally deteriorating terms of trade of Britain's exports at the time: that is because those exports consisted of manufactured goods with a quite elastic demand. For the rest of the nineteenth century from 1819 onwards, the value of cotton textiles exports as a percentage of the value of the final product always hovered between no less than fifty and eighty per cent.<sup>915</sup>

As a rule, innovation created its own markets. It cheapened goods and consumption (domestic and foreign) grew in response. Indeed, as Mokyr writes: "...ingenuity and innovativeness ... drove exports and trade, not the other way around."<sup>916</sup> The terms of trade of Britain's exports, which almost entirely consisted in manufactured goods, fell, i. e. they became relatively cheaper as compared to Britain's imports that increasingly consisted in food, raw materials and semi-manufactured products. In that way, industry led and trade followed, or to put it more poetically: "Trade functioned as the handmaiden of industry."<sup>917</sup> Britain, from quite early on, had a major comparative advantage in manufacturing. At least from the 1780s, manufactured goods overwhelmingly dominated exports.<sup>918</sup> It was simply good economic sense to import an increasing amount of food and raw materials and focus on what the country did best. Britain did what all advanced economies tend to do: specialise in producing products with high added value and import the ingredients one needs to produce them. Of course, what we are referring to is a matter of interdependency not of 'billiard-ball' causality, but to suggest as Pomeranz and many others do that Britain was heading for serious Malthusian trouble and could only escape – and in the end industrialise – *thanks to* imports of raw materials and food definitely is getting the main causality wrong. Agricultural production increased substantially during the country's take-off.

British agriculture was one of the most productive agricultures in the world in terms of labour productivity.<sup>919</sup> But the gap between the rest of world and Britain in terms of productivity was even wider in manufacturing. Therefore, specialising in manufacturing and importing food and raw materials was the logical thing to do, a fact of which David Ricardo was already aware:

915 For cotton goods' exports as compared to cotton goods' production during the eighteenth century see Blackburn, *Making of New World slavery*, 522. For the nineteenth century, see Deane and Cole, *British economic growth 1688 – 1959*, 187.

916 Mokyr, *Enlightened economy*, 165. See also *ibidem*, 258: "Ingenuity, not accumulation, drove economic growth in this period." (i. e. 1760 – 1860, PV)

917 See for this interpretation Harley, 'Trade, discovery, mercantilism and technology'; Thomas and McCloskey, 'Overseas trade and empire, 1700 – 1860', and McCloskey, *Bourgeois dignity*, e. g. chapters 23, 24, and 25.

918 Mokyr, *Enlightened economy*, 167 – 168.

919 See, for example, Clark, 'Labour productivity in English agriculture'.

... a country possessing very considerable advantages in machinery and skill, and which may therefore be enabled to manufacture commodities with much less labour than her neighbours, may, in return for such commodities, import a portion of the corn required for its consumption, even if its land were more fertile, and corn could be grown with less labour than in the country from which it was imported.<sup>920</sup>

For Europe *as a whole*, the suggestion that it was saved by ghost acreage in other parts of the world and able to industrialise thanks to its imports of land-intensive goods is even less convincing. Its total production of cereals tripled over the period of 1815–1913, whereas population only doubled.<sup>921</sup> Germany, which was to become its new industrialising giant, *exported* grains for most of the nineteenth century, whereas in the run-up to the First World War, it *imported* just under half of its iron ore, mostly from Sweden and France. Besides, imports from outside Europe need not necessarily indicate shortages in Europe. By the first quarter of the nineteenth century, the British government imposed duties of approximately 100 per cent on all foreign timber while colonial timber was accepted at nominal rates. The prices of timber from the Baltic and Scandinavia were artificially raised to such an extent that in every year from 1816 to 1846, Canadian timber accounted for at least sixty per cent and in most years for over seventy-five per cent of all un-sawn timber imports into Britain despite the far longer distance in shipping required to transport timber from Upper and Lower Canada than from Scandinavia or the Baltic states.<sup>922</sup>

Moreover, in that context, one must strongly qualify the relative importance of ghost acreage that is so central in Pomeranz's argumentation, firstly, as regards the explicit distinction made by Pomeranz between productivity-enhancing changes and ghost acreage. That does not strike me as very helpful: most of Britain's ghost acreage was just land that *might* be used. It only could be and was effectively used thanks to those technical and organisational changes – and the rise of total incomes – that are at very the heart of the process we call industrialisation. In brief, there would have hardly been any ghost acreage if it were not for productivity-enhancing changes. It was not so much ghost acreage that generated modern economic growth but rather the other way around, with ghost acreage being a necessary condition at best but never a sufficient one. This thesis needs some further elaboration. We will again provide it via the case of Great Britain and in response to Pomeranz's comments.

Obviously, a country that wants to specialise in the production of manufactured goods and services, as a rule, will (have to) import food and raw materials. That, however, is not a free lunch: those imports have to be paid for. Britain, like

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920 Ricardo, *On the principles of political economy, and taxation*, 154.

921 Hugill, *World trade since 1431*, 74–75.

922 Potter, 'British timber duties, 1815–60'.

all industrial nations in the West, did so by exporting manufactured goods. Not just to its peripheries but all over the globe. It could do so because its manufacturing was efficient and its products became ever cheaper, that is *because* it had a modern industrialising economy. What is more, it was the countries in the West themselves that financed most of the *production* of the goods they imported from ‘their’ ghost acreage as well as most of their *transportation*.<sup>923</sup> Very often, that production and in particular that transportation could only be undertaken in a cost-effective manner because modern Western technology was used. On top of that, those Western countries, to a very large extent, also often provided the manpower. As long as slaves were traded they did so by buying them and transporting them to the places where they were needed. When this was no longer an option, they did so directly via their subjects who migrated to their so-called settler colonies.<sup>924</sup> In the case of Britain, to focus on that country once again, some of its colonies, first and foremost of course India, were supposed to pay for their own defence and administration. Others, e.g. the white settler colonies, certainly did not.<sup>925</sup> In brief, the active role and involvement of Western Europe in what Cain and Hopkins describe as “calling the New World into existence” i.e. ‘opening’ peripheral regions to then turn them into actual export regions, were enormous.<sup>926</sup> The following figures apply to Great Britain:

Table 45: Average annual export of British capital in millions of pounds (approximations)

Late 1860s	40
Early 1870s	55
1875 – 1884	90
1900 – 1904	130
1905 – 1909	145
1910 – 1914	175

Source: Lance E. Davis, and Robert A. Huttenback, with the assistance of Susan Gray Davis, *Mammon and the Pursuit of Empire, 1860 – 1912*, (Cambridge 1986) 37.

923 For the enormous amounts of money Britain invested overseas during the long nineteenth century, see Davis and Huttenback, *Mammon and the pursuit of empire*; O’Rourke and Williamson, *Globalization and history*, chapter 12, and Cain and Hopkins, *British imperialism, 1688 – 2000*.

924 For European migration to European overseas settler colonies, see Chiswick and Hatton, ‘International migration and the integration of labor markets’.

925 See, e.g. Davis and Huttenback, *Mammon and the pursuit of empire*, chapter 5. On page 146 they refer to Sir Charles Adderley, an active critic of empire building, who, in 1860, asserted that Great Britain contributed four million pounds sterling to the maintenance of their security, while those colonies contributed less than £40,000.

926 Cain and Hopkins, *British imperialism*, Part Three. Cain and Hopkins use that expression in chapter nine only in reference to South America, but I think its applicability is broader.

To get an idea of orders of magnitude, I compare capital exports to Great Britain's national income:

Table 46: Great Britain's national income (in millions of pounds)

1855	636
1860	694
1870	936
1880	1,076
1890	1,385
1900	1,750
1914	1,984
1915	2,591

Source: Peter Mathias, *The first industrial nation. An economic history of Britain 1700 – 1914* (London 1969) 457.

In 1914, *total* British overseas investments amounted to some 20 billion dollars, which is somewhat over four billion pounds sterling, as compared to a GDP of some 2.5 billion pounds sterling. Investments were spread over the globe as follows (in millions of dollars at almost five dollars to the pound):

Table 47: Total British overseas investments in 1914 in millions of dollars

Europe	1,050
North America	7,050
Latin America	3,700
Oceania	2,200
Asia	3,550 half of it to India
Africa	2,450

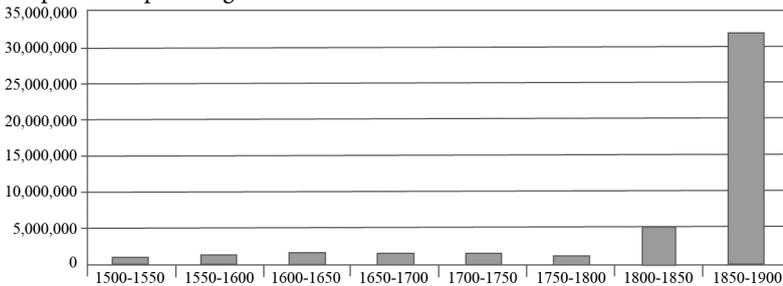
Source: William Woodruff, *The impact of Western man. A study of Europe's role in the world economy, 1750 – 1960* (New York 1967) 154 and 156.

Half of total overseas investment went to countries that were part of the British Empire, and of that half three-quarters went to dominions. As the reader can see, total foreign investment in 1914 of some 4,000 million pounds sterling was substantially higher than national income. The bulk of it was in railroads, harbours, telephone and telegraph lines and the like.<sup>927</sup> To get a realistic idea of total cost of the supposed 'windfall' of "happening to have" colonies and ghost acreage one of course would have to add the *billions* of pounds sterling that Britain spent from

927 For further information see Cain and Hopkins, *British imperialism*, Part Three; Davis and Huttenback, *Mammon and the pursuit of empire*, and Williamson and O'Rourke, *Globalization and history*, chapter 11.

the beginning of colonisation onwards to be able to conquer its colonies, to prevent other European imperialist countries from conquering them and to keep and where possible improve its position in the European states system. The number of people leaving the British Isles, in particular for the United States – who can also be regarded as a kind of overseas ‘investment’ – and a way to get rid of surplus population – was enormous. For the period between 1815 and 1914, it is estimated at 22.6 million, far more of course than ever before.<sup>928</sup> As James Belich shows in his fascinating *Replenishing the earth*, the period between American Independence and the Second World War witnessed the emergence of a real ‘Anglo-World’.<sup>929</sup> The numbers involved in intercontinental migration from Europe as a whole took on an entirely new dimension as compared to the centuries before.

Graph 9: European migration to other continents



Source: Jan Lucassen and Leo Lucassen, ‘The mobility transition revisited, 1500 – 1900: what the European case can offer to global history’, *Journal of Global History* 4, 3 (2009) 347 – 378, page 356.

Whereas *costs* of formal and informal empire building are not mentioned at all or just in passing by Pomeranz and all those who endorse his thesis, its *benefits* in terms of providing cheap, land-intensive resources are exaggerated. In his publications Pomeranz systematically suggests and sometimes quite explicitly claims that Britain could profit so much from available ghost acreage because that ghost acreage was in countries over which it had political leverage – therefore the frequent use of the term ‘non-consensual’ trade – and where it could organise the economy as it saw fit.<sup>930</sup> Actually, that is not true for many countries that provided Britain with land-intensive raw materials and food. Just think of the United States, an extremely important trade partner for Britain,

928 Harper, ‘British migration and the peopling of the empire’, 75.

929 Belich, *Replenishing the earth*.

930 See e.g. Pomeranz, *Great Divergence*, 7, 13, 24 – 25, 185 – 186, 188, 212 – 213, 264 – 265, 273, 296 – 297, for references to British or European coercion, exploitation and ‘non-consensual’ trade when it comes to relations with the periphery.

destination of large amounts of British capital and of large numbers of British migrants and Britain's main provider of cotton during its take-off. From 1776, they were independent. It only is true to some extent for the white settlement colonies with 'responsible government' that played a similar role for Britain's economy but where the actual power of the mother country was quite minimal. It is not at all true for countries in Central and Eastern Europe that exported food and raw materials to Britain. The position of Ireland, in many respects a real periphery, was a very specific one. Most of the regions where the British bought their land-intensive raw materials and food in principle sold those on exactly the same condition to other (potential) purchasers. Overall, the role of the market in Britain's economic exchanges with other parts of the world during the nineteenth century was greater and that of coercion smaller than Pomeranz suggests.

This is relevant because, of course, other countries, in principle, could also have bought the produce of any 'free' region just referred to. Why did not others 'use' ghost acreage? Why exactly would one single out Britain as the country to profit so much from ghost acreage that it became the first industrial nation when other countries also had colonies or in any case could buy goods on the world market? What to think of internal, i. e. domestic 'ghost acreage' or unused resources in one's own country: why would that not be even more of a windfall? What to think of, for that matter, Russia, which, with Siberia, had a staggering amount of ghost acreage in its own realm? Why would *not* having certain raw materials at home be such a lucky draw as compared to having them? Is not the following claim by Morris, who fully endorses Pomeranz's ideas and takes them to their logical extreme, actually nonsensical? Morris writes: "Geography made cotton the perfect industry for Britain. Because its raw materials grew overseas, they did not compete for land at home."<sup>931</sup> Would this not make silk the ideal industry for the Netherlands, wool for China and let us say hemp for the Sahara regions?

## 18. Innovation: technology and science

No one would deny that trade can have all sorts of positive effects for growth and that growth without an extension of the market will fairly quickly come to a halt, but in whatever form imaginable, it can not have been *the motor* of modern growth as the West has known it for so many decades. *Modern* economic growth did not emerge as a consequence of a simple piling up of resources, whether land, labour or capital. Nor was it a simple consequence of a process of ever increasing specialisation on ever growing markets. Whatever their impact, the accumulation and division of labour were not the core and motor of the kind of growth

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931 Morris, *Why the West rules*, 497.

that started with industrialisation, although they clearly were important. Investment and investment rates did increase substantially as did specialisation. Production, however, increased far more than aggregated investment and specialisation as such would predict. The main reason for that is innovation, a catch-all phrase that is used in particular for changes in the characteristics of the means of production and the way in which they are combined. The innovations that tend to catch the eye have always been ‘technological’ and the bulk of scholars dealing with industrialisation – and with the Great Divergence – would still agree that what in the end made the difference was technology. I already referred to Jack Goldstone.<sup>932</sup> In his recent book dealing with the subject, Robert Allen wrote: “Technology was the motor of the Industrial Revolution”<sup>933</sup> His namesake Douglas Allen holds the same view.<sup>934</sup> Joel Mokyr is even more explicit: “The best definition of the Industrial Revolution is the set of events that placed technology in the position of the main engine of economic change.”<sup>935</sup> For Stephan Epstein industrialisation was first and foremost “a technological revolution”, a view that is endorsed by Prasannan Parthasarathi.<sup>936</sup> Fernand Braudel – and Immanuel Wallerstein, who seems to fully endorse this claim – in this respect now sounds somewhat exceptional “If there is one factor which has lost ground as a key explanation of the industrial revolution, it is technology.”<sup>937</sup>

Californians and other revisionists of course cannot deny the enormous importance of technology for the Great Divergence, although, as we saw, Pommeranz would not consider it to be more relevant than ghost acreage. But they all, in this specific context including Jack Goldstone, refuse to attribute the technological breakthroughs that occurred in the West to a longstanding and broad Western advantage. Their ‘surprising resemblances-claim’ also extends to the fields of technology and science. In their view, the traditional dichotomy of a dynamic and advancing West versus a static and backward Rest in this context too is no longer acceptable. Eastern technology and science, in particular those of China, are being rehabilitated, in as far as that was still needed. The work of Joseph Needham, who has done more than anyone else to show how advanced China’s science and technology have long been, is not that recent!<sup>938</sup> We find this

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932 See page 299.

933 Allen, *Global economic history*, 27.

934 Allen, *Institutional revolution*, chapter 9, ‘Conclusion’.

935 Mokyr, *Enlightened economy*, 5.

936 Epstein, *Freedom and growth*, 172–173. For Parthasarathi’s endorsement see his, *Why Europe grew rich*, 85.

937 Braudel, *Civilization and capitalism, 15<sup>th</sup> – 18<sup>th</sup> century, III*, 566. See for Wallerstein’s position pages 363–364.

938 See the multi-volume *Science and civilisation in China* series edited by Joseph Needham. I refer the interested reader with less time to Needham and Ronan, *The shorter science and civilisation in China* and for a quick synthesis to Temple, *Genius of China*. Brief in-

rehabilitation in the work of all Californians, most outspoken in that of John Hobson who revels in pointing at Europe's backwardness and at the Eastern origins of Western civilisation, including much of the science and technology needed for the Industrial Revolution.<sup>939</sup> Quite recently, but in a much more nuanced way, Prasannan Parthasarathi set out to present a similar rehabilitation for India's science and technology.<sup>940</sup> Some revisionism was still overdue and no one can object to that. But on the other hand, of course, no one, not even the most revisionist Californians, can deny the enormous impact of the specific inventions and innovations we associate with the Industrial Revolution, in particular the steam engine. And they don't. What they, as indicated, do deny is that those inventions and innovations would indicate a fundamental exceptionality of Western societies and economies. They use various strategies, often in combination with each other, to present their point of view. One is to turn all those innovations into something fairly contingent, strokes of good luck that do not require detailed analysis, which they accordingly never receive, except in Jack Goldstone's work. They might just as well have occurred someplace else. Some Californians would claim that they fairly often actually did. Another strategy is to suggest that Western inventions and innovations were solutions to problems that were absent in other parts of the world. Those who adhere to this strategy regard technology and science as responses to challenges and then claim that different challenges get different responses. But whatever exact strategy they follow, it is striking how little autonomy most Californians – but also scholars like Morris and Parthasarathi – who regard them as nothing more than responses to certain economic or political challenges – give to science and technology and to what extent those scholars try to create the impression that inventions and innovations were fairly disconnected and *ad hoc* and not part of a broad and long-term development, which they in my view certainly were. In this respect, again in my view, revisionism has clearly gone too far. Any serious analysis of recent histories of global technological development would show that, notwithstanding a lot of 'contingencies' and even more interconnections, there clearly are distinct technological trajectories and path-dependencies in distinct parts of the world.<sup>941</sup>

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roductions to the ideas of Needham can be found in his *Grand titration* and *Clerks and craftsmen in China and the West* and in Finlay, 'China, the West, and world history'. The many studies by Mark Elvin are obligatory reading. See for example his *Pattern of the Chinese past* and *Another history*.

939 Hobson, *Eastern origins of Western civilisation*, e.g. chapter 9.

940 See e.g. Parthasarathi, *Why Europe grew rich*, Part Three.

941 I confine myself to just a small selection of literature that I found helpful: Adas, *Machines as the measure of men*; Friedel, *A culture of improvement*; Headrick, *When information came of age*; idem, *Power over peoples*; Lipsey, Carlaw and Bekar, *Economic transformations*;

The challenge for those historians who want to refute Eurocentrism in this respect would be to produce a list of technological innovations for other parts of the globe during a similar period of time that would beat this one. They will not manage to do so.

Table 48: A list of inventions that were directly relevant to production and led to innovations in Western Europe and the USA

#### **Inventions in power**

1700s	Atmospheric steam engine
1740	Leyden jar
1752	Lightning conductor and experiments with electricity
1765–1769	Improved steam pumping with separate condenser and later use of cutoff
1774	Accurately bored cast-iron cylinders for steam engines
1774	Large cylinders developed
1781	Compound steam engine
1781–1786	Rotative motion
1800	Voltaic pile
1800	Compound steam engine
1804	Compound steam engine
1815	Compound steam engine patented
1820–1880s	Electric generator and motor
1820	Magnetic field discovered
1827	High-pressure steam boilers
1827	Hydraulic (creation) turbine water wheel
1831	Electromagnetic induction
1840s	Advances in hydraulic turbines

#### **Inventions in metallurgy and machine tools**

1709	Coke-smelting
1720	Cementation process of making steel
1740	Crucible or cast steel
1740	Cast-iron rolling process
1750	Carbon content of iron ore discovered
1750	Screw drive on lathe
1761	Air cylinders
1770	Screw-cutting lathe
1774	Satisfactory cast-iron cylinders for steam engine
1776–1780	Application of steam power to forging; first forge hammer
1783–1784	Improvements in puddling and rolling
1829	Hot blast furnace
1831	Hot blast furnace
1833	Iron smelting with anthracite
1833	A process for silver extraction
1838–1841	Steam drop-hammer

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McClellan III and Dorn, *Science and technology in world history*; Mokyr, *Lever of riches*, and Pacey, *Technology in world civilization*.

**Inventions in industrial chemicals**

1736	New process of sulfuric-acid manufacture
1746	Lead-chamber process for production of sulfuric acid
1774	Discovery of chlorine
1785	Discovery of chlorine bleaching properties
1787	Leblanc soda-ash process
1827	Absorption towers
1831	Contact process

**Inventions in mining**

early 1700s	Development of drainage in mines
1800	High-pressure non-condensing steam engine
early 1800s	Crystallography
early 1800s	Chemistry in relation to mineralogy
1807	First air-pump ventilator
1809	Reflecting goniometer
1813	Rock-boring machine
1815 or 1816	Safety lamp
1819–1821	Clarification of mineral species
1820s	Polarization of light
1830s	Ventilation
1840s	Introduction of rotary, hydraulic, water-flush system of drilling

**Inventions in transportation and communication**

1738	Iron rails substituted for wood
1764	Three-layer system of road making introduced
1769	Cugnot's steam road carriage
1787	The <i>Severn</i> , barge with cast-iron plates
1790	Semaphore arms used for communication
1795	Multiple wire system for communication
1801	Trevithick's steam road carriage
1803	Trevithick's steam locomotive
1807	Steamship <i>Clermont</i> on the Hudson
1820s	McAdam develops his principles of road-making
1825	Stephenson's locomotive initiates rail age
1831	Gurney's steam carriage
1836	Single-wire system of communication
1838	S.S. <i>Great Western</i> initiates regular Atlantic crossings
1838	Screw propeller

**Inventions in textiles**

1733	Flying shuttle
1733	Roller spinning
1764	Spinning jenny
1769	Water frame
1779	Spinning mule
1785–1787	Power loom
1801–1802	Jacquard loom
1809	Bobbin-net machine
1813	Machine made patterned lace
1822	Robert's power loom

1825 – 1830	Self-acting mule
1826	Goulding condenser
1826 – 1829	Ring spindle
1836	Crompton's 'fancy loom'.

#### **Inventions in agriculture**

1701	Seed drill
1750 – 1800	Selective animal breeding
1782	Seed drill
1784/ 1786	Threshing machine
1793 – 1794	Cotton gin
1797	First cast-iron plough
1800	Hay tedder
1800s	Bone-dust fertilizer
1819 – 1822	Development of cast-iron, three-piece plow with standardized interchangeable parts
1826	Reaper
1830s –	Introduction and improvement of chilled-iron and chilled-steel walking
1850s	plows
1831	Mowing machine
1831 – 1833	Reaper with first successful cutting bar
1832	Flax-heckling machine
1840	Roller milling of grain

Source: Elias H. Tuma, *European economic history. Tenth century to the present. Theory and history of economic change* (New York 1971) 229 – 237.

Attention is always focused on macro-inventions, i.e. big theoretical 'break-throughs', which are then connected to completely new technologies. Actually, however, technological development in practice resembles a fairly continuous process of incremental refinements and improvements that is characterised by flows far more than a process characterised by punctual breaks. In practice, for *economic* history, it does not make much sense to talk about *the* invention of the principle of the steam engine that would then have led to *the* introduction of the actual machine. Existing machines were permanently changed and improved. The efficiency of steam engines, for example, increased very substantially over time. They not only needed far less energy to generate the same amount of effective power, but also much less surface and cubic capacity.<sup>942</sup> Real costs of using steam power decreased sharply. According to Robert Allen, the real costs of rotary power in Britain in the mid-1840's was about one third of what it had been in the early eighteenth century while the real costs of pumping power had dropped by about half over that period.<sup>943</sup>

The (far from complete) list of innovations shown above covers such a broad range of fields and is so long that the idea that the West simply 'stumbled' on some

942 Wagenbreth, Düntzsch and Gieseler, *Geschichte der Dampfmaschine*, 94.

943 Allen, *British Industrial Revolution*, 173.

innovations is indefensible. What is relevant for the topic at hand is that the Western lead emerged and developed in particular in sectors that had most potential for increasing *productivity* like energy, capital goods (iron, later on steel and building materials) and weaponry. I am certainly not claiming the existence of an *overall* and clear Western lead. Compared with China, for example, Britain's agriculture produced much less per acre of land. China was rightly famous for its porcelain and silk production. In various respects its economy was much less wasteful. Indian textiles and steel – to refer to a country that probably had, in many respects, an even more impressive manufacturing tradition – were second to none for a long time. But it is hard to imagine how – in any case during Qing rule – China's 'strengths' when it comes to production methods and products could have triggered a take-off into modern economic growth. China simply was not on a trajectory of increasing returns and synergy. Being increasingly more efficient, or less wasteful in what you are doing, does not bring you sustained growth. For Britain, suggesting an *overall* lead would clearly be a mistake, but it would also – or even more – be a mistake to suggest its leap forward was only a matter of coal and cotton. There is definitely more to its eighteenth-century wave of gadgets than just 'contingency' or 'luck' or simple responses to existing challenges. What we see are many innovations on a row and over a broad front, an accumulation of new knowledge in a quickening pace and quite concentrated in time and place.<sup>944</sup>

Table 49: Innovations in science and technology in China, tenth to nineteenth centuries

Century	Number of Innovations
900 – 1000	29
1000 – 1100	38
1100 – 1200	27
1200 – 1300	34
1300 – 1400	37
1400 – 1500	18
1500 – 1600	36
1600 – 1700	43
1700 – 1800	7
1800 – 1900	2

Source: Jack Goldstone, – *Why Europe? The rise of the West in world history, 1500 – 1800* (New York 2008) 122.

As it was primarily technological breakthroughs that triggered higher productivity, people were required who invented, made, maintained and repaired all sorts of tools, implements and machines. Europe had many of them and Britain

<sup>944</sup> See, for example, Weightman, *What the industrial revolution did for us* and idem, *Industrial revolutionaries*.

most, more than any other European let alone non-European country. The country had a surprisingly high number of innovative entrepreneurs and engineers and highly skilled mechanics. The thesis that north-western Europe and first and foremost Britain would have been characterised by a unique technological and scientific culture, a thesis currently associated in particular with Jack Goldstone, Margaret Jacob and Joel Mokyr, and also, be it with different emphases – in particular on the demand for certain skills and values – with Robert Allen, in my view has not been refuted.<sup>945</sup> Great Britain indeed had an ‘enlightened economy’ with an approach characterised by a very pragmatic combination of theory and practice, and often fairly close connections between scholars, engineers, mechanics, and entrepreneurs. James Watt cooperated with Matthew Boulton (1728–1809), an entrepreneur, and with John Wilkinson (1728–1808), an instrument maker and industrialist, and long worked for Glasgow University. Several parts of Great Britain indeed had, as Dudley puts it, dense “networks of innovation”.<sup>946</sup> The country had the right institutional setting for productive innovation. I would still defend the thesis that Western Europe and in particular Great Britain in this respect were unique and that their unique trajectory of economic growth from the eighteenth century onwards can to a substantial degree be explained with reference to this unique culture of cultivating what nowadays is called useful and reliable knowledge.<sup>947</sup>

In our current high-tech economy, the link between technology and science seems quite direct and the importance of research and development is constantly emphasised.<sup>948</sup> When it comes to the role of science in the first stages of in-

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945 See e. g. Goldstone, ‘Efflorescences and economic growth’, 353–389, and idem, *Why Europe*, chapter 8 and ‘Conclusion’; Jacob, *Scientific culture and the making of the industrial West*; Jacob and Stewart, *Practical matter* and of course Mokyr, *Lever of riches*; *Gifts of Athena* and in particular *Enlightened economy*. For the specific position of Robert Allen see his *British Industrial Revolution in global perspective* chapter 10, where, on page 269, he claims, “The cultural changes between 1400 and 1800 were immense and in the direction of promoting invention.” See for the claim that basically the situation in eighteenth-century India was not fundamentally different in this respect, Parthasarathi, *Why Europe grew rich*, in particular chapter 7.

946 Dudley, *Mothers of innovation*.

947 See all the scholars and publications referred to in note 945. In this regard, I hope and expect that the outcomes of a major comparative research project at the Department of Economic History of the London School of Economics and Political Science, known as Useful and Reliable Knowledge in Global Histories of Material Progress in the East and the West (URKEW), will confirm my expectations. For some clarification, see the article by Patrick O’Brien, ‘The Needham question updated – A historiographical survey and elaboration’, on the website of the project at LSE. See also his ‘Historical foundations’.

948 The question of how important science actually was for economic growth during Britain’s first industrial revolution and for modern economic growth in general remains highly contested. I endorse the position taken by Joel Mokyr. See e. g. his *Enlightened economy*. For

dustrialisation: that may not have been as big as has often been claimed. There was a lot of tinkering, of simple trial and error, and of practical experimentation, but science and especially scientific thinking definitely were not irrelevant, as to my great surprise even Deirdre McCloskey seems to think.<sup>949</sup> They were essential for several inventions during Britain's take-off, first of all the most important one, the steam engine, but they mattered also in other sectors, for example the production of ceramics, and they clearly became increasingly important over time in preventing innovation from simply drying up.<sup>950</sup> Douglass North's claim that "Learning by doing can explain the technology developed during the industrial revolution" simply is not true.<sup>951</sup> Many anti-Eurocentrists will not be amused by the following claim by Niall Ferguson: "Those who decry 'Eurocentrism' as if it were some distasteful prejudice have a problem: the Scientific Revolution was, by any scientific measure, wholly Eurocentric."<sup>952</sup> Of course, that revolution had many non-European ingredients. It did not come entirely *ex nihilo* and definitely was not completely European. Many scientific breakthroughs – and the same goes for technological breakthroughs, perhaps even more so<sup>953</sup> – that in the end occurred in Europe would have been unthinkable without borrowing, imitating, applying, or improving upon theories and practices from elsewhere. But that of course does not change the fact that they in their momentous fateful combination occurred in Europe. In my view there simply is no denying that modern science in the end emerged and 'took off' in the West.<sup>954</sup> Let me again present a list of data as a challenge to anyone who would want to make the – I think futile – effort to show it was otherwise.

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a very relativising view, in which technology begets science instead of the other way around, see e. g. chapter 8 of Ridley, *Rational optimist*.

- 949 See for her claim: "The cause was not science", *Bourgeois dignity*, chapter 38 with that title. This is about the only place where I disagree with the content of this otherwise brilliant book.
- 950 For the essential and indispensable role of science in the invention of the steam engine, see Cohen, 'The rise of modern science as a fundamental pre-condition for the Industrial Revolution'. Robert Allen apparently agrees as he describes steam power as a "spin-off of the Scientific Revolution." See Allen, *Global economic history*, 35.
- 951 North, *Structure and change in economic history*, 162.
- 952 Ferguson, *Civilization*, 67.
- 953 Let me, as one example amongst several, just refer to the enormous importance of Asia, in particular India, for the development of Britain's cotton manufacturing technology. See for an excellent overview see Riello, *Cotton*.
- 954 For a comparative analysis of the origins of modern science in Europe, see Cohen, *How modern science came into the world* plus, from a different angle and with a different perspective, Huff, *The rise of early modern science* and idem, *Intellectual curiosity and the Scientific Revolution*. See also Goldstone's *Why Europe* and his forthcoming *A peculiar path: The rise of the West in global context, 1500–1850*.

Table 50: The most important scientific breakthroughs of the period 1530–1789 in Western Europe

1530	Paracelsus pioneers the application of chemistry to physiology and pathology
1543	Nicolas Copernicus' <i>De revolutionibus orbium coelestium</i> states the heliocentric theory of the solar system
1543	Andreas Vesalius' <i>De humani corporis fabrica</i> supplants Galen's anatomical textbook
1546	Agricola's <i>De natura fossilium</i> classifies minerals and introduces the terms 'fossil'.
1572	Tycho Brahe records the first European observation of a supernova
1589	Galileo's tests of falling bodies (published in <i>De Motu</i> ) revolutionize the experimental method
1600	William Gilbert's <i>De magnete, magnetisque corporibus</i> describes the magnetic properties of the earth and electricity
1604	Galileo discovers that a free-falling body increases its distance as the square of time
1608	Hans Lippershey and Zacharias Jansen independently invent the telescope
1609	Galileo conducts the first telescopic observation at night sky
1610	Galileo discovers four of Jupiter's moon and infers that the earth is not at the centre of the universe
1614	John Napier's <i>Mirifici logarithmorum canonicis descriptio</i> introduces logarithms
1628	William Harvey writes <i>Exercitatio anatomica de motu cordis et sanguinis in animalibus</i> , accurately describing the circulation of blood
1637	René Descartes 'La Géométrie, an appendix to his <i>Discours de la méthode</i> founds analytic geometry
1638	Galileo's <i>Discorsi e dimonstrazioni matematiche</i> founds modern mechanics
1640	Pierre de Fermat founds number theory
1654	Fermat and Blaise Pascal found probability theory
1662	Robert Boyle's <i>Skeptical Chymist</i> defines elements and chemical analysis
1662	Boyle states Boyle's law that the volume occupied by a fixed mass of gas in a container is inversely proportional to the pressure it exerts
1669	Isaac Newton's <i>De analysi per aequationes numero terminorum infinitas</i> presents the first systematic account of the calculus, independently developed by Gottfried Leibniz
1678	Antoni van Leeuwenhoek discovers micro-organisms
1687	Newton's <i>Philosophiae naturalis principia mathematica</i> states the law of universal gravitation and the laws of motion
1735	Carolus Linnaeus' <i>Systema naturae</i> introduces systematic classification of genera and species of organisms
1738	Daniel Bernoulli's <i>Hydrodynamica</i> states Bernoulli's Principle and founds the mathematical study of fluid flow and the kinetic theory of gases
1746	Jan-Etienne Guettard prepares the first true geological maps
1755	Joseph Black identifies carbon dioxide
1775	Antoine Lavoisier accurately describes combustion
1785	James Hutton's 'Concerning the system of the Earth' states the uniformitarian view of the earth's development
1789	Lavoisier's <i>Traite élémentaire de chimie</i> states the law of conservation of matter

Source: Niall Ferguson, *Civilization. The West and the Rest* (London 2011) 65–66.

The emergence of modern science and sustained technological development is an enormously complex phenomenon that cannot be extensively analysed and discussed here. I will simply present a very simplified synthesis, almost literally paraphrasing Jack Goldstone<sup>955</sup>, trying to describe *what* happened. *Why* it happened would be yet another major question that, however, cannot be dealt with here and for which I refer to the literature mentioned in the notes. According to Goldstone, during the early modern period, tradition and religion were increasingly questioned in Western Europe, whereas, on the other hand, an approach to knowledge gained ground that combined experiment and mathematical reasoning. A ‘Baconian’<sup>956</sup>, methodical style of dealing with problems began to prevail, in particular in Great Britain, combining observation, experience, experiment and rules of proof with a fundamental role for ‘instruments’ as means to measure and test. In Britain – and that is country we are focusing on – in particular after the Glorious Revolution a climate of conformity and state-imposed orthodoxy was substituted with one of tolerance and pluralism in which even the official Anglican Church did not oppose science. Finally, and this again applies in particular to eighteenth-century Britain, there was a great deal of support for entrepreneurship in a context of close social relations between scientists, entrepreneurs, engineers, and craftsmen. The fact that by the eighteenth century there were almost 150 universities in Europe – even if they often were not exactly at the cutting edge of science! – and that there was ample public debate on a wide variety of topics must also have had its effects.<sup>957</sup> Government in Britain clearly was supportive, directly and indirectly, of innovation, also a consumer of science itself and, what in all probability was even more important: it in any case did not function as a brake.<sup>958</sup> The contrast here with China over the long eighteenth century becomes striking: there the government was often quite active in spreading existing best practices but not exactly on the lookout itself for major innovations nor actively promoting that its subjects would be.

## 19. A seriously underestimated factor: enhanced productivity because of institutional and organisational innovation

In discussions of the Great Divergence and in particular the Industrial Revolution, attention tends to be focused on technological innovations. It would be

955 Goldstone, *Why Europe*, 167–170.

956 After the philosopher Francis Bacon (1561–1626) the propagator of empirical inductive methods in science.

957 Huff, *Intellectual curiosity and the Scientific Revolution*, ‘Epilogue’.

958 See for example Caton, *Politics of progress* and Spadafora, *Idea of progress in eighteenth-century Britain*.

absurd to deny their fundamental importance but in my view, more systematic research into the productivity-enhancing effects of all sorts of managerial innovations, i. e. all those innovations in the way which production in the widest sense of the word was organised, would be very welcome. Developed societies are replete with managers of all sorts receiving at times incredibly high salaries because they are supposed to make production more efficient and profitable. Their focus on rationalisation undoubtedly often indeed has this effect. This aspect of innovation to my view would need far more attention in analyses of the Great Divergence. Not just in the context of private industrial production as, for the first industrial revolution, has been described by Sidney Pollard, but also in the context of agriculture and services.<sup>959</sup> The role of services in modern economic development continues to be under-estimated, which, considering their obvious overwhelming importance is striking. Increases in productivity there often depend to a large extent on changes in the way work is organised. The same applies to government, whose share of GDP has structurally tended to increase and whose importance to the overall economy also can hardly be over-estimated. Admittedly, studying institutions and organisation has become very fashionable in economic history, but the focus mostly is on what some institutions and organisations are supposed to mean for the 'real' economy, how e. g. they enable a lowering of transactions cost rather than on how efficient and productive in economic terms the institutionalisation and organisation of certain behaviour *itself* is. To be more concrete: we need studies of how banks or insurances might lower transactions cost or how educational institutes increase human capital but also how economically efficient and profitable they themselves are and how they directly increase income.

There is more to industrialisation than increased productivity in manufacturing because of technological hardware and there is more to modern economic growth than developments in industry. The difference between countries with modern economic growth and those without accordingly consists of more than industry and technological hardware. In studying the origins of modern economic growth, the focus in my opinion tends to be too much on a very specific part of total production, to wit industry, or more broadly the production of physical commodities and the use of technological implements. Many people suffer from a 'manufacturing fetish' as if other sectors of the economy would simply not produce anything. In terms of added value, the service sector was just as large – and soon even larger – than manufacturing in industrialising countries. The role of institutions and organisation *in* and *for* all sectors of the economy and the role of other sectors than industry, in particular the service sector require much more attention than they usually get. I can only endorse

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959 See the classic Pollard, *Genesis of modern management*.

what Albert Feuerwerker wrote about the importance of institutional breakthroughs "...one institutional breakthrough is worth a dozen textile mills or shipping companies established within the framework of traditional society and its system of values."<sup>960</sup>

Max Weber was right when he regarded an increasing and overwhelming rationalisation of *all spheres of life* as the essence of modernisation and of Western exceptionality. The birth of modern economic growth in that respect was just as much an institutional revolution as one in knowledge and resources.<sup>961</sup> The advantage of industrialising countries definitely lay not only in technology but also in their permanent institutional innovation. This plea for more attention also applies to the realm of the state. In the research I did for a book on the role of the state in the economic development of Britain and China during the period 1680 – 1850, I time and again encountered enormous differences in the efficiency and effectiveness of Britain's state as compared to that of China, whether it was in the field of finances and money, revenue collecting, logistics, the military, the gathering and use of information.<sup>962</sup> In my view, Britain's state during take-off – in any case till the end of the Napoleonic Wars – could easily stand a comparison with *any* state in the world when it comes to efficiency and effectiveness. The position of central government in British society was a very strong one. It had already all but completely acquired the monopolies that are ascribed to a full-blown modern bureaucratic state *à la Weber*, i. e. the monopolies of legitimate violence, of public administration, and of all public revenue collection. With respect to that last monopoly, it is fundamental that in Britain it indeed was *only* state government that collected revenues that one might call 'public' and that almost *all* of that revenue was at *its* disposal. No interest group could feed on the state and redirect public money to private coffers. Aristocrats levied no feudal dues and in 1534 the right to collect 'first-fruits and tenths' had gone from the Pope and the monasteries to the Crown. Anglican bishops may sometimes have acted as collecting officials, but they did not keep the revenue. Taxes were not only collected very efficiently and with no exceptions: they were also almost entirely sent to the capital in the form of money. It was no longer possible to use or create (semi-)feudal sources of power and income. There were no feudal exemptions and privileges such as *beneficia* or immunities. There was no private property of means of military violence and no significant private appropriation of parts of administration or public income. There were no feudal rights that might be exerted, no trace of that

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960 Feuerwerker, *China's early industrialization*, 242.

961 See for this thesis and an interesting effort to show what a broad institutionalist approach i. e. one that not only focuses on the hobbyhorses of institutionalist economists, could look like Allen, *Institutional revolution*.

962 Vries, *A world of surprising differences*.

blurring of the distinction between private and public that characterises feudalism. All local self-government notwithstanding, the administration of the British state was centralised, ‘centripetal’, uniform and efficient.<sup>963</sup> Britain’s state no longer had *any* competitors in *any* public domain. Its role in ‘rationalising’ society can hardly be overestimated. Just think of the standardisation of time and its measurement, of measures in general, of weights and moneys, of the quality of products and of the system of law.<sup>964</sup> One may also think of the increasing collection and use of statistics and public records, of mapping and of the development of infrastructure. Many institutional innovations in the organisation of economic life such as chartered companies, shareholding, the modern firm, the Bank of England or investing in national debt were at the interface of the private and the public.

## 20. Ultimate causes: institutions

The essence of modern economic growth is the fact that it is sustained – some would even claim self-sustaining – and that it is driven by innovation. That of course does not mean that innovation was its only source. The ‘old’ motors of growth continued to play their part: more input of resources, just think of ghost acreage; more input of labour, at least in the beginning of the process; an enormous extension and deepening of the division of labour and of markets which now really became world-wide, to a large extent thanks to the revolutions in transport and communication and more capital goods. But traditional growth has a tendency to incur decreasing returns. Innovation can counter that tendency but for growth to be sustained, innovation has to be part of a system, an ‘endogenized’ element of the economy, and thus something to be expected, not a matter of one-off accidents. As Morgan Kelly writes,

The industrial revolution marks the transition from a world where innovation is intermittent and haphazard to one where it is systematic and continuous: a transition that Whitehead termed “the invention of the method of invention.”<sup>965</sup>

963 See the interesting analyses by Macfarlane in his ‘Cradle of capitalism’ in: Baechler, Hall & Mann, *Europe and the rise of capitalism* and his *Invention of the modern world*, chapters 9, 10 and 11.

964 In my view institutional economists and economic historians would be well advised to focus more on topics like these and less on property rights. The work by Douglas Allen in this respect is promising.

965 Morgan Kelly, The invention of invention, <http://www.ucd.ie/economics/research/papers/2005/WP05.15.pdf>, Summary, 13. The expression was coined by Alfred North Whitehead (1861–1947), who claimed “The greatest invention of the nineteenth century was the invention of the method of invention.” See his *Science and the modern world*, originally New York 1925. I quote from the paperback edition, New York 1967, page 96. This expression had

There would not have been a Great Divergence if innovation had stopped with Watt's steam engine. Modern economic growth presupposes an institutionalisation of improvement, the emergence and perfection of a set of rules and organisations that foster and facilitate invention and innovation. The question then becomes what facilitates, organises and pushes production? To find out, we have to look for the underlying, 'ultimate' causes of economic growth. Sustained growth is only possible in a certain stimulating and receptive setting where change and innovation are not just accepted but even coveted and systematically pursued. As Erik Ringmar, whose reflections on this topic I can recommend, writes, change has become an intrinsic feature of modern life, no longer a matter of individuals and contingency but of institutions and structures. The power of those institutions resides above all in their ability to enable and dispose people to act in a certain, fairly predictable way. It makes people coordinate their activities. In the modern world, institutions as a rule are such that they turn society in a self-transforming machine.<sup>966</sup> It is not by accident that the period just before and in which Britain took off has so often been characterised as an age of 'change', 'improvement', 'progress' or 'Enlightenment'.<sup>967</sup>

As I mentioned earlier, there is ample discussion about how one would want to define (good) institutions and how important they actually are. But to deny them any importance would be an indefensible position. Economic historians dealing with the rise of the West in the past used to think overwhelmingly in institutional categories. All classic 'rise of the West stories' assumed there was something specific about the way Western society worked and was organised, whether it was its markets, its states, its military, or the way in which knowledge was searched, spread or used. Scholars as diverse as Smith, Marx, Weber, Polanyi, Jones, Braudel, Wallerstein or Landes and their 'supporters', in the end were and are institutionalists, focusing on institutions like markets, states, guilds, firms, corporations, family and so on and so forth. In the end most historians are. Erik Ringmar eloquently reformulated their traditional claims in institutionalist jargon. He explicitly points at the exceptionality in this respect of Europe as compared to the rest of the world, which in his book he illustrates by comparing it to China, where change in his view never became institutionalised. Chinese society became ever more efficient in implementing what was already known but it did not innovate. Its adaptive efficiency was admirable but it lacked creativity.<sup>968</sup>

So-called 'Eurocentrists' discussing the Great Divergence almost by defi-

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already been used, without reference to Whitehead, by Landes in his *Wealth and poverty*, chapter 4.

966 Ringmar, *Why Europe was first*.

967 See for example Borsary, 'The culture of improvement' and note 958.

968 Ringmar, *Why Europe was first*. For his comments on China see chapters 14 to 19.

nition tend to be institutionalists. (Western) Europe, in their view, was institutionally different and that is fundamental in any explanation of the Great Divergence. Niall Ferguson is very outspoken: “The critical point is that the differential between the West and the Rest was institutional” and “...the earlier industrialization of the West reflected institutional advantages.”<sup>969</sup> The explanation for what he calls “Oriental underachievement” is “above all institutional.”<sup>970</sup> Alan Macfarlane would be another excellent example of an outspoken institutionalist who, as institutionalists tend to do, thinks the roots of the Great Divergence go back a long time in the past.<sup>971</sup> Jan Luiten van Zanden is clearly convinced that one cannot explain the Industrial Revolution in Europe without looking at specific European institutions that go back as far as the Middle Ages and whose efficiency was higher than in other parts of the globe.<sup>972</sup> It is no accident that Timur Kuran, who also uses the word ‘long’ in the title of his book, likewise favours an institutionalist approach, even though he tackles the problem from the opposite side, as he wants to show “how Islamic law held back the Middle East.”<sup>973</sup> Michael Mitterauer also thinks the roots of European exceptionalism are deep and to a large extent institutional.<sup>974</sup> Institutionalists tend to work in a more Weberian tradition: the Great Divergence, in their view, is not something that occurred quite late, quite sudden and quite contingently but something that notwithstanding the undeniable acceleration in the eighteenth and nineteenth centuries had deep roots and was the outcome of a long path-dependent trajectory.

Some Eurocentric scholars, while not denying the importance of certain institutional settings for economic development, strongly qualify the existence of a *direct* relation between specific institutional changes and the emergence of modern economic growth and industry that is so prominent in the work of e. g. North and his co-authors and of Acemoglu, Johnson and Robinson. Gregory Clark explicitly rejects the thesis that institutions or institutional change would have been at the basis of Britain’s industrialisation: “...institutions play at best a minor direct role in the story of the Industrial Revolution told here ... The institutions necessary for growth existed long before growth itself began.”<sup>975</sup> Like Malthus he wants to establish that for the Malthusian era “...poverty was not the product of institutions, and that consequently [sic! the logic is not

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969 Ferguson, *Civilization*, 13–14.

970 Ferguson, *Civilization*, 21.

971 See e. g. his *Invention of the modern world*.

972 Van Zanden, *Long road to the Industrial Revolution*.

973 Kuran, *Long divergence*.

974 See his *Why Europe?*

975 Clark, *Farewell to alms*, 10. See also page 352 “...institutional explanations for the Great Divergence (are) hard to sustain.” See further in the Index under ‘institutions’.

flawless] changes in political institutions could not improve the human lot". He goes even as far as to claim that in that era "...good government in the modern sense ... would either make no difference to material living standards ... or indeed lower living standards."<sup>976</sup> In a well-governed and well-organised society, population would increase which in the end would cause trouble. Deirdre McCloskey, too, is not overly fond of the predominant institutionalist approach in economic history, especially not when it bases itself so firmly on the ideas of Douglass North *cum suis* and their emphasis on institutions as constraints and on property rights as a fundamental factor in the explanation of the Industrial Revolution.<sup>977</sup> When it comes to the Industrial Revolution in Britain Findlay and O'Rourke too reject an institutionalist explanation.<sup>978</sup>

Strikingly enough, considering the enormous popularity of institutionalism amongst economists at the time, many modern global historians dealing with the Great Divergence tend to actually *minimise* the role of institutions. Especially in case they are anti-Eurocentrists, the difference in emphasis with modern economists could hardly be bigger. Anti-Eurocentric global historians apparently cannot imagine – and will not allow – that any European institution might have been economically more efficient or helpful than institutions in other parts of the world. Members of the California School almost as a rule deny any special credit to European institutions.<sup>979</sup> They prefer to claim that either institutional differences were not that big or not that relevant or both. Referring to Pomeranz's *Great Divergence*, Jones with good reason writes: "*The Great Divergence* is intensively materialist, basing world history on relative resource constraints. No credence is placed in the force of ideas ... nor in the special characteristics of European science and technology, nor yet in the state and its politics."<sup>980</sup> I fully endorse this critique and extensively explained why.<sup>981</sup>

We already saw what Andre Gunder Frank thinks about the explanatory value of referring to institutions.<sup>982</sup> Roy Bin Wong in his *China transformed* is willing to admit institutional differences between China and Western Europe – as a rule *not* to the advantage of the West – but emphasises that those differences did not make a real difference for economic growth and development before industrialisation.

European political economy did not create industrialization, nor was the European political economy deliberately designed to promote industrialization. Instead, Euro-

976 See for both quotations Clark, *Farewell to alms*, 33–34.

977 McCloskey, *Bourgeois dignity*, chapters 33, 34, and 35.

978 Findlay and O'Rourke, *Power and plenty*, 349–350.

979 Jones, *Cultures merging*, 120.

980 Jones, 'Time and culture in old-world economics', 858.

981 Vries, 'California School and beyond'.

982 See page 123.

pean political economy created a set of institutions able to promote industrialization once it appeared.<sup>983</sup>

In the book he wrote with Jan-Laurent Rosenthal, *Before and beyond Divergence*, they both fiercely oppose the suggestion that there might have been anything ‘superior’ [sic!] in Western culture or institutions. They explicitly favour an approach that “eliminates all possible arguments [sic!] that make European cultural or political arrangements superior to those found in China.”<sup>984</sup> On page 109 of the book it reads, “Early modern Chinese political economy was more explicitly intended to foster economic growth than European political economies ...” and on page 127, “Europeans can take little credit for the countless discoveries that led up to the Industrial Revolution. Ours is a tale without heroes and villains, in which the unintended consequences of political conflict are what matter most.”<sup>985</sup> They add, still on the same page “... and it may well have been that given another several hundred years or so [sic!], machine invention would have sprouted there [in China] too.” In the end, so they emphasise – as can be seen in one of the quotations – it was *unintended* consequences of the differences in political economies of Europe and China that made it significantly more likely that industrialisation would happen in the former than in the latter region, not some clever Western design.

Global historians who focus on geography like Jared Diamond or Ian Morris hardly ever even refer to institutions. For Ian Morris, the only serious points of reference are geography and individuals. That, to immediately voice my critique, of course, is bizarre. Even if indeed, as he time and again claims, overall and in large numbers, all men are equal: is it not a simple fact of life that if you put a group of people in a pin factory their productivity *ceteris paribus* is higher than that of an identical group of people who do not divide their labour? In most of his book, he completely ignores the role of institutions and where he does not, he simply cannot and does not try to integrate them in his approach. He evidently has no real understanding of the way they work and what difference they can make.<sup>986</sup> If all forms of agency, institutions, culture, and policies, are so irrelevant, as he and several other global historians want us to believe, why not be consequent and hold a plea to no longer bother about social science, the hu-

983 Wong, *China transformed*, chapter 6, in particular pages 142 – 151. The quotation is on page 151. One can only wonder who ever made the claims that Wong rejects.

984 Rosenthal and Wong, *Before and beyond divergence*, 101.

985 Why Europeans could claim little credit for those inventions escapes me. Why would Watt not be entitled to credit for his invention after many years of extreme effort? I must say I am always amazed about the disparaging way in which many historians and social scientists, who produce nothing but words, write about people who invent things. When it comes to those policies to foster economic growth; I simply fail to see them.

986 Morris, *Why the West rules*.

manities and politics? That would be the logical conclusion if what those disciplines study makes no difference and then by implication what they find out can have no positive political effect.

## 21. Markets and property rights

Probably the most popular ‘classic’ story of ‘the rise of the West’ in institutionalist economic terms has always been and still is that it basically equals ‘the rise of the market’. Industrialisation is then regarded as an acceleration of that process because of attendant technological innovation and increasing investment. But basically the logic of the market as an innovation-producing machine would suffice to explain it. That idea of course is stock in trade with all (neo-)classical economists and all those influenced by them. Institutional economists, who at the moment are very influential amongst economic historians and quite often act as economic historians themselves, do have some specific accents of their own, but they basically share the same frame of thought. They too suggest and sometimes explicitly postulate that the Industrial Revolution – the core of the Great Divergence – was the ‘logical’ outcome of further (institutional) improvements in the functioning of the market, in particular in the sphere of property rights, as for example John Hicks had already postulated.<sup>987</sup> For Douglass North and Paul Thomas, “The so-called industrial revolution is simply a later surface manifestation of innovative activity reflecting this redirection of economic incentives.”<sup>988</sup> In the last sentence of their book *The rise of the Western world* they claimed that around 1700 with the institutional changes introduced by the Glorious Revolution, “The stage was now set for the Industrial Revolution.”<sup>989</sup> In his later book *Structure and change in economic history* North again explicitly wrote that property rights, the institution that is central to most institutionalist analyses, and markets are the best explanation for Britain’s industrial revolution.<sup>990</sup> John Wells and Douglas Wills two decades later followed in his footsteps “... the resulting institutional changes (of 1688) ushered in financial developments that laid the foundation for the Industrial Revolution and ultimately established Britain as a world power.”<sup>991</sup> Mancur Olson wrote, “a few decades after stable and nationwide government had been estab-

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987 See note 379.

988 North and Thomas, ‘An economic theory of the growth of the Western world’, 1. By that redirection they in particular refer to the Glorious Revolution.

989 North and Thomas, *Rise of the Western world*, 156.

990 North, *Structure and change in economic history*, 166.

991 Wells and Wills, ‘Revolution, restoration and debt repudiation’, 418.

lished in Britain, the Industrial Revolution was on its way.”<sup>992</sup> For Kenneth W. Dam “the Glorious revolution provided a strong base for later enjoyment of the fruits of the Industrial Revolution.”<sup>993</sup> Daron Acemoglu, Simon Johnson and James Robinson, to whom we have already referred several times, in all their publications also put a very strong emphasis on the importance of property rights and well-functioning markets for (modern) growth and regard the Glorious Revolution in Britain in 1688 as the fundamental institutional landmark and breakthrough that paved the way for that growth. In *Why nations fail* Acemoglu and Robinson repeatedly postulate a *direct* connection between the Glorious and the Industrial Revolution. The dynamics that led to industrialisation in their view were “unleashed by institutional change that flowed from the Glorious Revolution.”<sup>994</sup> When countries do not industrialise they time and again in that book blame that on ‘extractive institutions’. Proponents of unified growth theory and new growth theory both in their own way also claim that certain institutional arrangements are necessary to increase knowledge, the basis of all innovation, whether it is free-market exchange and competition of ideas or rather a conscious policy of promoting research and development and education. They seem less certain about the importance of property rights, at least when it comes to intellectual property.

Amongst scholars specifically studying the rise of the West and industrialisation the idea that these ‘in the end’ were identical to ‘the rise of the market’ has always been very popular. In Jones’ *European miracle*, the rise of the market and ‘good governance’ provide the key explanation.<sup>995</sup> In his subsequent book *Growth recurring*, he claims that “Economic history may be thought of as a struggle between a propensity for growth and one for rent-seeking; that is for someone improving his or her position at the expense of general welfare.”<sup>996</sup> The basic rent-seeking explanation of differing economic performance between nations according to him is a matter of institutions.<sup>997</sup> Joel Mokyr in his impressive and highly applauded book on the economic history of Britain from 1700 to 1850 argues along similar lines and explains much of Britain’s growth by the fact that the country became “as much of a *laissez-faire* economy as can be expected on this earth” and that “rent seeking ... was approaching extinction.”<sup>998</sup>

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992 Olson, *Rise and decline of nations*, 78–83 and 128.

993 Dam, *Law-growth nexus*, 84.

994 Acemoglu and Robinson, *Why nations fail*, 197. See also for example the title of chapter 7: “How a political revolution in 1688 changed institutions in England and led to the Industrial Revolution.”

995 Jones, *European Miracle*, ‘Summary and comparison’.

996 Jones, *Growth recurring*, 1.

997 Jones, *Cultures merging*, XI.

998 The quotation is on page 8 of his *Enlightened economy*. This thesis is defended throughout the book.

David Landes, just like Mokyr, regards ‘the invention of invention’, that is *institutionalised* innovation, as the main driving force behind growth in the West and, again like Mokyr, thinks that this institutionalised innovation is ultimately dependent on the proper functioning of the market mechanism, or to put it in his terms: “In the last instance, however, I would stress the market.”<sup>999</sup> Deirdre McCloskey also ultimately agrees. She considers innovation as the essence of modern economic growth and even though she does not endorse several claims that have been made about the connection between capitalism as a market economy and growth, it is quite plain in her entire work that she thinks that without markets and competition such growth is hard to conceive.<sup>1000</sup> Erik Ringmar holds a similar view. For him, too, (capitalist) competition is essential for growth. But he, correctly in my view, wants to emphasize that capitalism as an economic system can only exist in a certain setting in which change is considered normal, acceptable and even positive.<sup>1001</sup> In his recent book about the rise of the West, Niall Ferguson explicitly mentions competition and property, in brief the market, amongst the killer applications of ‘the West’ in comparison with ‘the Rest’.<sup>1002</sup> In his latest book, about the decline of the West, he not surprisingly blames its Great Degeneration on its decaying institutions.<sup>1003</sup> As a matter of fact, referring to the role of the market (competition, property rights and thus in the end, capitalism) has always been so much stock in trade in mainstream Eurocentric explanations of how the West grew rich that it is impossible – and boring! – to separately refer to all scholars who do so.<sup>1004</sup>

Discussing the rise of the market in West, as already pointed out, always involved a strong emphasis on property rights and the fact that they would in time have been *uniquely* well defined and respected in the West. So let us begin our analysis with a discussion of their arguments in this respect. In the work of those institutionalist economists who have been most influential in global economic history, Douglass North and Daron Acemoglu with their co-writers, the role of property rights appears as absolutely essential.<sup>1005</sup> When Eric Jones refers to the insecurity of property rights as the essence of pre-modern economic

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999 Landes, *Wealth and poverty of nations*, 59.

1000 For McCloskey’s ideas about capitalism and the market see McCloskey, *Bourgeois dignity*, ‘Preface and acknowledgements’, and chapters 44 and 45.

1001 Ringmar, *Why was Europe first*, 6 – 12.

1002 Ferguson, *Civilization*, 12 – 14.

1003 Ferguson, *Great Degeneration*.

1004 For a couple of influential examples, apart from those already explicitly referred to, see: Baechler, Hall and Mann, *Europe and the rise of capitalism*; Bernstein, *Birth of plenty*; Crone, *Pre-industrial societies: Gellner, Plough, sword and book*; Jay, *Road to riches or the wealth of man*; Macfarlane, *Riddle of the modern world*; Powelson, *Centuries of economic endeavor*; Rosenberg and Birdzell, *How the West grew rich*.

1005 See for one of many examples Acemoglu, ‘Growth and institutions’.

history of Asia and the main reason the region did not take-off for so long, he argues along similar lines and like David Landes places himself and the scholars just mentioned in the tradition of thinking in terms of oriental-despotism that has always been popular not only amongst (neo-) classical economists and adherents of *laissez-faire* but also in Marxist circles.<sup>1006</sup> Marx himself, for example, approvingly referred to the seventeenth-century author François Bernier in a letter and wrote that "...in all the various parts of the Orient – he (i.e. Bernier) speaks about Turkey, Persia and Hindustan – there was no private property. That is the real key to understanding the Orient."<sup>1007</sup> Engels, in a letter to Marx, fully agreed: "The lack of property in land indeed is the key to understanding the entire Orient."<sup>1008</sup>

For the mainstream and institutionalist economists referred to here, having well described and respected property rights provides the main and best basis for growth. In their view, such rights only really emerged in the Dutch Republic in their Golden Age and in particular with the revolution of 1688 in Britain. Acemoglu and Robinson explicitly write: "Prior to seventeenth-century England, extractive institutions were the norm throughout history." With the Glorious Revolution, that is described in extremely momentous terms as "the turning point", that apparently changed.<sup>1009</sup> As indicated, in their view the stage therewith was set for industrialisation in Britain. As such, the importance of property rights for any kind of economic development of course is quite obvious but Deirdre McCloskey is right when she claims: "Numerous societies – in fact all of them, or else they are not societies but wars of all against all – have produced rules of property."<sup>1010</sup> The idea that there would have been no property rights in Europe earlier on, for example for landowners [sic!], merchants or proto-industrialists, actually is not exactly probable. They already existed in the Roman Empire. That Empire by the way also had markets for labour and capital, financial institutions that were better than the French counterparts in the eighteenth century, and a per capita income comparable to seventeenth-century

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1006 See Jones note 156 and Landes, *Wealth and poverty* e.g. 56–57 for China; chapter 11 for Mughal India, and chapter 24 for the Islamic world more in general.

1007 *MEW* 28, page 254.

1008 *MEW* 28, page 259. It is striking that Marx and Engels so casually switch from those 'various parts of the Orient', in which no reference is made to e.g. China and Japan, to 'the Orient' and even 'the entire Orient'.

1009 Acemoglu and Robinson, *Why nations fail*, 184. 'The turning point' is the title of chapter 7 of their book, dealing with the Glorious Revolution.

1010 McCloskey, *Bourgeois dignity*, 316. Three pages further on in the same book she writes: "If property rights were the crucial novelty of 1689, why not industrialization before and elsewhere, in places in which property rights were also enforced?"

Europe.<sup>1011</sup> So why and how exactly would property rights explain Britain's industrialisation? That is not completely obvious. One can in any case only repeat and endorse the comment by Gregory Clark that in Britain "... (T)he institutions necessary for growth existed long before growth itself began."<sup>1012</sup> Leonard Dudley explicitly points out that for the wave of innovations that were at the hearth of Britain's industrial revolution, an institutional explanation cannot suffice as Britain, institutionally speaking, was not really that different from the rest of north-western Europe.<sup>1013</sup> What is even more damaging for the institutionalists' claim is that if we may believe Nicolas Crafts "... there was no obvious improvement in institutions at the time of the Industrial Revolution."<sup>1014</sup> If Julian Hoppit is right and, to be honest, reading his work one can hardly imagine he would not be, the famous Glorious Revolution did not lead to better secured property rights at all but, on the contrary, improved the possibilities for a now strengthened state to interfere with them.<sup>1015</sup>

Interestingly enough, but that is only an aside, the emergence of well-protected property rights in Britain was closely connected to cases of *expropriation*. Henry VIII established property law in order to entice purchasers to pay his price when he sold land that he had acquired via the dissolution of the monasteries. Charles II granted security to those who had bought land in the forced sales of Royalist estates under the Commonwealth.<sup>1016</sup> It is undeniable that property was very well protected in industrialising Britain. But as Adam Smith already realized, this of course meant that those without property were *not* protected: "Civil government, so far as it is instituted for the protection of property, is in reality instituted as a defence of the rich against the poor, or of those who have some property against those who have none at all."<sup>1017</sup> The

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1011 See Manning and Morris, *Ancient economy*, and Temin, 'Economy of the early Roman Empire'.

1012 See Clarke, *Farewell to alms*, 10. See for a clear endorsement of this thesis with regard to the existence of property rights long before 1688, Macfarlane, *Invention of the modern world*, chapters 4, 9 and 10.

1013 Dudley, *Mothers of innovation*, e.g. 51 – 52, 121 – 125 and 240 – 241.

1014 I found this quotation in McCloskey, *Bourgeois dignity*, 343. She there refers to page 10 of a manuscript by Crafts that I have not yet been able to find myself. For further information see McCloskey. See for some general comments Getzer, 'Theories of property and economic development'. For my critique on the way in which Acemoglu and Robinson interpret the Glorious Revolution and its economic effects, see my 'Does wealth entirely depend on inclusive institutions and pluralist politics?' When I wrote that text, I had not yet read Quinn, 'The Glorious Revolution's effect on English private finance', in which the author indicates that private interest rates, which are presumably what private investors really cared about, actually *increased* in Britain after the Nine Years' War of 1688 – 1697.

1015 Hoppit 'Compulsion, compensation and property rights in Britain, 1660 – 1833'.

1016 Jones, *Cultures merging*, 124.

1017 Smith, *Inquiry into the nature and causes of the wealth of nations*, Vol. II, 715.

number of crimes punishable by death in England increased from fifty in 1689 to 200 in 1800. Most of those crimes amounted to some kind of theft. By 1800, at least in theory “English property was protected by the most comprehensive system of capital punishment statutes ever devised.”<sup>1018</sup> But this protection did not apply to all property in all circumstances. Robert Allen goes as far as to claim, basing himself on research by Julian Hoppit, that in Britain in the eighteenth century “growth was also promoted [sic!] by Parliament’s power to take people’s property against their wishes ... What the Glorious Revolution meant in practice was that the ‘despotic power’ of the state that “was only available intermittently before 1688 ... was always available thereafter.”<sup>1019</sup> Many of the activities of the British state, “removed, reallocated, and in short, invaded property.”<sup>1020</sup> Monopolies and privileges – regarded as property by those who had them – were attacked in Britain and far better (too well?) protected in e.g. France, i.e. until the French Revolution when aristocratic and ecclesiastical property was expropriated on a huge scale. Parliamentary control in various respects led to *less* protection of property rights. In Britain, William Pitt the Younger (1759–1806) explicitly said that government could always change policy without compensation to those hurt by the change since otherwise no government would be able to accomplish any change.<sup>1021</sup>

All the positive attention paid to property rights makes one almost forget that such rights can also be *bad* for economic development and conflict with public interest. In France, it was impossible to override private property rights on behalf of public interest in contrast with Britain in the case of, for example, enclosures, the construction of canals or turnpikes. For that reason in the Provence, to give but one example, irrigation works were not undertaken although they would have been profitable.<sup>1022</sup> Landed property of French peasants was better protected than that of British peasants in the sense that France’s government did more to see to it that they did not lose their land than its counterpart in Britain. In the long run, though, the disappearance of the peasantry as an important social class, overall, has come to be regarded as a necessary phase in the economic advance of Britain – and as a matter of fact of any country<sup>1023</sup> – whereas protecting the property of the peasantry as was the case in

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1018 Weisser, ‘Crime and punishment in early modern Europe’.

1019 Allen makes this claim in his *Global economic history*, 29, referring to and quoting Hoppit, ‘Patterns of parliamentary legislation’, 126. See also note 1015.

1020 Langford, *Public life and the propertied Englishman*, 146.

1021 I found this comment in Engerman and Sokoloff, *Economic development*, 348. See there for further background and references.

1022 Rosenthal, ‘Development of irrigation in Provence’.

1023 For the thesis, in this case from a left-wing perspective, that the disappearance of a large class of peasants *in the end* is a necessary precondition for economic modernisation, see the epochal book by Barrington Moore Jr., *Social origins of dictatorship and democracy*.

France tends to be regarded as a brake on the country's economic development. Peasants in China under Qing rule, to refer to our regular 'test case', also were better protected against eviction than their British counterparts. But most economists would doubt that this in the end was good for China's economic development. Ending monopolies and privileges so typical to Europe's *Ancien Regime* in fact was a form of expropriation. Was it bad for economic development? Was, to refer to the situation in France again, the expropriation of the lands of the Church and the aristocrats during the Revolution bad for economic development? Slave owners in the USA received no compensation when slavery was abolished there: was that bad for the economy as a whole? Actually the role of expropriation in Western economic history has been far greater than many institutionalist care to admit.<sup>1024</sup> Erik Reinert is quite sceptical of the importance of property rights per se and thinks that they can actually make things worse than they were in pre-capitalist societies without economic development and without the right overall institutional setting.<sup>1025</sup> As is so often the case in history, things are more complicated, depending on context and a matter of degree. Most institutionalists have a rather simplistic and optimistic idea of the dynamics of economic development and in particular modern economic growth when they seriously think that all it takes to create them are well-defined and secured property rights, and the 'right' market-supporting institutions. One might wish things were that simple.<sup>1026</sup>

Notwithstanding all the previous comments, the assumption that property in Western Europe and in particular in Britain when it took off, was at least *more* secure than anywhere else in the world continues to be fundamental to the explanations of the rise of the West given by most (neo-)classical and in-

1024 For a recent study dealing with the topic, see Lorenzetti, Barbot and Mocarelli, *Property rights and their violations*, in particular the 'Introduction'. Actually, governments of early modern Western Europe quite often defaulted or debased their currencies -- least of all those of those of Great Britain and the Dutch Republic -- or directly expropriated property of, for example, religious institutions, aristocrats and any sort of people that for whatever reason had the bad luck of becoming 'public enemies'. Even there, many thousands of people lost property.

1025 Reinert, *How rich countries got rich*, 220–221.

1026 That even is the case in the quite sophisticated recent analysis of North, Wallis and Weingast. They never provide a concrete explanation of the actual first transition from a limited-access-order to an open-access-order society as far as the emergence of modern economic growth is concerned and never extensively discuss how *economically speaking* modern societies emerged. They produce typologies and describe 'doorstep conditions', but they never in any detail refer to actual mechanisms of transition. For them too, so one cannot escape concluding, the actual, concrete emergence of modern economic growth in the end is a matter of 'contingency'. It, moreover, is a fairly long-drawn process: implementing the doorstep conditions to the full in their view takes some fifty years. See *Violence and social orders*, 27, where they claim such transitions occur in "relatively brief (sic!) periods."

stitutionalist economists and by those inspired by them. Is that indeed the case? Let us again make a comparison to Qing China. The literature that I have studied strongly suggests, as was to be expected, that private property actually was quite normal there although some important differences between the Chinese situation and that in Western Europe indeed existed. Let me focus on Chinese land rights, the most important form of property. It is not easy to make firm and valid general statements about them. We are dealing here with an extremely complex topic, so complex that an expert on the topic concluded: "Complexity is the only feature of the pre-Taiping land-tenure system (i. e. the period before 1850) that can be noted with assurance."<sup>1027</sup> What definitely contributed to this complexity was the quite current distinction between topsoil and subsoil rights, i. e. between ownership rights and cultivation rights over one and the same tract of land. The form of actual co-ownership this implied made eviction all but impossible, even more so as rents, that often became fixed in monetary terms, could only be raised by landlords with great difficulty if at all because of strong social pressure and 'custom'. As long as a tenant paid his fixed rent he could feel secure that he could continue to till 'his' land. What complicated matters even more is the fact that those landowners who owned a substantial amount of land as a rule rented that out in many separate, often quite dispersed plots, whereas on the other hand the tiny farms of ordinary peasants often consisted of various separate plots. There certainly were differences with the situation in Great Britain but they were nowhere near as big that they can explain the Great Divergence. Overall, it seems to me that in China, individual, absolute property rights were less common than they were in Western Europe. Its property rights tended to be rather more restrictive and collective. The concept of 'conditional sale', moreover, continued to be important.<sup>1028</sup> But we are talking about differences here not about fundamental contrasts.

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1027 Bernhardt, *Rents, taxes, and peasant resistance*, 14. For general analyses and examples considering the broad claims I make in this paragraph see the literature referred to in the next note plus Bernhardt's book and Huang, *Peasant economy and economic change in North China* and idem, *Peasant family and rural development in the Yangzi Delta*, in particular chapter six.

1028 For the point of view that individual property rights and individual freedom of enterprise were restricted in Qing China, more so than in Britain at the same moment in time, see, for example, Gates, *China's motor*; Macauley, 'A world made simple'; Mazumdar, *Sugar and society in China*; Schurman, 'Traditional property concepts in China', *Far Eastern Quarterly* 15 (1956) 507–516, and Wakefield, *Fenjia. Household division and inheritance in Qing and Republican China*. For the opinion that in fact there was not much difference between Britain and China, see Pomeranz, *Great Divergence*, 69–107. Buoye, *Manslaughter, markets, and moral economy* gives an interesting analysis of the conflict between various perceptions with regard to property and ownership in eighteenth-century China and refers to the existence and the erosion of a moral-economy perspective. Then, to conclude, there is Isett, *State, peasant, and merchant in Qing Manchuria* in which the

When it comes to legal protection and law, most experts now agree that written contracts were quite normal in early modern China and their 'juridical' status not fundamentally different from that in Western Europe.<sup>1029</sup> If one wanted to prove one's ownership of a piece of land, for example, one needed a 'real' contract, i. e. a contract with an official seal that could only be given by a state-official. Receiving such a seal implied one had to pay taxes over the land, which then turned into proof one officially owned it. This could lead to a situation where people 'volunteered' to pay taxes to thereby show land was theirs.<sup>1030</sup> I guess, though, that the opposite, people preferring *not* to officially own land because that implied paying taxes, will have occurred more frequently.<sup>1031</sup> All this information only refers to property rights and private contracts, not however to tax manipulation and corruption that can of course have effects that are quite similar to those of actual infringements of rights and contracts. In that respect, the situation in Qing China from the later half of the reign of the Qianlong Emperor deteriorated quickly. Corruption became an enormous problem and must certainly have had a negative impact on economic development.<sup>1032</sup> Since the late 1970s, by the way, China has been experiencing a phase of enormous growth with only very mediocre institutions. Be it as it may be, in the end the fundamental problem with property-rights explanations is that there have been far too many societies that had property rights and no modern economic growth to claim that having them would solve the riddle of modern economic growth.

Special attention in this context has always been accorded to property rights in ideas or so-called 'intellectual property rights'. Many scholars consider protecting them via patents as fundamental for growth. Such patents are a form of monopoly claim on the use of a really novel idea for a limited period of time. As such, of course, the idea of any kind of monopoly should not be popular in circles of mainstream economists but in this case they and many others regard them as a kind of necessary evil because without them, inventors would run the risk that copycats and competitors would reap the benefits of their efforts – and thus take away the (economic) incentive to invent – as anyone could immediately and freely copy any inventions. The potential *advantage* of the patent for the inventor – that amongst other things depends on how complicated and costly it is to get a patent; for how long it lasts and under which conditions – of course

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analysis of property relations in Manchuria and China holds centre-stage. For the British situation with respect to property rights in land, see Daunton, *Progress and poverty*, chapters 3 and 4.

1029 For the role of contracts in China's early modern economy see, Zelin, Ocko and Gardella, *Contract and property in early modern China*.

1030 See Osborn, 'Property, taxes and state protection of rights'.

1031 Mark Elvin made this point in a presentation during the Great Divergence Conference at the London School of Economics and Political Science, 26 June 2009.

1032 See note 1298.

might exactly be the *disadvantage* for society at large. Monopolies acquired via patents hamper a quick spreading of innovations over the entire economy. Douglass North is aware of the problem, but takes what I think is the majority stance after formulating the ‘dilemma’ at hand in terms of a rather stark contrast: “But as compared to no protection at all, the value of some property rights over invention is not an issue.”<sup>1033</sup> The debate, however, is not settled. Matt Ridley, for example, is very ambivalent about them. He thinks many inventors did not care about them; that in many cases they did more harm than good and that there is no clear proof that patents explain why at some moments in time and in some places people are more innovative than at other moments in time and in other places.<sup>1034</sup> William Rosen, in contrast, in a book published in exactly the same year as the one by Ridley I just referred to, thinks that the main reason eighteenth-century Britain was such a fertile soil for inventors and innovators lay in the fact that in particular thanks to patents they had the right to own and profit from their ideas.<sup>1035</sup> In an even-handed and knowledgeable overview of the debate, Joel Mokyr comes to the conclusion that they were not as fundamentally important as institutionalists like to postulate but not irrelevant either.<sup>1036</sup>

## 22. Institutions: markets and varieties of pre-industrial capitalism<sup>1037</sup>

Property rights are regarded as so important for economic development as they would provide a necessary precondition for the emergence of a class of entrepreneurs without whom (in any case *capitalist*) development would be unthinkable. Therein resides their fundamental importance. Why invest, if one cannot be sure one can keep at least some returns of one’s investment? For many decades there has been a consensus amongst economic historians – and very probably it still exists amongst broad layers of the population – that Europe was the cradle of capitalism or as people now tend to call it ‘the market-economy’ and that no convincing story could be told about the economic rise of the West without reference to this ‘uniquely European’ phenomenon. Proponents as well

1033 North, *Structure and change in economic history*, 164–166, quote on 165.

1034 Ridley, *Rational optimist*, chapter 8: ‘The invention of invention’.

1035 See his *Most powerful idea in the world* with its numerous references to patents. By the most powerful idea in the world he actually means the patent right that added, to quote Abram Lincoln, “the fuel of interest to the fire of genius”. See there page 324.

1036 Mokyr, ‘Intellectual property rights, the industrial revolution and the beginnings of modern economic growth’. I can do no better than refer to this publication.

1037 I want to emphasise that I here refer to *pre-industrial* varieties of capitalism and *not* to the varieties of capitalism discussed in Hall and Soskice, *Varieties of capitalism*.

as opponents of capitalism agreed that it came to its full development in Europe – and only there – and that from there it incorporated ever larger parts of the world. Members of the California School and several other revisionist global economic historians now fiercely contest this thesis.<sup>1038</sup> According to them this is just another example of an exaggerated sense of European exceptionalism. To my view, their contestation rests on the basis of a serious misconception or at least a quite one-sided conception of what ‘Eurocentrists’ actually mean when they talk about capitalism.

They can be excused in as far as capitalism, like all key concepts in the social sciences, is a highly debated and complex term that over time has received many different and shifting interpretations.<sup>1039</sup> Personally I always use the word in the classic, basically Marxist and Weberian sense of an economic system that is characterized by the following features: (1) private property, including and fundamentally, private property of capital goods, (2) private enterprise, (3) widespread commodification of goods and services (land, labour, capital and money)<sup>1040</sup> and (4) the formally free, i. e. non-coerced, exchange of those goods and services on formal or ‘abstract’ markets. I consider these characteristics a *conditio sine qua non* to apply the term to an economy. I distinguish between four main varieties or interpretations that for the sake of convenience I will call Smithian (after Adam Smith), Marxian (after Karl Marx) Weberian (after Max Weber) and Braudellian-Wallersteinian (after Fernand Braudel and Immanuel Wallerstein). My distinctions are not watertight nor exhaustive.<sup>1041</sup> They just are an attempt to create some order and structure my brief analysis. Between the interpretation inspired by Adam Smith and that by Karl Marx as author of *Das Kapital* there are clear differences particularly in emphasis in regard to the importance of the private ownership of capital and capital goods and its effects. Smithians, with their focus on *exchange* as it takes place on markets, regard labour not so much as a commodity that is bought and has to sell itself but as a category of agents who on the basis of a formally free and rational choice offer their labour power for the best available wage. For Marxians – *and* Weberians – the private ownership of capital and capital goods gets particular attention

1038 See part 2 chapter 23.

1039 For an excellent overview see Kocka, *Geschichte des Kapitalismus*, and idem, ‘Der Kapitalismus und seine Krisen in historischer Perspektive’.

1040 I would define a commodity here, for the sake of simplicity, as everything produced for exchange. That means everything that has use-value as well as exchange-value.

1041 I could for example also refer to Schumpeter’s definition of capitalism as “that form of private property economy in which innovations are carried out by borrowed money”. See note 806. I doubt whether this would in any way consolidate the Californian position that Qing China also was somehow capitalist. If we take the Schumpeterian definition of innovation, Qing China simply was not very innovative and the role of money borrowed for innovation looks much less important there than in North-western Europe.

because it leads to the emergence of a situation in which people who no longer dispose of (sufficient) means of production to provide for their subsistence *have to* sell their labour to other people and to work for them for wages. Smithians put the emphasis on the fact that labour is formally free, Weberians and Marxists on the fact that it is actually quite unfree.

In the Marxian interpretation of capitalism, the focus is on the modes and relations of *production* and on the specific position of labour as a very idiosyncratic commodity in a system of *asymmetric relations* of production. Whatever else capitalism may mean for Marxists, they first and foremost associate it with classes, i.e. with proletarians who must sell their labour for subsistence, and capitalists, i.e. those who employ those proletarians, and with relations of production.<sup>1042</sup> This is how Marx himself put it:

...the capitalist mode of production and accumulation, and therefore capitalist private property as well, have for their fundamental condition [sic!] the annihilation of that private property which rests on the labour of the individual himself; in other words, the expropriation or the worker.<sup>1043</sup>

For the conversion of his money into capital, therefore, the owner of money must meet in the market with the free labourer, free in the double sense, that as a free man he can dispose of his labour-power as his own commodity, and that on the other hand he has no other commodity for sale, is short of everything necessary for the realization of his labour-power.<sup>1044</sup>

The loss of means of production (or better subsistence) by many, i.e. 'proletarianisation' is just the other side of the coin of the accumulation of capital for investment by others. Capitalism as Marx defines it, *cannot* exist without wage labour. Several modern Marxists like Robert Brenner, in my view correctly, still defend this position. He claims that, "...separation from the means of subsistence ... is the *sine qua non* [Italics mine.] for the emergence of a capitalist dynamic".<sup>1045</sup> In his view those who no longer have their own means of subsistence are "rendered dependent on the market for their inputs" and "subject to competition in production to survive."<sup>1046</sup> This gives a distinct logic and dyna-

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1042 See e.g. Brenner's critique on neo-Smithian Marxism in his 'Origins of capitalist development'; his 'Property and progress', and his publication under note 1045. This point of view of course is also at the basis of the so-called 'Brenner Thesis'. See Aston and Philpin, *The Brenner Debate*.

1043 *MEW* 23, page 802.

1044 *MEW* 23, page 183.

1045 Brenner, 'The Low Countries in the transition to capitalism', 275–338, page 278, note 2. His views are shared by e.g. Isett in *State, peasant, and merchant in Qing Manchuria*, and Meiksins Wood, *Origins of capitalism*.

1046 Brenner, 'The Low Countries in the transition to capitalism', 278.

mism to capitalist economies as all producers are forced to permanently increase productivity or at least cut costs.

In debates on the rise of the West, one comes across many references to Max Weber's ideas about capitalism. These are then presented as adding up to a specific variety of capitalism that is associated with a strong emphasis on its mental-cultural aspects. Weber's capitalism is primarily presented as a form of economic rationality. The connection Weber postulates between Calvinism and capitalism is then regarded as his fundamental thesis regarding capitalism. Actually, references to 'the spirit of capitalism' are only part of Weber's overall interpretation that for the rest is all but identical to Marx's. In that respect, the tendency to focus so exclusively on what distinguishes both scholars, although there *are* differences, can be quite misleading. Weber's position on the role of 'free labour' and the importance of classes e.g. is entirely identical to that of Marx. In his list of pre-conditions for capitalism, this is one:

Free labour, that means that persons are available who are not just legally able but also economically necessitated to freely sell their labour on a market. It contradicts the essence of capitalism, and its development is impossible (sic! PV) when such a social group that lacks property and therefore is forced to sell its labour is absent and also when there is only unfree labour.<sup>1047</sup>

For those who did not get the point he on the same page adds that by 'free' he means: "Formally free but actually forced by the whip of hunger."<sup>1048</sup>

In capitalism all those 'free' economic actors – and here Smith, Marx and Weber basically agree – meet on a formal, abstract market where they exchange on the basis of formally free decisions. On the labour market, labourers sell their labour-power in order to earn a living. Employers employ that labour in order to

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1047 Weber, *Wirtschaftsgeschichte*, Kapitel, IV, 1, 'Begriff und Voraussetzungen des Kapitalismus', 240. The book was first published in 1923. I here used the fifth edition, which is a corrected and completed version of the original text and was published 1991 in Berlin. Several English translations exist under the title *General economic history*. The translation is mine. In German the text reads: "Freie Arbeit, d. h. dass Personen vorhanden sind, die nicht nur rechtlich in der Lage, sondern auch wirtschaftlich genötigt sind, ihre Arbeitskraft frei auf dem Markt zu verkaufen. Im Widerspruch zum Wesen des Kapitalismus steht es, und seine Entfaltung ist unmöglich, wenn eine solche besitzlose und daher zum Verkauf ihrer Arbeitsleistung genötigte Schicht fehlt, ebenso, wenn nur unfreie Arbeit besteht." In his famous *Vorbemerkung zu den Gesammelten Aufsätze zur Religionssoziologie* originally published in 1920/1921 and of which numerous editions and translations exist – in English as *Introduction to the sociology of world religions* – we also find this strong emphasis on the rational capitalist organization of (formally) free labour and on the existence of capitalist enterprises separated from households and owned by members of the bourgeoisie. Just as in the case of Marx's definition: There simply cannot be capitalism as Weber defines it without wage labour and employers.

1048 Weber, *Wirtschaftsgeschichte*, 240. In the original it reads: „...formal freiwillig, tatsächlich durch die Hungerpeitsche gezwungen.“

earn a living, but also to be able to permanently invest in order to withstand competition from other capitalists. The motor of capitalist development therefore resides in *sustained capital-accumulation for sustained profitability*. Competition *forces* all those operating in a capitalist regime to be as efficient as possible. In particular for capitalists, but basically for all parties involved, to be able to figure out whether what they do actually is efficient, or as economists would say ‘rational’, means to have the possibility of calculation which implies some kind of bookkeeping and the monetisation of all economic activities. It ‘ideally’ also implies a separation of household and firm.<sup>1049</sup> In this respect too, Weber and Marx agree. Effective calculation requires predictability, which in turn requires the existence of rational, predictable laws, a point that is emphasized by Weber.

Considering all these pre-conditions, a capitalist *economy* can only flourish in a capitalist *society*. Its logic can only prevail when ruling elites in a society tolerate or preferably even support it. That means there has to be synergy between the economic order (capitalism in the strict sense of the word) and the political order that we for the sake of convenience will call ‘the state’. Talking about the role of the state and of power in capitalism brings us to yet another major difference in the way it is interpreted, this time primarily between Smithians on the one hand and those arguing in line with Braudel and Wallerstein on the other. The essence of Smithian capitalism is the free market, the logic of the invisible hand. In it competition is free and fair and all parties are price-takers. In capitalism as Braudel and Wallerstein see it, visible hands play a much bigger role. Braudel goes even as far as to claim that “Capitalism only triumphs when it becomes identified with the state, when it is the state”<sup>1050</sup> and to define it as an ‘anti-market’. In ‘real existing capitalism’, so he claims, capitalists and rulers, profit and power, tend to collude. There are many visible hands instead of one invisible one. Markets are essential but they are manipulated and non-transparent, with capitalists continuously trying to create monopolies. Actually ‘capitalism’, especially but definitely not only in the early modern era in Western Europe, functioned far more like Smith’s ‘mercantile system’ than like his ‘commercial society’.<sup>1051</sup>

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1049 For the development of the firm or the company in Western capitalism, see Micklethwait and Wooldridge, *The company*. One must be wary not to exaggerate the importance of the ‘modern’, i. e. limited-liability, joint-stock companies for Great Britain during its take off. On page 40 of their book they write: “Symptomatically, the two most dynamic and controversial parts of the British economy – the slave trade and the growing industrial sector – both preferred partnerships (and occasionally joint-venture associations) to joint-stock companies.”

1050 Braudel, *Afterthoughts on material civilization and capitalism*, 64–65.

1051 For further explanation see my ‘Europe and the rest: Braudel on capitalism’.

Smithians and Braudellians/ Wallersteinians both claim that markets and capitalism were cornerstones of Europe's economic development and they both emphasise that capitalism was uniquely European. But confusingly enough, as these brief characterisations show, they define it in almost diametrically opposite ways. Traditional Marxists also tend to pay a lot of attention to 'visible hands' in what they call 'monopoly capitalism', but while they associate that, as a rule, with 'late capitalism', for Braudel and Wallerstein, monopoly and the collusion of power and profit are essential for capitalism from the very beginning. In their work there is no reference to capitalism as a distinct stage in a succession of modes of production as we find in classical historical materialism. Yet another difference with classical Marxism would be that the Braudellian-Wallersteinian definition of capitalism puts far more emphasis on exchange than suits the taste of classic Marxists whose primary focus is on production.<sup>1052</sup> In the approach of Braudel and Wallerstein capitalism is a world-system – a quite confusing term indicating that it encompasses more than one country and has a life and 'logic' of its own – of which the centre region, as yet located in the West, is well developed, specialises in the production and export of commodities and services with high added value, has a well-paid and skilled, free labour force and strong states with representative organs or in any case possibilities for power sharing for elites. In the periphery the situation in those respects is exactly the opposite.<sup>1053</sup> In their view it is essential that capitalists and the state collude, in what Charles Tilly (1929–2008) aptly called "liaisons dangereuses", in which both parties need each other but also have good reasons to mistrust each other and in a setting in which the political system (the state) and the economic system (capitalism) clearly overlap to some extent but are never identical.<sup>1054</sup> Capitalism in their view by definition *encompasses* a wider a system of polities. Max Weber, by the way, already realised that:

This competition [between competing national states] created the best chances for modern capitalism in the West. Every single state had to compete for the mobile capital that dictated the conditions under which it was willing to bring it to power. This enforced alliance with capital produced the national citizenry, the bourgeoisie in the modern sense of the word. Therefore it is the closed national state that guarantees

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1052 See under notes 1042–1045.

1053 Amongst neo-Marxists scholars like Giovanni Arrighi, however, the perspective of Braudel and Wallerstein, has found support. See e. g. Arrighi, *The long twentieth century* and idem, *Adam Smith in Beijing*. Both Wallerstein and Braudel have never denied that they have been heavily influenced by Marx's work, which they both admired and held for extremely influential and important.

1054 Tilly, *Coercion, capital, and European states*, 58–61.

capitalism its chances of continued existence: as long as it is does not cede to a global empire, capitalism will exist too.<sup>1055</sup>

### 23. Wage labour and world-system: Why it does not make sense to call Qing China capitalist and why capitalism's origins should be considered uniquely Western

Whatever may have been their exact interpretation of the term, up until quite recently, *all* major participants in the debates on 'the rise of the West' endorsed the claim that capitalism was something uniquely Western and that Britain was a highly developed capitalist country. Now, the 'surprising-resemblances thesis' implies that capitalism, if such a thing ever existed at all, which of all people Gunder Frank at the end of his life denied, was *not* uniquely or even typically European or Western. Scholars like Pomeranz, Wong, Goody, and Frank indeed, as we will discuss in coming paragraphs, explicitly make this claim. By doing so, they break with a long and established historiographical tradition. So it would be interesting to know what exactly they mean by their claim and how exactly they back it up. They do have a point in the sense that in various respects differences have been exaggerated or even invented. But to only focus on resemblances in my view means ignoring major differences and thereby erring in the opposite direction. Overall references made in 'revisionist' literature dealing with the Great Divergence tend to only point at capitalism *à la* Adam Smith and his focus on exchange and to then claim – to a large extent correctly – that (this) capitalism was not uniquely or even typically European. When one, however, also takes on board what Marx, Weber, Braudel and Wallerstein wrote about capitalism, things look quite different. I just want to focus on two major differences between the West, in particular north-western Europe and the Rest that in this context to my view are essential: (1) The fundamental and exceptional place in Western, and in particular British capitalism of 'free' wage labour *à la* Marx and Weber<sup>1056</sup> and (2)

1055 Weber, *Wirtschaftsgeschichte*, 288 – 289. The translation is mine. In German the text reads: „Dieser Konkurrenzkampf (between competing national states PV) schuf dem neuzeitlich-abendländischen Kapitalismus die größten Chancen. Der einzelne Staat musste um das freizügige Kapital konkurrieren, das ihm die Bedingungen vorschrieb, unter denen es ihm zur Macht verhelfen wollte. Aus dem notgedrungenen Bündnis des Staates mit dem Kapital ging der nationale Bürgerstand hervor, die Bourgeoisie im modernen Sinn des Wortes. Der geschlossene nationale Staat also ist es, der dem Kapitalismus die Chancen des Fortbestehens gewährleistet: solange er nicht einem Weltreich Platz macht, wird also auch der Kapitalismus dauern.“

1056 One has to be careful here: global comparative research into the importance of wage labour is only just beginning and it might be the case that European exceptionalism in this respect is only matter of a lack of knowledge about regions outside the West. I would be

the specific collusion of profit and power and the emergence of a modern world-system of which North-western Europe became the core, that are so central to capitalism *à la* Braudel and Wallerstein.<sup>1057</sup>

Let us begin with some comments on free wage-labour and the fact that, overall, the Californians simply do not discuss it. Jack Goody constantly refers to capitalism, and even wrote a book called *Capitalism and modernity*, but never in any of his four last books devoted to 'the West and the Rest' does he show any awareness of the fundamental role that free wage labour plays in definitions of Western capitalism and never does he systematically compare the position and status of labour in various parts of the world.<sup>1058</sup> The same goes for Pomeranz. Nowhere in his *magnum opus* does he explicitly discuss wage labour and compare it systematically to other types of labour. Nowhere are the modes of production in Britain compared to those in China. In its 'Index' terms like 'proletariat' or 'proletarian' are absent. He uses the word 'capitalism' in the context of the economy of Qing China because it had a market economy for consumer goods, and to a somewhat lesser extent for land and money, and because labour overwhelmingly was free in the *juridical* sense of the word. Indeed, that type of labour was the rule in Qing China, *more so* than in many parts of Europe. But he never discusses whether China also had a huge labour force that was 'free' in the fundamental other sense of the word, i. e. bereft of its means of subsistence. He clearly knows it did *not*<sup>1059</sup>, but apparently thinks that does not make a relevant difference for the debate on the Great Divergence. Bin Wong thinks Qing China can be called a 'capitalist' market economy or, as he prefers to call it, an economy with 'Smithian' dynamics for the same reasons as Pomeranz does.<sup>1060</sup> Parthasarathi, to briefly refer to the case of India, claims that this country in the early modern era was basically just as capitalist as Europe. He does so because it too had a very lively and extended exchange of goods and entrepreneurs and merchants who were running sophisticated firms and behaved 'rationally'.<sup>1061</sup> Frank, of course, again is quite extreme. After having spent the major part of his life attacking Western capitalism, he ended it vociferously claiming that there is no such thing as a capitalist mode of production. He too

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surprised if that research would result in the discovery of other regions with a similar rate of proletarians but one cannot exclude that beforehand. As indicated earlier on for Spanish Latin America, an increasing number of scholars now points at widespread free wage labour there. Let me here refer to a major research project at the International Institute for Social History in Amsterdam into global labour relations: <http://socialhistory.org/en/projects/history-labour-relations-1500-2000>.

1057 Research into the political power of mercantile elites in different parts of the world already has a much longer tradition. I refer here to my 'Governing growth'.

1058 For those four books see note 13.

1059 See note 1069.

1060 Wong, *China transformed*, Part I.

1061 See e.g. Parthasarathi, *Why Europe grew rich*, 80 – 85.

does so without ever actually discussing whether, when it comes to the commodification of labour, i. e. to proletarian wage-labourers working for employers, there may not have been substantial differences between (parts of) the West and the East. On page 332 of *ReOrient* he, with his usual lack of nuance and overdose of self-assurance, writes: “best just forget about it [i. e. capitalism], and get on with our inquiry into the reality of universal history.”<sup>1062</sup>

I do not want to deny that Qing China had a Smithian economy or, as Adam Smith himself would call it, a ‘commercial society’ as regards consumer goods and even capital goods. On the eve of Britain’s industrialisation in the eighteenth century, the Chinese bought and sold massively. Qing China by no means was a primitive, hardly monetised society, where people lacked property rights and the bulk of the population consisted of peasants only producing for their own subsistence. That is a clichéd image that certainly needed to be deconstructed. But calling a society with hardly any commodification of labour, i. e. hardly any wage-labouring proletarians – and thus also hardly any bourgeois-entrepreneurs – ‘capitalist’, is really stretching the term *over* its limits. In no publication about China’s economic history during the early modern period have I ever come across an estimate of the number of people who had to fully depend on wage labour that was higher than five per cent of the entire labour force. Pomeranz very recently himself wrote that even in the highly commercialized Yangzi Delta at most fifteen per cent of the rural Chinese lived primarily on wages.<sup>1063</sup> The situation, by the way, in Japan was quite similar. There, as late as 1879, no more than five per cent of the entire labour force worked for wages.<sup>1064</sup> In this respect, the *difference* between Britain and China is simply staggering. Whereas in Qing China there were hardly any real proletarians, in Britain they already quite early on had become the norm in the countryside. Proletarianisation there was really massive. In 1851, seventy-three per cent of those working in England’s countryside were wage labourers. According to Gregory King already in 1688, two-thirds of the rural population was landless.<sup>1065</sup> Wage labour was also quite common in cities. To work outside one’s own household in the period between childhood and marriage was very common, almost the rule. Between 1574 and 1821, 13.4 per cent of the population in English communities were servants or apprentices.<sup>1066</sup> All this was highly ex-

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1062 See further Frank, *ReOrient*, Index under ‘capitalism’ and under ‘mode of production’, e. g. 330 – 332.

1063 Pomeranz, ‘Ten years after’, 23.

1064 De Vries, ‘Industrious peasants in East and West’, 112.

1065 Overton, *Agricultural Revolution in England*, 178, and Lindert und Williamson, ‘Revising England’s social tables, 1688 – 1812’.

1066 See De Moor and Van Zanden, ‘Girl power’, in particular pages 11 – 16. For the claim that

ceptional in Qing China, and quite normal in Western Europe as a whole.<sup>1067</sup> All circumstantial evidence we have, moreover, in particular that with regard to the level of migration to towns, suggests that labour mobility overall, but especially that of female labour, was less high in China than in Europe.<sup>1068</sup>

One cannot simply ignore this fundamental difference between China – but also India and Japan – and in particular Britain – but also several other regions in Western Europe – *even* if it did not make a big difference for the wealth of both countries before industrialisation and *even* if it in the end would turn out not to make a big difference for the Great Divergence. Discussing capitalism without discussing capital and labour – that is without wage-labour, is bizarre. It is taking the Prince of Denmark out of Hamlet. One cannot seriously discuss economies without analysing their modes of production. China certainly had several markets but it had no capitalist organisation of its production processes. Its predominant productive entities were households that functioned according to a logic quite different from that of firms. Together, those households constituted a quite different economy. Capitalism, as Marx and Weber defined it, as an economic system in which wage labour is the norm, is a European invention: nowhere in the world – *as far as we know now* – during the eighteenth century was it as highly developed as in Britain. The fact that as a rule household and firm in China were not separated whereas that separation is regarded as a pre-requisite for a capitalist mode of production by Marx as well as Weber would be yet another reason *not* to call Qing China's economy capitalist, as would be the fact that book-keeping and monetisation played only a relatively minor role in it, and the fact that, to all intents and purposes, the predictability and 'rationality' of China's juridical system – a necessary precondition for an efficient functioning of capitalism according to Weber – were less than in Britain. Although one should be wary not to exaggerate in this last respect: Britain never took, as Weber himself indicates, Roman law as basis of its juridical system. Its common law system was a system of case law that operated on the basis of persuasive authority. This means that conscious action and interpretation by law makers and judges, elements that Weber thinks should be eliminated as much as possible in any full-blown, *rational*-bureaucratic system of law, continued to be very important.<sup>1069</sup>

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between 1574 and 1821, 13.4 per cent of the population in English communities were servants or apprentices, see page 11, note 16.

1067 By 1750 over half of the population of Europe except Russia seems to have depended on wage labour to some extent. See Tilly, 'Demographic origins', 30–34. I am convinced this is far more than anywhere else in the world.

1068 Winter, 'Population and migration'.

1069 That at least is the overall impression one gets when reading Weber, although it has been claimed that Weber is ambivalent on the role of formal state laws in the development of capitalism. See e.g. Cotterell, 'Development of capitalism and the formation of contract

Of course, differences with Britain were not absolute but a matter of (large) orders of magnitude. But Marx and Weber in any case would certainly reject the Californian claim that Qing China was capitalist. In my view, the consequences of having a system based on wage labour like in Britain rather than a system in which a household mode of production prevailed like in China, must be huge, not necessarily when it comes to wealth or poverty, but definitely when it comes to the direction in which an economy can or cannot, will or will not evolve. I have analysed these consequences in some detail elsewhere and will not repeat myself here.<sup>1070</sup> What is striking is not only that there were so many proletarians and capitalists-entrepreneurs in Britain but even more that those capitalist-entrepreneurs were part of the ruling class of their country. Nowhere else in the world were capitalists in a major country in a politically powerful position like in Britain.<sup>1071</sup> There with the Glorious Revolution of 1688, the importance of the ‘moneyed interests’ in government certainly increased, which partly explains the focus on that Revolution in many analyses of Britain’s socio-economic history. One must, however, again be careful not to exaggerate: by far the bulk of the members of Parliament up to 1832 consisted of wealthy landowners who tended to behave like capitalists but nevertheless were not the proto-type merchants-entrepreneurs that many people think began to rule the country. But nevertheless, all the major differences enumerated here and elsewhere in the text between Britain’s and China’s mode of production simply *must* have made – and did make – a difference.

Braudel and Wallerstein too, definitely would *not* endorse the thesis that Qing China was capitalist, in the sense in which they use the term. I pointed out two main characteristics of ‘their’ capitalism. Firstly, there is the collusion of power and profit. In capitalist countries in the early modern era, in their view, merchants had major political clout. They received all sorts of support such as monopolies from government but in turn supported government, in particular financially. None of this existed in China, or in any other major and economically advanced state elsewhere outside Europe. People acting like capitalists never even came close to having the kind of political clout they had in Britain or in other mercantile states in Western Europe. There was no institutionalised collusion between them and the state. In contrast, the state as a rule fiercely opposed the emergence of a merchant class that might become a threat to its power.

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law’. For British law see e. g. Macfarlane, *Invention of the modern world*, chapters 9, 10 and 11.

1070 See my *Zur politischen Ökonomie des Tees*, 97 – 111, and my ‘Un monde de ressemblances surprenantes?’.

1071 For an introductory comparison see Pearson, ‘Merchants and states’. Interestingly enough this thesis of the fundamental importance of bourgeois rule is defended by ‘marxist’ scholars like Arrighi, Braudel, Brenner and Wallerstein, as well as by more mainstream institutionalists like North c.s. and Acemoglu c.s.

This can be illustrated very neatly by comparing the English East India Company traders with the Chinese Co-Hong merchants they traded with in Canton. The British East India Company had a charter, which meant that it could act autonomously when it came to daily routines. It was a formal organisation, which means it could attract external capital. Its relationship with government was not antagonistic. Often, they shared interests and acted together. In China, merchants who worked together with government officials, even when they had some sort of official 'monopoly' always only were minor partners. That was the case with the famous salt merchants but also with the Hong merchants who were responsible for dealing with foreign traders in Canton. In comparison to Western chartered companies, their, 'guild', the so-called Co-Hong formed only a weakly integrated group. The Hong merchants, who were its members, did not have a charter, were more dependent on government decisions and could not attract external capital as a joint-stock company could. They never managed to fully control supplies. Efforts by the Co-Hong to get such a position of real monopoly in the end were always countered by government and its representatives in Canton. It was feared that when prices became too high that would drive away foreign customers and so reduce income for government. Hong merchants were not allowed to collectively bargain or decide on a common price or common strategy. They always had to bargain with foreign merchants separately. They were watched and extorted by the Hoppos, the imperial super-intendants. To keep their power in check, government used to allow outsiders to claim a certain percentage of the trade that fell under the 'monopoly' of the Co-Hong, as a rule some thirty per cent. This was also the case with tea. For some products, trade was entirely free.<sup>1072</sup> Even though Paul van Dyke in a recent study has clearly qualified the idea that the Chinese state would actually and permanently control the merchants who traded with Westerners in Canton and Macao, the differences in their position as regards the rule of law and their autonomy as compared to British traders remain quite striking.<sup>1073</sup>

Braudel explicitly refers to China to support his claim that a capitalist super-structure is not just a logical and normal extension of a lively market-economy. According to him, China did have a solidly established market economy in the early modern era, but lacked the top level of economic life that he calls capitalism.<sup>1074</sup> He points out that "... the gap between the West and the other continents appeared *late in time* and to attribute it simply to the 'rationalization' of the market economy, as too many of our contemporaries are still inclined to do, is

1072 See my *Zur politischen Oekonomie des Tees*, 78–91; Balazs, 'China as a permanently bureaucratic society' and 'Birth of capitalism in China', and Mann, 'Liturgical governance and the merchant class' in: idem, *Local merchants and the Chinese bureaucracy*, 12–28.

1073 Van Dyke, *Merchants of Canton and Macao*.

1074 Braudel, *Civilization and capitalism, 15<sup>th</sup>-18<sup>th</sup> century*, II, 588.

obviously over-simplifying.”<sup>1075</sup> He explicitly claims that in China for the development of capitalism “the chief obstacle was the state.” In his view, “the imperial administration blocked any attempts to create an economic hierarchy.”<sup>1076</sup> Wallerstein, who is strongly influenced by Braudel, holds quite similar views with regard to China. It developed no capitalism and all that goes with it mainly because it was an empire of its own in which the emperor did not need to cooperate with merchants to the extent that was necessary for rulers in (north-) Western Europe, just as there was no urge or need to exploit peripheries.<sup>1077</sup> The ideas of Giovanni Arrighi who in turn is strongly influenced by both Braudel and Wallerstein in this context will be discussed later on in this paragraph.

The second main characteristic of capitalism *à la* Braudel and Wallerstein is that it entails the creation of a supranational economic system with a centre and a periphery. Neither Qing China, nor *any* other highly advanced state outside the West, turned itself into the core of an economic system like Britain and several other Western countries did. It never created a specific division of labour with ‘peripheral’ regions, inside its borders or with regions outside its own territory. No clear hierarchical division of labour developed between China Proper and other regions in terms of the goods that were produced and exchanged, nor do we see regional specialisation with differing modes of production per region according to its ‘role’ or ‘function’ in some sort of economic ‘system’. Of course some regions were more important and in that sense more ‘central’ than others, but the differences and their impact are incomparable to those existing between Britain and its peripheries. Strikingly enough, that is also true in political terms. China may have regarded itself as the centre of its world surrounded by tribute states but it did not even try to actually rule them or use them as an outlet for its surplus population. Pomeranz does refer to this difference between China and Western capitalist countries but does not discuss it per se, even though overseas non-consensual exchange plays such a prominent role in his work.

China’s political economy was entirely different from Britain, which was a fiscal-military, or rather a fiscal-naval, mercantilist and empire building state. Giovanni Arrighi (1937–2009) in his *Adam Smith in Beijing* provides a succinct but very enlightening description and analysis of the main differences between the political economy of Western European ‘capitalist’ states on the one hand and China on the other, domestically as well as in international affairs.<sup>1078</sup> Arrighi tones down the ‘traditional’ view that states and an interstate system were something typically European. In the early modern era, as he claims, there also

1075 Braudel, *Civilization and capitalism, 15<sup>th</sup>-18<sup>th</sup> century, II*, 134.

1076 Braudel, *Civilization and capitalism, 15<sup>th</sup>-18<sup>th</sup> century, II*, 136 and 586.

1077 See Wallerstein, *Modern world-system, I*, in the Index under ‘China’ and under ‘empire’.

1078 Arrighi, *Adam Smith in Beijing*, chapter 11: ‘States, markets and capitalism, East and West’, 309–344.

was a China-centred state system. Both systems in his view were similar enough to make a comparison of them analytically meaningful. There were major differences, though. The dynamic of the European system was characterised by incessant competition among its national components and by a tendency towards the geographical expansion both of the system and of its shifting centre. What is crucial in this respect is the absence of any tendency among East Asian states to build *overseas* empires and to engage in an armament race on a scale comparable to what occurred in Europe. Qing expansion, at least till the 1760s, was meant to change borders that were hard to defend into a pacified periphery and a buffer against raiders and conquerors from Inner Asia. In the West we see a ceaseless and in principle limitless expansionism. There is no Chinese equivalent to Cecil Rhodes' famous quip: "I would annex the planets if I could." China was the clear and undisputed centre of an East Asian states-system, but the states that paid tribute to it were not colonies, nor were they peripheries of a Chinese core. In Western Europe there was more of a balance of power with various contenders for hegemony. Arrighi, I think correctly, claims that the extraversion of the European power struggle was a major determinant of the peculiar combination of capitalism, militarism, and territorialism that propelled the globalisation of the European system. Western Europe was much more interested in long-distance trade and in general the importance of that trade was bigger there than it was in the East. In the East Asian system we see an opposite dynamic, which is understandable in light of the success of Asia's development as the largest market economy at the time. For China, control of trade routes was much less important than peaceful relations with neighbouring states. Foreign trade was often discouraged rather than encouraged. Adam Smith already pointed out that China's foreign trade might have been bigger:

...the great extent of the empire of China, the vast multitude of its inhabitants, the variety of climate, and consequently of productions in its different provinces, and the easy communication by means of water carriage between the greater part of them, render the home market of that country of so great extent, as to be alone sufficient to support very great manufactures, and to admit of very considerable subdivisions of labour. The home market of China is, perhaps, in extent, not much inferior to the market of all the different countries of Europe put together. A more extensive foreign trade, however, which to this home market added the foreign market of all the rest of the world; especially if any considerable part of this trade was carried on in Chinese ships; could scarcely fail to increase very much the manufactures of China, and to improve very much the productive powers of its manufacturing industry. By a more extensive navigation, the Chinese would naturally learn the art of using and constructing themselves all the different machines made use of in other countries, as well as the other improvements of arts and industry which are practiced in all the different parts of the world.<sup>1079</sup>

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1079 Smith, *Inquiry into the nature and causes of the wealth of nations*, II, 680–681. In this

The European dynamic led to a sequence of ever more powerful states that identified themselves with capital and capitalists. There is no parallel in East Asia for that. It also led to the development of superior military force that was to become the key to the subjection of East Asia to the West.

That overseas expansion of the West, with all the huge differences between various countries over time, always implied a strong element of exploitation and an effort to create peripheries in the ‘Wallersteinian’ sense of the word.<sup>1080</sup> Westerners as a rule tried to create relations of exploitation and unequal exchange in which the economies of their overseas possessions were actually transformed and manipulated, if need be by brute force, to serve the interests of the ‘core’ region that had incorporated them. They always tried to create a division of labour in which the ‘core’ specialised in producing goods with high added value and the peripheral regions were often *made to* specialise in the production of raw materials or basic products that was labour-intensive, added little value and earned the *un-free* labourers only low incomes. Western ‘core’ states used their military and economic power to back up the functioning of this division of labour and to channel profits in their direction. A very clear example in the British case – only one among many – would be Britain’s possessions in the Caribbean. Their entire mode of production was changed and geared to Britain’s economy: their labour force (i. e. slave labour) to a very large extent was actually imported by the British, their products, predominantly sugar, and much of the profits earned in producing them, were exported to Britain, whereas most of the goods that one did not produce locally were imported from or via Britain. A lot of the ghost acreage that accrued to Britain and that according to Pomeranz was

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context I consider the following comment quite relevant: “It is our contention that the absence in the East of the intra- and intercontinental grain market integration found ... in the West as early as by mid eighteenth century, may be interpreted as a form of Western exceptionalism. We identify several significant dissimilarities between West and East concerning grain market integration: geo-economic scope (intra- and intercontinental versus national); evolution over time (secular progress versus reversal in the nineteenth century); role of agents (market forces versus state and others as leading forces) and policies (relative openness to foreign trade versus relative closeness). Therefore, West and East were different in this important respect both before and after the Industrial Revolution. The restrictive trade policy practiced by the East (China, Japan and Korea) might have been one of the biggest economic policy mistakes ever committed since it prevented that part of the world from taking advantage of the direct (static and dynamic gains) and indirect (institutional) benefits resulting from the expansion of foreign trade during the Early Modern Era.” The quotation is from Rafael Dobado-González, Alfredo García-Hiernaux and David E. Guerrero, ‘West versus East: early globalization and the Great Divergence’, a paper that can be downloaded under filename SSRN-id2296852. I quote from page 2 of the paper.

1080 The best brief introduction to Wallerstein’s ideas with regard to the core-periphery relations that were created by the capitalist West still is Wallerstein, *Modern world-system, I*. These relations need not be supported by formal, ‘imperialist’ relations like they exist between colonised and colonising countries.

so fundamental for its industrialisation would not have existed without the collusion between Britain's capitalists and the British state.

The relation, during Qing rule, between China Proper, Manchuria with its specific status as the homeland of the ruling Manchus, and their various new territorial acquisitions, was quite different. It clearly was not one between 'core' and 'periphery', as Wallerstein and other modern-world system theorists describe it. New territories like Taiwan, Mongolia, Tibet or Xinjiang, were not 'forced' in one way or another to make their economies serve that of China.<sup>1081</sup> No fundamental changes in their mode of production were instigated by their new relationship with Qing China, nor did their overlords in China put them under pressure to introduce such changes. The migrants or sojourners, who went to China's 'frontier', inside or outside China Proper, replicated the China they came from. The modes of production, trade, transportation, and finance inherited from China Proper, were reproduced or passed on with little or no change.<sup>1082</sup> We do not see the emergence of any plantations where sugar, tea, tobacco, silk, or cotton were grown, not in the newly conquered regions, not in the internal periphery nor, for that matter, in China Proper itself.<sup>1083</sup> Possibilities to profit from the new lands as they presented themselves often were not utilised. Government often was reticent to let Han Chinese settle in peripheral zones. It did not exactly promote trade in or with its new territories. There are various examples of government discouraging or even prohibiting the mining of precious metals and minerals in Xinjiang, or the starting of various projects that might help in developing the region.<sup>1084</sup> Tibet was known, in any case in the West, to be rich in minerals. This explains Western, i. e. British, interest in the region. The Qing state did not take it upon itself to exploit them, nor did it encourage or help others to do so.<sup>1085</sup> During the eighteenth century, it not only tried to strictly regulate migration to Taiwan, it also frequently restricted its trade.<sup>1086</sup>

In this respect, what happened in Manchuria or rather what did *not* happen there is highly interesting and will serve as an example. We see some 'filling up' here too. The 'frontier' moved somewhat northward and the region became more

1081 See e.g. for the situation in Manchuria, Isett, *State, peasant, and merchant in Qing Manchuria*, and Reardon-Anderson, *Reluctant pioneers*, 170.

1082 Compare Bin Wong's interesting comments on the 'fractal' quality of China's societal structure in Wong, *China transformed*, 121–122.

1083 See for that observation, for sugar, Mazumdar, *Sugar and society in China* e.g. 'Conclusion', and, for tea, Gardella, *Harvesting mountains*, e.g. chapters 2 and 4. See further my *Zur politischen Ökonomie des Tees*, 97–114.

1084 See, for examples, Dabringhaus, *Das Qing-Imperium als Vision und Wirklichkeit*, 77 and 79, and Fletcher, 'Ch'ing Inner Asia c. 1800', 66.

1085 See, for example, Dabringhaus, *Das Qing-Imperium als Vision und Wirklichkeit*, 111 and 112, and Teltscher, *High road to China*.

1086 Pin-tsun Chang, 'Chinese migration to Taiwan in the eighteenth century: a paradox', 112.

or less a developed province. According to Yong Xue, specialist in Chinese history at Suffolk University in Boston, however, the region could have functioned as a huge reservoir of ghost acreage – and also as a provider of coal – for China Proper during the very long eighteenth century.<sup>1087</sup> One can only agree with him when he writes: “The vast virgin lands in Manchuria offered a real windfall, representing a piece of geographical luck for Jiangnan.”<sup>1088</sup> Manchuria enjoyed extra-ordinary natural endowments. The breath of its farmland was enormous. Qing Manchuria in its entirety, until the Russians took over part of it in the 1850s, measured about 1.2 million km<sup>2</sup>. That is a tract of land roughly twice as big as contemporary France. Whereas many forests in China Proper had been stripped bare by the end of the eighteenth century, the Manchurian lands remained cloaked in what appeared to be endless woodlands. The region had plenty of fur bearing animals, fish, and oysters. Its soil contained gold and, as one discovered late in the nineteenth century, copper, lead, and tin. It was famous for its ginseng.<sup>1089</sup> The point is that the Qing elite simply did not really care.

It would, of course, be incorrect to suggest that nothing happened. The virgin lands in Manchuria did provide China Proper with soybean. But they could have done so much more and much earlier. That becomes only too apparent after the ‘opening’ of Manchuria when the region was turned into the biggest soybean producer in the world.<sup>1090</sup> Manchuria could have become a major grain supplier for the capital: it had excellent soil and enough water for farming. Grain prices there were only half what they were in China Proper. People at the time knew this and made suggestions about how to use the region’s potential. He Qizhong, an imperial censor, for example, did so already in the middle of the eighteenth century. Let me again quote Yong Xue:

If the Qing government had coordinated a series of agricultural projects in Manchuria instead of prohibiting immigration into the region, if commercial institutions in China had been effective enough to channel the large amount of capital needed to develop the frontiers and establish large plantations as the British did in North America, then a large amount of Manchurian grain could have flowed into Beijing.<sup>1091</sup>

For the nineteenth century, talking about industrialization means talking about coal. That was yet another resource that Manchuria could have supplied to parts of China Proper. In 1745, He Qizhong, the imperial censor to whom we just

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1087 Yong Xue, ‘Fertiliser revolution’.

1088 Yong Xue, ‘Fertiliser revolution’, 219.

1089 See for these descriptions Reardon-Anderson, *Reluctant pioneers*, 9 and 103–104.

1090 Yong Xue, ‘Fertiliser revolution’, 196–197 and 218–219. It is quite striking that the Qing government did not abolish all restrictions – which were meant to protect Manchurian consumers – on transporting soybeans and bean cakes by sea out of their ‘homeland’ definitively until 1722. See Yong Xue’s article pages 202 and 209.

1091 Yong Xue, ‘Fertiliser revolution’, 220.

referred, reported abundant coal resources in Fengtian (modern Liaoning), which were located fairly close to seaports. He urged that this natural bounty be exploited to relieve the shortage of firewood in the region.<sup>1092</sup> Nothing of the sort happened. One cannot therefore, with Yong Xue, escape the conclusion that the opportunities provided by Manchuria, which indeed could fittingly be labelled 'China's geographical luck', were squandered. With him one can point at various reasons for that, such as tensions between Han and Manchu's or internal institutional defects of the Ming and Qing states. But whatever the exact reason, one can only conclude that government was unwilling to grasp those opportunities or give private entrepreneurs the possibility to do so.

In capitalism as conceived by Braudel, Wallerstein and Arrighi, the state plays a very prominent active role. If we are to believe Pomeranz, 'coal' and 'colonies' were the two main reasons that Britain could industrialise and leave China behind. The British state played a major role in facilitating and supporting the exploitation of both.<sup>1093</sup> My thesis would be that China, in a way, also had its 'coal' and its 'colonies', but that government there was a serious *hindrance* in making the most of them. In China government did not collude with 'capitalists entrepreneurs' or support them but normally controlled or at least mistrusted them. As regards coal mining, the Qing rulers often prohibited opening mines in the first place, or wanted those already opened, closed down.<sup>1094</sup> Initiatives by government itself to open mines or to 'modernise' them were absent. When it comes to the exploitation of newly incorporated territories or of Manchuria, we can only conclude that many chances were not utilised, or rather not even considered. A policy of colonisation like we see in the West was never tried. Chinese merchants who were active overseas were not supported either. Roy Bin Wong comments that the Chinese state was more likely to invest in peripheries than to extract resources from them.<sup>1095</sup> As a staunch revisionist, he ultimately comes up with an interpretation of Manchu rule in China

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1092 Yong Xue, 'Fertiliser revolution', 219.

1093 For 'colonies' that of course is evident. For the ways in which government supported the coal and iron industries in Great Britain see, for example, Parthasarathi, *Why Europe grew rich*, 162–170.

1094 For various examples in China Proper, see Xu Dixin and Wu Chengming, eds., *Chinese capitalism, 1522–1840* (New York 2000) under 'copper', 'copper mines', 'coal', 'coal mining', 'silver' and 'gold extraction'; the Volumes 9 and 10 of the *Cambridge History of China* in the Index under 'mining' and 'mines' and Sun, 'Ch'ing government and the mineral industries before 1800'. One of the reasons was that government was afraid of creating great gatherings of 'unruly elements'. It in this respect is striking that coal miners in Qing China almost without exception had a very low social status and were closely watched whereas in several parts of Europe this was not the case. According to Lis and Soly miners were the only large group of wage earners not subject to legal restrictions curtailing their mobility, at least in Central Europe. See for some further explanation Lis and Soly, *Worthy efforts*, 439–440. For China see e.g. Sun, 'Mining labor in the Ch'ing period'.

1095 Wong, *China transformed*, 148.

that is static and conservative: “The Chinese state aimed for and to some degree achieved its goal of static efficiency; that is, spreading the best techniques available across a vast area. This goal made sense in a world of limited possibilities.”<sup>1096</sup> That is surprisingly similar to what most Eurocentrists he likes to attack have always claimed! He basically in this respect repeats the claim made by the famous Chinese sociologist Fei Xiaotong who in his *From the soil. The foundations of Chinese society* writes that China’s imperial state was an inactive state, with a policy of leaving well enough alone.<sup>1097</sup>

## 24. Markets: sizes and characteristics

All the scholars discussed in the previous paragraphs on Western capitalism, apart from Fernand Braudel, who explicitly refers to China’s market economy, share the conviction that in the West, whatever interpretation they adopt of capitalism, the market became more important and more dominant in the economy than elsewhere. In all their interpretations, commodification plays a central role. For many scholars, as indicated, ‘the rise of the West’ is ‘the rise of the market’. That can only mean that they assume that in the rest of the world the market was (a) less prominent (b) did not function as well (c) grew less, or a combination of these. Is that true? Did Britain and Western Europe have more extended and better functioning markets than the rest of the world? Let us start our brief discussion with some comments on domestic markets. England and Wales formed one centralised ‘uniform’ territorial state in the eighteenth century. Of course, geography and distance played a role but there were no administrative impediments to a free exchange of goods in the form of tariffs, tolls, specific regional arrangements and the like. In that sense they indeed were one integrated market. In 1707, the United Kingdom of Great Britain consisting of England, Wales and Scotland was created. In many respects that are relevant for our analysis that focuses on the economy, Scotland continued to be a separate entity during the period discussed here. But that did not impact negatively on the extent to which Great Britain became one market. It was only in 1801 that Ireland joined Great Britain to form the United Kingdom of Great Britain and Ireland. It then took still a couple of decades before the former ‘settler colony’ and its coloniser officially became one integrated economy. ‘Nationalisation’ of the markets, i.e. the elimination of internal tariffs and customs zones but also introducing all kinds of standardisation – while at the same time creating barriers for foreigners – was a major project of all mercantilist rulers. In Great Britain, the project definitely was successfully implemented over

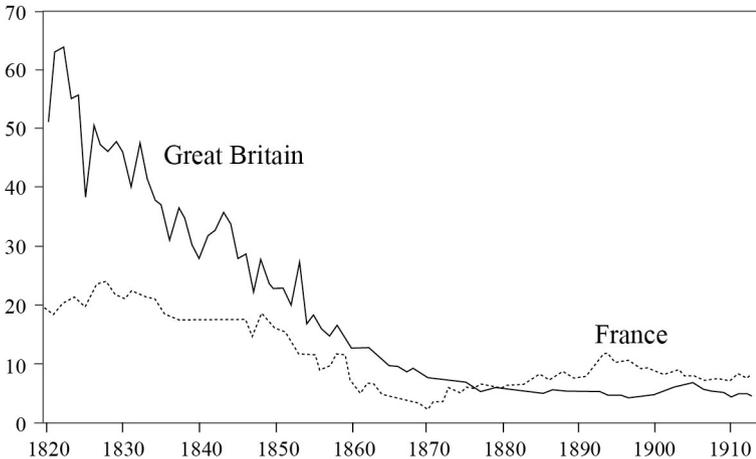
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1096 Wong, *China transformed*, 280.

1097 Fei Xiaotong, *From the soil*.

the eighteenth century. In many other parts of Europe, economic unification in the sense of creating one national level playing field for all buyers and sellers made less great strides. At the eve of the French Revolution, national integration was still far from completed in France. The same goes for 'Spain', which in several respects still was a composite state, and the Habsburg Empire. Germany and Italy did not even exist then. In this respect internal markets in Continental Europe remained badly integrated until deep into the nineteenth century, and relatively small as compared to the *in principle* huge markets in the big empires of the Qing, the Mughals or the Ottomans that politically were far less 'dispersed'.<sup>1098</sup> Between countries in Europe, mercantilist policies prevailed for decades in the nineteenth century. When Great Britain took off, it was a mercantilist country. In contrast to the common idea that it would have been the realm of free trade and France a 'Colbertist', mercantilist state, it actually was *more* rather than *less* protectionist than France.

Graph 10: Average customs' tariff revenue as a fraction of all imports for France and Great Britain, 1820–1910



Source: John V.C. Nye, *War, Wine, and Taxes. The Political Economy of Anglo-French Trade, 1689–1900* (Princeton/Oxford 2007) 4.

There was so much intervention, regulation and taxation in international trade that it is not very hazardous to assume that it would have been larger in a free-trade context. Intercontinental trade clearly increased fast, which is not so surprising considering that it started from such a low level. As for trade with the

1098 For differences in economic integration in Western Europe as measured by the importance of internal customs zones and a discussion of other criteria to measure economic 'fragmentation', see Dincecco, *Political transformations and public finances*, chapter two. Here again England looks different, as it was an integrated economy from very early on, with up until 1788 a bigger integrated domestic market than e.g. France, that still consisted of several customs zones.

East, monopolies and manipulation continued to be very important until the end of the eighteenth century, if not longer, although all sorts of private trade were on the increase. In the Far East, Europe's presence actually was quite marginal until that region was 'opened' during the nineteenth century. In the trade over the Atlantic, which for Europe was far more important and was dominated by Western traders, the role of real chartered companies was much smaller. But as a rule, European governments did their utmost, with varying results, to keep foreign competitors out of their colonies. In trade over the Pacific, between East Asia and the Americas, up to the 1820s, the importance of the Manila Galleons, and thus of controlled trade, remained paramount.<sup>1099</sup> So the thesis that the 'rise of the West' would have been 'the rise of market' can clearly do with a lot of qualification. Markets there were badly integrated. Foreign trade was often quite regulated, subject to all sorts of tariffs and taxes, at times even in the hands of monopolists, and the total number of people involved was not impressive *as compared to other markets in the world*. Europe was and for a very long time continued to be a patchwork of many small 'states'.

Which brings us to the corollary of that thesis, which would be that in other parts of the world the market economy would have been much less developed. In any case for China – and I again confine myself to that country – this is simply untrue. The idea that its agricultural sector (almost) completely consisted of subsistence peasants who avoided the market is a myth. Whatever barriers there may, at times, have existed for foreign trade, the internal domestic market was practically free. There were not many internal customs and (official) tariffs were low. In that respect, China's domestic economy must have been *more* rather than *less* Smithian than Europe's economy as a whole and even more than the economies of most European states. As many scholars have shown, there was an enormously dense net of markets. Long-distance rice trade in China was far bigger in terms of the total amounts involved than long-distance grain trade in Europe.<sup>1100</sup> The number of potential buyers and sellers was much higher not only, obviously, than in Great Britain itself, but also than in Britain and its entire empire *combined*. China alone had more inhabitants than Europe, the Americas and Africa *together*. According to Carol Shiue and Wolfgang Keller, the level of market integration in Qing China on the eve of the Industrial Revolution would have been just as high as in Europe.<sup>1101</sup> In principle, the country must have

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1099 See Schurz, *Manila Galleon* and Legarda Jr., *After the galleons*.

1100 For an analysis of China's market system, see Skinner, 'Marketing and social structure in rural China' For the comparison of the long-distance rice trade in China and long-distance grain trade in Europe, see Pomeranz, *Great Divergence*, 34.

1101 Shiue and Keller, 'Markets in China and Europe on the eve of the Industrial Revolution'. In India markets seem to have been less integrated. See Studer, 'India and the Great Divergence'.

offered enormous possibilities for developing an advanced division of labour and specialisation. In several sectors it clearly did. In Jingdezhen, the capital of porcelain production in the world during the Ming and Qing Dynasties, the production process was divided in more than seventy steps, each operated by trained craftsmen.<sup>1102</sup> The production and sale of tea, to just give another example, was also very specialised.<sup>1103</sup> If sheer extension of the market were the foundation of modern economic growth, Qing China should have been the place where it would have emerged first. Adam Smith says he has seen his famous pin factory himself. There, however, are claims that he actually may have been inspired by the French Jesuit Francois-Xavier d'Entrecolles (1664 – 1741) and his description of the production of porcelain in Jingdezhen or by a description of a pin factory in a text by a Persian scholar called Al-Gazhzali (1058 – 1111).<sup>1104</sup> At any rate, it is far from clear that total trade volumes as such in Western countries were bigger than those in other densely populated developed parts of the world. It is no accident that amongst economic historians, and especially amongst members of the California School, the idea that there would be a smooth and somehow 'natural' transition from Smithian to Schumpeterian modern growth has lost much of its support.<sup>1105</sup>

As usual, things are more complicated. The *absolute amount* of goods entering Chinese markets indeed was huge but it is not clear whether the *percentage* of goods marketed as a percentage of all goods produced was higher or lower in the most developed parts of China than in Britain, which would be at least as relevant here. Considering the fact that China had less urbanisation, and relatively speaking a smaller middle class, less wage labour and less exports than Great Britain, I would tend to think the rate and diversity of commercialisation were higher in Britain than in China. What really matters in the end for economic growth in this respect is not so much the size of the market per se but the extent to which division of labour and specialisation developed and thereby a diversification of production. In that respect, I am not convinced that China's markets had a similar impact to those of Great Britain. All the comments so far refer to commodities. The buying and selling of land was subject to several restrictions in China, but the land market in Britain, at least regarding large estates, was even less free. China's labour market may have been fairly free but it was tiny. As compared to Great Britain its importance was marginal. As far as

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1102 Finlay, 'Pilgrim art: the culture of porcelain in world history'.

1103 See e.g. Gardella, *Harvesting mountains*, 66 and 68.

1104 See e.g. Adshead, *China in world history*, 296, and Graeber, *Debt*, 279.

1105 For an explicit rejection see e.g. Pomeranz, *Great Divergence* via the Index and references to 'markets'; Wong, *China transformed*, 13–31, and Wrigley, *Continuity, chance and change*, chapter 4.

interest rates are a good indicator, the money market in China was not functioning as well as in Great Britain. Interest rates overall were much higher.

China's trade with other countries in absolute terms was quite substantial but, as compared to total GDP, it was negligible. In the beginning of the nineteenth century, it still amounted to less than one per cent. Up until the first decade of the nineteenth century, it had a surplus on its balance of trade, in the sense at least that it accumulated huge amounts of silver that were brought by Europeans as payment for their purchases. Many estimates circulate in texts by global historians, most of them wild exaggerations. One can hazard the guess that in total between a fifth and a fourth of all the silver exported from Latin America between the last decades of the sixteenth and the beginning of the nineteenth centuries in the end arrived in China, over Europe or directly from Acapulco via the famous Manila galleons.<sup>1106</sup> In the eyes of contemporary mercantilists, China must have looked like a quite successful country. Even so, however, for China's economy in its entirety, the impact of foreign trade can only have been quite small, at least in terms of values *and* in terms of spin-off effects. The country definitely was not closed but it was self-sufficient to a high degree. Foreign imports, basically silver and then opium, provided no real challenge to domestic production. Exports of course could have regional impact as in the case of tea but were tiny as compared to total GDP. There was no urge to start some sort of import-substitution. There was no 'jealousy of trade', no competition with other trading nations and no economic nationalism or mercantilism.

What matters in discussing markets is not just their size but also how exactly they functioned. Most scholars identifying 'the rise of Europe' with 'the rise of the market' actually mean the rise of *free* and *fair* markets, that is, markets in which competition is not tampered with by external 'political' forces and in which none of the parties involved is so large as to be able to influence prices on its own. On such markets, all parties, in brief, are price-takers. Of course that is an 'ideal' situation that has never actually existed anywhere in history. For consumer goods, Qing China came quite close to the Smithian ideal of a market with free and fair competition. Markets for capital goods and money were less 'transparent' and free. Let us focus here on the labour market, where to my view the biggest differences existed between our two countries.

As far as a labour market actually existed in China, it was free, albeit with some exceptions, for example convicts or people in debt peonage. Surprisingly enough, considering the connection usually made between capitalism, wage labour and freedom, the importance of un-free labour was far *higher* for Great Britain's economy than for that of China. I already referred to Great Britain's

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1106 See note 802. China, by the way, exported gold although the value of that export was dwarfed by that of silver imports.

slave trade and to slaves working outside Great Britain but producing goods that were bought by Great Britain. But this does not exhaust the ways in which the British economy profited from un-free labour, *outside* as well as *inside* the country. There were tens of thousands of convicts, or political deportees, doing coerced labour in its colonies. Great Britain in all deported some 50,000 convicts, in particular from Ireland, to its North American colonies. When that was no longer possible, Australia became the favourite destination for convicts. Between 1788 and 1868, no fewer than 165,000 were sent there to perform hard labour.<sup>1107</sup> Then there was indentured labour. In this form of labour relation the indentured labourer signed a contract that obliged him to work for a couple of years for his master in a position as servant, which left him hardly any freedom.<sup>1108</sup> According to one estimate, of the total number of Europeans that immigrated to the thirteen colonies that were to become the United States between 1700 and 1775, only 152,000 were free, 52,000 convicts, and 104,000 indentured servants.<sup>1109</sup>

Tens of thousands of people were forced into Britain's army and in particular its navy. For the navy, there was the forcible recruitment or 'impressment' of seamen and all males between the ages of eighteen and fifty-five who 'used the sea', to man its fleets in wartime. This policy was not abolished until 1833. Let me give some figures. During the Seven Years War (1756–1763) roughly 185,000 men were enlisted at least once on one of the ships of the Royal Navy. That is nine per cent of all adult males: probably half of them were impressed. That would be some 90,000 men.<sup>1110</sup> In the period from 1776 to 1783, about one third of the people serving – that is some 80,000 people – had been pressed into their job.<sup>1111</sup> Impressment as such was almost non-existent in the army but coercion of one kind or another did play a substantial role in enrolling military men too.<sup>1112</sup> Whatever way people were enrolled, when they were serving the army or the

1107 See for information Yang, 'Indian convict workers in Southeast Asia in the late-eighteenth and early-nineteenth centuries'; Meredith and Oxley, 'Condemned to the colonies'; Bosma, 'European colonial soldiers in the nineteenth century' and, with also some information on the French case, Moulrier-Boutang, *De l'esclavage au salariat*, 163–168.

1108 See, for the exact meaning of this concept, Wikipedia under 'indentured servant'

1109 Fogleman, 'From slaves, convicts, and servants to free passengers', table A.3, page 71. See also Galenson, 'Rise and fall of indentured servitude in the Americas'. I found even higher estimates in terms of the ratio of free versus indentured labour in Moulrier-Boutang, *De l'esclavage au salariat*, 156. For a general overview of developments after the abolishing of slavery in the British Empire, see Northrup, *Indentured labor in the age of imperialism*.

1110 Rogers, 'Vagrancy, impressment and the regulation of labour in eighteenth-century Britain', 107–108.

1111 Rodger, *Command of the ocean*, 396.

1112 See James, *Warrior race*, 296–301, for information on how the state could compel people to join the forces.

navy, discipline was extremely harsh.<sup>1113</sup> Discipline on merchant ships, by the way, also was extremely harsh and labour conditions there were very tough too.<sup>1114</sup> If need arose in the West Indies and in the colonies in North America, the British army also used slaves.<sup>1115</sup> Britain's armed forces were a major productive force. They functioned as a collective of 'military workers' who defended and expanded Britain's economy. Overseas they, moreover, also often performed more than just military tasks and were used to build roads, fortresses et cetera. The Royal Navy was used for collecting all kinds of information imaginable (e.g. with regard to geography, botany or zoology) in an effort to 'map the world', to then be able to order, pacify and civilise it.<sup>1116</sup> The best guesses of military historians suggest that about one in sixteen adult males in Britain was serving in the armed forces during the War of Austrian Succession, one in eight during the War of American Independence and no less than one in five during the French Wars from 1793 to 1815.<sup>1117</sup>

We still have not exhausted the various ways in which Britain's economy profited from coerced labour. The number of people put away in workhouses or poor houses amounted to 90,000 in 1776 and 123,000 in 1850. There can be no doubt that by far the majority of them, were not, as originally had been intended, able-bodied, full-time employed adults. But these places nevertheless housed a substantial 'coerced' labour force. So did so-called Bridewells or houses of correction.<sup>1118</sup> In the first decades of industrialisation, thousands of orphans or children from workhouses worked as pauper apprentices for mill owners who practically owned them. They were bound by contract to work at their mills until they became adults. By the late 1790s, for example, about a third of the workers in the cotton industry were pauper apprentices.<sup>1119</sup> The position of women on the labour market, very prominent in domestic service, also was not free in the sense we use that word now, although it definitely was a very important form of *contractual* work experience in early modern British society, certainly the most

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1113 For discipline see e.g. Frykman, 'Seeleute auf den europäischen Kriegsschiffen des späten 18. Jahrhunderts' and James, *Warrior race*, 292–317.

1114 See e.g. Fink, *Sweatshops at sea*.

1115 James, *Warrior race*, 300–301.

1116 See e.g. Bosma, 'European colonial soldiers in the nineteenth century' and Way, 'Klassenkrieg: die ursprüngliche Akkumulation, die militärische Revolution und der britische Kriegerarbeiter'. For the many activities of the Royal Navy, see Angster, *Erdbeeren und Piraten*.

1117 Emsley, *British society and the French Wars, 1793–1815* and Conway, 'Britain and the impact of the American War, 1775–1783'.

1118 For the comment that many poor houses took care of the elderly and the young who were *not* able to look after themselves, see Daunton, *Progress and poverty*, 454–455. In the 1770s some 9,000 to 14,000 people were sent to such houses of correction every year. See Patriquin, *Agrarian capitalism*, 109.

1119 See e.g. Humphries, *Childhood and child labour in the British Industrial Revolution*.

important one for women.<sup>1120</sup> The same goes for children, who together with women provided the bulk of labour in the new factories or worked as apprentices. Over the period from 1835 to 1870, adult males never formed more than roughly one third of the entire labour force in cotton and woollen factories.<sup>1121</sup>

Intervention in the labour market was rife in industrialising Britain. Let us again refer to the situation around 1800. The so-called Combination Acts that were in force till 1824, and then were only slightly relaxed, prohibited labour to ‘combine’ in order to raise its wages whereas in the words of Adam Smith “... masters are always and everywhere in a sort of tacit, but constant and uniform combination not to raise the wages of labour above their actual rate”.<sup>1122</sup> There also was intervention on behalf of labour: In 1802–1803, e.g. there were 1,041,000 people on relief in England and Wales; 735,000 on permanent and 306,000 on occasional relief. Thousands of labourers under the so-called Speenhamland system received allowances to increase their wages to market level or were paid by parishes with tax money to work on farms.<sup>1123</sup> Even the position of many so-called male ‘free’ labourers in Britain was much less free than that of modern employees working under a contract and far more like that of servants, as, amongst others, Robert Steinfeld has conclusively shown.<sup>1124</sup> Wage earners were considered domestics and were supposed to provide a service. It is no accident, that the category of servants often included not only domestics in the strict meaning of the term, but also apprentices, journeymen and wage earners. Their work was usually conceived as their master’s property and they had to be at permanent disposal. Interestingly enough, on the whole, work-related criminal sanctions were *reinforced* between 1720 and 1850 and not loosened. In this respect, it is striking, considering the country’s cherished image as a place of ‘laissez-faire’, that Lis and Soly in their overview of the European situation in the pre-industrial era write “Nowhere else [than in England] was national labour legislation enforced so consistently and for so

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1120 See Steedman, *Labours lost*, chapter 2 for some estimates of their number, in particular 36–39. In the first decade of the nineteenth century some ten per cent of the population, overwhelmingly women, may have been engaged in some sort of waged domestic labour in England. Again, the situation in China at the time could not have been more different.

1121 See the table on page 423 in Evans, *Forging of the modern state*.

1122 Smith, *Inquiry into the nature and Causes of the wealth of nations*, 84.

1123 Patriquin, *Agrarian capitalism*, chapter 5. The figures are on page 121. No country in Europe spent a higher share of its GDP on poor relief in the period discussed in this book than Britain. See Lindert, ‘Poor relief before the welfare state: Britain versus the Continent’, 114.

1124 See Steinfeld, *Invention of free labour*; idem, *Coercion, contract, and free labour in the nineteenth century* and Deakin and Wilkinson, *Law of the labour market*. See also Lis and Soly, *Worthy Efforts*, 494–509. For those criminal sanctions see e.g. Craven and Hay, ‘Criminalization of ‘free’ labour’.

long.”<sup>1125</sup> ‘Capitalist’ Britain thus profited directly or indirectly from an enormous amount of un-free labour, at home, on sea and abroad. At the end of these paragraphs I can do no better than to cite Seymour Drescher whose general comments on capitalism fit the case of Britain in the very long eighteenth century perfectly:

Capitalism was supremely agnostic and pluralistic in its ability to coexist, and to thrive, with a whole range of labour systems right through the abolitionist century after 1780: with slavery; with indentured servitude; with sharecropping; with penal labour; with seasonal contract labour and with day labour; with penally constrained or unconstrained free labour. In the longer run, we can see more clearly than Williams’s generation [i. e. Eric Williams] that the ‘rise of free labour’ during (the) conventional age of industrialization was, in some respects, a myth...<sup>1126</sup>

Un-free labour in any case was *far more* important for the economy of capitalist industrialising Britain than for China, where forms of un-free labour of course existed but where their overall importance continued to be marginal. On a global scale free labour was extremely rare. According to Arthur Young, in 1772, only four per cent of the earth’s labour force was free. The remaining ninety-six per cent, in his words, laboured as slaves, serves, indentured servants, or vassals.<sup>1127</sup>

## 25. The institution of institutions: The role of the state, in particular that of Britain

Capitalism is supposed to have played a fundamental role in rise of the West according to mainstream Eurocentric explanations. It implies the existence of a state. Even the most outspoken proponents of economic *laissez-faire* would endorse that claim and admit that no institution can better provide for protection of property, law and order, internal and external safety, and the creation and maintenance of infrastructure, material as well as institutional. As Acemoglu and Robinson see it, in my view correctly, the existence of a centralised state is a necessary precondition for *any* economic development to happen.<sup>1128</sup> But that is as far as the consensus goes. We have seen that there is an enormous array of not just very different but often even completely *opposite* suggestions as to what a state conducive to growth would look like and do. They range from

1125 Lis and Soly, *Worthy efforts*, 444.

1126 Drescher, ‘The Williams thesis after fifty years’, 148. The fundamental importance of un-free labour for the development of ‘capitalist’ economies is the main subject of the very broad and interesting analysis of Moulner-Boutang, *De l’esclavage au salariat*. See also Graeber, *Debt*, Chapter 11.

1127 Young, *Political essays concerning the present state of the British Empire*, 20–21.

1128 Acemoglu and Robinson, *Why nations fail*, *passim*. See the Index under ‘state’.

complete *laissez-faire* to complete central planning and control, and everything in between. Whatever thesis a historian would like to defend about the role of the state in economic development, he can rest assured that he can refer to some economist for support.

I personally, to put my cards on the table right away, endorse the interpretation that is at the basis of Erik Reinert's entire oeuvre and that he neatly summarises in his article on the role of the state in economic growth. There, he presents a long list of ways in which a government can support the economy and help in generating wealth. He begins by distinguishing between three roles central government can play, to wit acting as provider of institutions, acting itself as an institution that takes care of income distribution and, thirdly, acting as promoter of economic growth. He then becomes more specific with regard to that third role by claiming that government might try to do the following: get the nation into the right business, create a comparative advantage in the right business, supply infrastructure, set standards, provide skilled labour and entrepreneurship, create demand (especially high-quality demand), place an emphasis on knowledge and education, provide a legal system, and finally act as an entrepreneur and capitalist of the last resort.<sup>1129</sup> He focuses on strategies to create the right production and the right trade, i.e. activities with increasing returns, high added values and profits. The 'strategies' referred to here were almost all used by European 'policy-makers' in the early modern era that, surprisingly enough, we would normally regard as mercantilists.

What historians in any case do agree upon is that until at least the 1830s, Britain was a fiscal-military, mercantilist and imperialist state. No serious scholar, in my view, can deny this any longer. There simply is overwhelming empirical evidence for this claim. Britain's tax level increased over the entire eighteenth century and even more during the Revolutionary and Napoleonic Wars between 1793 and 1815. Its taxes became the highest in the world. Its public debts rose to levels that make those of countries like Greece or Spain at the moment look small. A very substantial amount of government expenditure simply had to consist of debt servicing. Between 1816 and 1850, debt servicing almost without exception was more than fifty per cent of the annual budget. By far the biggest part of government expenditure was for the military. The armies it mobilised were large; its permanent navy was the largest in the world.<sup>1130</sup> Per

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1129 Erik Reinert, 'The role of the state in economic growth'. Reinert also refers to the fact that government would have to see to it that real wages are high. He is right in suggesting that this particular goal appeared only quite late on the state's agenda.

1130 I refer for further information and a large amount of available relevant literature to my 'Die Staatsfinanzen Chinas und Großbritanniens im langen 18. Jahrhundert'. For a recent debate on British mercantilism, the findings of which I could not incorporate in this text, see *The William and Mary Quarterly* 69, 1 (2012) 3–70.

capita, the country had a surprisingly high number of bureaucrats. The country was quite protectionist. It had high tariffs and even bans to keep unwanted imports out, it subsidised certain exports and taxed certain exports heavily, for example that of coal.<sup>1131</sup> At home, the central government tried to create a free and integrated domestic market – as all mercantilist governments did. It of course had to heed local interests and be pragmatic but it to a large extent succeeded. That does not mean it had a hands-off policy. Internally, there was quite a lot of regulation too, although it definitely was far less comprehensive.<sup>1132</sup>

Table 51: Great Britain's fiscal State, 1580s–1815

	1600	1650	1690	1730	1790	1815
Nom. GNP (£m)			46	57	130	320
National debt (£m)			3.1	51.4	244	745
As % of GNP (annual borrowing)			6	100 1.2 m	185 3 m	220 20 m
Tax revenue (£m)			2.05	6	16	63
As % of GNP		3.4	7	10.7	12.3	18.2
Expenditure (£m)			4	5.5	16.8	112.9
As % of GNP			9	10	13	35
Tax Breakdown						
Excise (£m / %)			.9 30	3 49	7.5 43	23 36
Customs (£m / %)			.7 23	1.6 26	6.3 36	19 30
Direct taxes (£m / %)			1.4 47	1.5 25	3.6 21	21 34
Expenditure						
Military (£m / %)			79w	39p	31p	61
Civil (£m / %)			15w	17p	13p	9
Interest (£m / %)			.6 6w	2.3 44p	9.4 56p	30 28

Note: w = war, p = peace

Source: Forrest Capie, 'The origins and development of stable fiscal and monetary institutions in England' in: Michael D. Bordo and Roberto Cortés-Conde, eds., *Transferring wealth and power from the Old to the New World. Monetary and fiscal institutions in the 17th through the 19th centuries* (Cambridge 2001) 10–58, page 28.

1131 For tariffs and bans see Nye, *War, wine, and taxes*. For export bounties see Hoppit, 'Bounties, the economy and the state in Britain'. Let me just give one example of taxes on exports. While total output of all coalmines could even have doubled between 1790 and 1815 and its real prices in Britain, except London, were falling, taxes on coal exports could reach seventy percent. See O'Brien, *Contributions of Warfare*, the LSE Working Paper version, pages 53–54.

1132 See Gauci, *Regulating the British economy*. On the book flap it reads: "The book challenges the general characterization of the period as a shift from a regulated economy to a more laissez-faire system, highlighting the uncertain but significant relationship between the state and economic interests across the long eighteenth century."

Let us again try and compare Great Britain and China to figure out what might have been the impact of a specific factor, in this case the nature and role of the state, in the explanation of the Great Divergence. That (Great) Britain was a fiscal-military and mercantilist-imperialist state when it took off is a fact that economists and economic historians have to deal with in their explanation of the Great Divergence. Internally, China was at least as much, and I would think in several respects even more, of a market economy with free and fair competition than Britain. When it comes to foreign affairs, China's government certainly did not want to give too much power and leeway to its own or foreign traders and therefore kept them in check. But overall, foreign trade was not more manipulated and regulated than it was in Great Britain. It in any case was far less important than it was for the British economy.

In my discussion of the state, I will focus almost exclusively on the role of the British state because that simply was far greater (of course relatively speaking) than its Chinese counterpart in terms of level and increase of taxation, government borrowing and debt servicing, number of civilian officials and military personnel and also far more prominent in terms of trying to change the economy and increase production to be able to increase its revenues and power. The philosophy behind the policies of China's rulers at the time can be best described as 'agrarian paternalist'.<sup>1133</sup> Law and order and the military obviously were important. But government was not engaged in an arms race. It did not bother about building a strong navy. Up to the 1810s, the country imported more bullion than it exported and the government saw no reason to worry about exports as its European counterparts did. Agriculture was seen as the fundament of economy *and* society. Rulers considered it their duty to care for 'people's livelihood', i. e. to provide for the security and wealth of their subjects. They had to be restrained and interpret the state's mandate as one of managing and stabilising wealth rather than controlling and extracting it. They were supposed to tax lightly and to not interfere at the local level. 'Controlling from afar' by means of lean government was the motto.<sup>1134</sup> The idea that Qing rule in China, at least at the central level, would be a kind of oriental despotism is no longer widely supported. Government was much less of a brake on economic innovation and private enterprise than has always been suggested in Eurocentric literature. The point is that it did not do much to promote them either and that

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1133 For agrarian paternalism see for example, in chronological order, Leonard und Watt, *To achieve security and wealth*; Will, 'Chine moderne et sinologie'; idem, 'Développement quantitatif et développement qualitatif en Chine à la fin de l'époque impériale'; Dunstan, *Conflicting counsels to confuse the age*; Wong, *China transformed*, and idem, 'The political economy of agrarian empires'; Deng, *Premodern Chinese economy*. Finally I want to refer to Antony and Leonard, *Dragons, tigers, and dogs* and Dunstan, *State or merchant?*

1134 Leonard, *Controlling from afar*, chapter 2.

over time it became weaker and more inefficient – and therewith indeed an impediment to growth – as I will discuss in the chapter *Why not China?* I here refer the reader to that chapter, to my comments earlier on in the text on the lack of Chinese mercantilism and periphery building, and to my publications in which I very extensively discussed the role of Qing China's state in the economic development of its country.<sup>1135</sup>

Great Britain's take-off provides a real challenge for scholarship: how could this country become the first industrial nation and the first one having modern economic growth when it, as a fiscal-military and mercantilist state, sinned against so many of the prescriptions of mainstream economics? Even Joel Mokyr, who is convinced that Britain acquired economic primacy because it developed into a *laissez-faire* economy, admits that: "Before the end of the eighteenth century, Britain remained on the whole committed to protectionist and mercantilist doctrines, but a few kinks appeared in the armour of the protectionist Juggernaut." But, as he continues, "after 1815 the new liberalism was slowly gaining ground ..." <sup>1136</sup> On the eve of the Industrial Revolution, according to him, Britain still in many ways was a protectionist and regulated economy, in which growth took place "despite rather than because of the institutional pre-conditions". It nevertheless was "better situated and equipped by comparison" than other European nations.<sup>1137</sup> According to him, Britain's economy in the very long eighteenth century initially grew and developed *notwithstanding* mercantilism, only to grow and develop much faster once mercantilism had disappeared. If a scholar such as Mokyr thinks the new liberalism only slowly gained ground after 1815, one may safely assume that Britain was still mercantilist, and a fiscal-military state, when its economy began to take-off. I support Mokyr's claim that it was better "situated and equipped" as long as that does not imply it would have been *less* mercantilist than e.g. France or the Netherlands. Overall, that was *not* the case, rather the contrary. In my view, up until at least the 1830s, Britain was *too* mercantilist in *too* many respects to accept the traditional claim that mercantilism was simply and entirely bad for development, even though many economists and some historians following Adam Smith's indictments still make that claim.

Another scholar who follows Mokyr's line of reasoning and therefore thinks that in the end Britain's economy developed and grew *notwithstanding* mercantilism and all it stands for, would be John Nye, who claims that for mer-

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1135 See my publications under notes 760 and 962.

1136 Mokyr, *Enlightened economy*, 153.

1137 See for these two quotations Mokyr, *Enlightened economy*, 25 and 12. See also *ibidem*, 68: "None of this is to suggest that Britain had a society perfectly designed for economic growth and technological progress. Yet compared to the rest of Europe, its advantages seem obvious."

cantilist Britain empire building – and all that this implied – was not cost-effective. Here are some quotations, all from his book on the political economy of Anglo-French trade:

...when one factors in deadweight inefficiencies of high taxation and large government with the cost of administering and defending the colonial empire, it is likely on both theoretical and empirical grounds that such large-scale expansion was on net, costly to the nation...

Absent a theoretically sound economic argument about the ways in which empire promoted overall economic development, accompanied by appropriate empirical evidence, the economists' presumption that such intervention is globally ineffective should be seen as decisive. At best it might be argued that the nature of political incentives was such that no more efficient policy was feasible. But that is simply an observation about the ways in which politics constrained productive behaviour; in which case it becomes even more interesting to ask how Britain developed *despite* [italics in original] such inefficient interventions.

Ultimately, the best case to be made for mercantile policy is a weak one: The creation of a large and fiscally voracious state bureaucracy did not impede Britain's transformation into the first modern industrial economy. But it still remains to be determined whether Britain grew because of, or in spite of, mercantilist policy.<sup>1138</sup>

Jack Goldstone too wonders: "Might it be that modern economies emerged *despite* [italics in original], rather than because of, the growth of modern states?"<sup>1139</sup> For Deirdre McCloskey the enormous investment in mercantilist policies – of which she in particular focuses on those made in permanent warfare and in maintaining an enormous navy – to a large extent was a waste of money as in her view Britain could have bought what it needed on a world market without incurring all those costs. She claims that economic considerations and economic logic ultimately decide where things will be produced and bought most efficiently, which strikes me as quite naïve considering the fact that in the early modern era real and trade wars were the *rule*, not the exception.<sup>1140</sup>

Ronald Findlay and Kevin O'Rourke hold a quite specific and quite outspoken position that I will use as point of departure of my analysis. They are very much aware of the role of power in the economic history of the world and in particular of European economies. Their overview of the economic history of the last millennium is full of references to force, coercion and strife. They are convinced that force, mercantilism and imperialism were necessary preconditions and ingredients of Britain's industrialisation. As we already described, in their view, Britain's ever expanding trade was the key reason why its industrial revolution

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1138 Nye, *War, wine, and taxes*, 24, 24–25, and 112.

1139 Goldstone, 'A historical, not comparative method', 270.

1140 McCloskey, *Bourgeois dignity*, chapters 24–29, in particular pages 222–225.

was different from previous ‘efflorescences’. The link between trade and Britain’s state policy is then made by claiming that trade expansion to a large extent was a consequence of a successful government strategy of promoting British trade and thwarting the trade of other countries, if need be by violent means. In their perspective mercantilism, warfare and empire building all supported trade and thus industry. There is no need to extensively repeat all their arguments. They realise that those policies of forcefully extending markets involved such high costs that it is not all obvious whether mercantilism, warfare and empire really were ‘worthwhile’ when measured on a neat balance sheet in terms of *direct* monetary gains. At various places in their work, they make clear that in the end, in the best of all worlds, they regard the market mechanism as the most efficient way to organise an economy and neoclassical economic theory as the best way to explain its efficient functioning. They consequently assume that growth and development would have fared better in world of *laissez-faire*, but, as they immediately add, that would hardly have been a realistic alternative.<sup>1141</sup> That of course is correct. It is not much use to claim that Britain would have been more efficient had it been a *laissez-faire* state as Mokyr does when he discusses whether mercantilist policies spurred Britain’s economy and claims that “What is at stake is whether this spur offset the obvious and high costs of these policies, and whether it was more effective than a more liberal policy.”<sup>1142</sup> In my view it would have been rather suicidal for a state *not* to be mercantilist in early modern Europe. All European states were (more or less) mercantilist and their ruling classes, almost without exception, endorsed mercantilism. That means, to succinctly summarize *their* perspective in *my* terms, that there was no real alternative and that being a *successful* mercantilist was the best one could hope for.

Whether fiscal-militarism and mercantilism were avoidable or not, it of course is easy to show their enormous costs. The staggering costs of war and empire building are obvious. Those of protectionism and monopoly as implied by mercantilism are less so but they too must have been far from negligible. Let me give some examples of such extra costs. Wheat prices in Britain were amongst the highest in Europe. Nevertheless, until the 1760s, substantial amounts of wheat were exported, subsidized with export bounties.<sup>1143</sup> After the Napoleonic Wars, the famous or rather notorious Corn Laws were introduced that were meant to keep ‘cheap’ foreign imports out. They were not repealed until 1846.

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1141 Findlay and O’Rourke, *Power and plenty*, 351–352. Erik Reinert, I think rightly, in his review describes their book as schizophrenic in its effort to “unite the cruel reality of the historical record with utopian theories of market-made economic harmony.” See *Journal of Global History* 4 (2009) 512–514, page 514.

1142 Mokyr, *Enlightened economy*, 159.

1143 Mokyr, *Enlightened economy*, 150. See for an analysis of the phenomenon of export bounties under note 1131.

Between 1768 and 1782, all imports from the British West Indies except ginger were sold in Britain for prices that were above the world market price because of preferential treatment for West Indian landlords.<sup>1144</sup> In the 1820s and 1830s, the fact that West Indian sugar planters and refiners received preferential treatment over their East Indian colleagues still was cause for heated debates.<sup>1145</sup> Protectionism also led to high prices for tea. In the 1770s, average tea prices – i. e. sales prices of the East India Companies in England and the Dutch Republic – were all but identical. In the 1820s, Dutch prices had decreased by two-thirds, English prices by only one quarter. According to John Crawford, a famous Scottish Orientalist, over the period from 1819 to 1829, British subjects had been paying nearly twice as much for their tea as those who had purchased it on the American market. In 1830, in a report of the Select Committee on the Affairs of the East India Company and the trade between Great Britain, the East Indies and China, experts claimed that the EIC monopoly on the tea trade with China led to between one million to 2.6 million pounds sterling extra costs for the public.<sup>1146</sup> The protection of British wool interests against competition of Indian cotton textiles may well have enabled the rise of a domestic British cotton industry, but it of course made life more expensive and choices more restricted for British consumers. It lasted longer than is often thought. In 1830, for example, an excise on printed calicoes was still in existence.<sup>1147</sup> Between 1688 and 1759, to give one last example, tariffs on iron increased fivefold.<sup>1148</sup> Whatever may have been the exact effect of such protecting of special interest groups for production in the long term, it certainly was not positive for consumption in the short term. That it was positive for the development of domestic industries as is so often suggested or explicitly claimed for British cotton industry is anything but obvious. If that industry had *not* become so innovative, mainstream economists would no doubt have blamed ‘protectionism’ for its lacklustre development. Again: it apparently is a matter of context how protectionism works out. Mercantilism in practice very often implied monopolies. Those not only as a rule meant higher prices: they too could be bad for innovation. Ralph Davis claims that its monopoly, for example, discouraged the East India Company from adopting new technology that would have allowed it to reduce freight rates.<sup>1149</sup>

The question of whether Britain’s empire ‘paid’ is very hard to settle definitely

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1144 Thomas and McCloskey, ‘Overseas trade and empire, 1700–1860’, 98.

1145 Kumagai, *Breaking into the monopoly*, e. g. 207.

1146 For these data see Kumagai, *Breaking into the monopoly*, 208–209, 139 and 150 note 112. For Crawford’s calculation see Crawford, *Chinese monopoly examined*, 87. Crawford was a fierce opponent of the EIC. The information is on page XVII of the Report.

1147 Kumagai, *Breaking into the monopoly*, e. g. 256.

1148 Parthasarathi, *Why Europe grew rich*, 168–170.

1149 Davis, *The rise of the English shipping industry*, 265.

but what has become patently clear is how enormously expensive it was for most ordinary people footing the tax bill. For Britain's economy as a whole, the costs of 'Empire' probably were higher than the benefits, at least in direct monetary terms. When it comes to costs and benefits of empire for the period 1846–1914, Patrick O'Brien claims:

For not inconsiderable numbers of British people (outside and inside some very powerful social groups) the empire paid. What has been argued above is that massive public expenditure upon the apparatus of imperial rule and defence was neither sufficient nor necessary for the growth of the economy from 1846 to 1914.<sup>1150</sup>

For other periods too there often is a tendency to overestimate the benefits and underestimate the costs of 'Empire'.<sup>1151</sup> For a substantial, and increasing, number of scholars including O'Brien, however, apparently the costs to the consumer that were Adam Smith's main reason to attack the mercantile system so fiercely, and what we now call the fiscal-military state were outweighed by its advantages one way or another. All their theoretical doubts notwithstanding, Findlay and O'Rourke, for example, apparently think Britain's policy of combining power and profit in practice in the end worked out.

That clearly is the case for scholars like Braudel, Wallerstein and Arrighi, for whom the rise of the West in the end equals the rise of a Western capitalist world-system in which power and profit went hand-in-hand. Capitalism for them *means* monopoly and manipulation, collusion and coercion. Reading their work one cannot escape the conclusion that in their view its main advantage was that it facilitated concentrated accumulation in the hands of a small group of capitalists who in turn undergirded the strength of the state without, however, losing their essential freedom to manoeuvre. They never try to make a general kind of cost and benefits balance sheet but in particular Wallerstein does not hide that he looks at the yields of the modern world-system in terms of social costs and private gains: "Capitalism is based on the constant absorption of economic loss by political entities, while economic gain is distributed to 'private hands'."<sup>1152</sup> The essence of his capitalism and of the capitalism of all those who think likewise, resides in accumulation and the extension of markets.

We have already discussed and very substantially qualified the thesis that the Great Divergence would have been directly connected to, that is 'caused by'

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1150 O'Brien, 'Costs and benefits of British imperialism', 200.

1151 For a European-wide analysis in which the British case is also extensively discussed, see O'Brien and Prados de la Escosura, *Costs and benefits of European imperialism*.

1152 Wallerstein, *Modern world-system. Volume I*, 348. But even so, he, at least in the 1970s, thought that capitalism created growth in the end. See Wallerstein, *Modern world-system I*, 357, where he claims about the modern world system, "... for all its cruelties it is better that it was born than that it not had been."

increased accumulation or by a simple extension of the market, so we will not repeat ourselves here. What can be added here is that the connection between accumulation and international trade on the one hand and investment and industry on the other, whatever its importance, in any case hardly ever was a *direct* one in terms of people and invested capital. Braudel, who tends to define capitalism explicitly as a phenomenon belonging to the sphere of *exchange* and not that of *production* (which of course Wallerstein and Arrighi in fact also do) actually denies the existence of such direct links for incipient industrialisation in Britain. In his eyes, merchant capital and merchants played only a marginal role in the beginning of Britain's industrial take-off.<sup>1153</sup>

None of these three scholars in their 'models' actually have a separate explanation for industrialisation or the emergence of modern economic growth as such. In their view, these do not represent real breaks in the history of Western capitalism. Science, technology, and innovation, whose role is fundamental in the Great Divergence, function as exogenous variables in their analysis and are not integral to their main story line. Braudel does discuss the technological changes of the Industrial Revolution but strangely enough, considering his usual emphasis on material life, ultimately very much relativises their importance. In Wallerstein's work, the role of technology as an autonomous or at least separate driving force behind modern economic growth is all but denied. He systematically writes about the 'so-called' Industrial Revolution and the reader will find no reference at all to the steam engine in the entire volume he dedicated to the period of the 1730s to the 1840s, only one to steamboat and only three to coal. In volume IV of his *magnum opus*, which was published in 2011, Wallerstein sticks to his view. Incredible as it may seem, the entire debate about the Great Divergence and the beginning of modern economic growth as it has now been waged for some fifteen years still seems to elude him; or rather he simply ignores it. Which means that in all the volumes devoted to the modern world-system he does not pay any serious in-depth attention to what actually is the essence of modern economies and modern economic growth.<sup>1154</sup> In a fairly chaotic analysis in Volume III he comes to the conclusion that there was nothing special to industrialising Britain, that the concept of the first industrial revolution of Great Britain is "profoundly mistaken" and that the real question to be dealt with would be "why the world-economy as a whole developed in the way that it did ... and why ... there resulted a greater concentration of the most profitable economic activities within particular state boundaries ..." He also indicates why this would be the case: "It is the world-economy that develops over time and not

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1153 See my analysis of Braudel's ideas on capitalism and the Great Divergence in 'Europe and the rest: Braudel on capitalism', in particular 126–127.

1154 See Wallerstein, *Modern World-System*, III, and IV under (first) 'industrial revolution'.

subunits within it.”<sup>1155</sup> In my view, that is simply playing with words and avoiding providing any concrete historical answers to a set of very concrete but fundamental historical questions that are rightly central to debates about the Great Divergence: how and why did *modern* economic growth first emerge in Britain and the West?

Gunder Frank in the days when he still adhered to dependency theory also focused on the options for accumulation that were provided by the existing political economy of the West. In his *ReOrient*, the focus has shifted but we still find clear traces of it in the importance he attributes to the Western appropriation of gold and silver from the Americas.<sup>1156</sup> For him too, accumulation (and factor endowment) is decisive and science and technology at best responses to economic challenges. Pomeranz, to give one last example of a scholar with a major impact on the Great-Divergence debate, also focuses on accumulation in his emphasis on the importance of non-consensual trade and the availability of ghost acreage, very often in colonies, for the rise of the West. We need not discuss his views again. The point is, in brief, that world-systems theory in its various varieties, including the specific variety of Kenneth Pomeranz, does not tell us much about the actual *direct* causes of the Great Divergence, although it definitely is quite important in the context of a *general* explanation of how the gap between rich and poor could emerge and extend so much.

But one need not be adherent to a ‘world-systems approach’ to note inseparable connections between fiscal-militarism, mercantilism, empire and economic development. Robert Allen too notes potential advantages of mercantilism and thinks it is arguable that British government *expenditures* promoted economic growth. It would have been a good thing, as he writes, if Louis XIV (1638 – 1715) had had more money to build a large French fleet. On various occasions, he refers to a ‘standard’ development strategy for catching up that would involve unifying the internal market, protecting it against competition from abroad, creating a well-functioning banking sector, and then implementing mass-education.<sup>1157</sup> The first two policies, of course, were exactly what mercantilists were up to. Prasannan Parthasarathi regards mercantilist policies with their systematic support for domestic producers and merchants as fundamental to any explanation of Britain’s industrialisation as well as India’s de-industrialisation.<sup>1158</sup> In this context, one should in particular refer to publications by Patrick O’Brien, still famous for his *critique* of world-system’s analysis, David

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1155 Wallerstein, *Modern World-System*, III, 33.

1156 Frank, *Reorient*, 277.

1157 Allen, *Global economic history*, 29 and 41 – 42.

1158 See his *Why Europe grew rich*, and my ‘Challenges, (non) responses and politics’.

Ormrod, or William Ashworth.<sup>1159</sup> The focus in their work is not so much on accumulation per se as on the protection and support of production and trade and on the (artificial) enlargement of markets. Their position boils down to the claim that even if – and this seems obvious – many Britons in the short run and as private consumers lost more than they gained, for the *development of the economy as a whole* and in the longer run, in particular when it comes to *production*, Britain’s political economy may very well have had positive effects. This is a striking and very recent quote by O’Brien:

Our rhetorical and debateable speculation is that in significant respects the First Industrial Revolution can be plausibly represented as a paradigm example of successful mercantilism and that the unintended consequences of the revolution in France (massive long lasting wars won by Britain PV) contributed positively and perhaps “substantially” to its ultimate consolidation and progression.<sup>1160</sup>

Ashworth is very explicit about what he considers to be the positive effects of Britain’s economic policies till the 1840s:

If there was a unique English/ British pathway of industrialization, it was less a distinct entrepreneurial and technocentric culture than one predominantly defined within an institutional framework spearheaded by the excise and a wall of tariffs.

An industrial policy revolving upon protection and the excise, coupled with the extraordinary rise of lightly taxed or untaxed goods of cotton, iron and pottery, and with rich resources of coal, had put Britain into a seemingly invincible industrial and commercial position.<sup>1161</sup>

Elsewhere we find this quotation, in which he describes Britain’s industrial development as:

...less the result of a distinctive indigenous mentality and the gift of mutating ‘natural inquiry’ into mastering nature; instead it can be argued that it owed more to a policy of nurturing domestic industry behind a wall of tariffs, skill in imitating and subsequently transforming foreign (especially Asian) products, unparalleled exploitation of African slave labour, rich resources of coal, a monopoly of trade with British North America and aggressive military prowess. In many ways, the backbone of Britain’s global might was luck and a stunningly successful fiscal system as compared to the rest of Europe.<sup>1162</sup>

As Friedrich List already claimed, a country, or rather its consumers, in the short term may have to pay a price for protectionism. But that can be a perfectly

1159 See for O’Brien’s ideas his ‘Contributions of warfare with Revolutionary and Napoleonic France’; for Ormrod’s his *Rise of commercial empires* and for Ashworth’s his *Customs and excise*.

1160 O’Brien, ‘Contribution of warfare with Revolutionary and Napoleonic France’, ‘Conclusion’.

1161 See for these quotes Ashworth, *Customs and excise*, 382 and 379.

1162 William J. Ashworth, ‘The intersection of industry and the state the state in eighteenth-

rational choice when it creates long-term advantages in terms of increasing its 'productive capacity' and thus its potential for growth.<sup>1163</sup> Building up skills and 'productive capacity' always takes time and resources and it always has its opportunity costs, but it mostly in the end pays. The alternative, to simply always opt for short-term gains tends to lead to a dead-end street and a permanently low income.

What is striking and simply cannot be ignored is that up until a couple of decades into the nineteenth century, most people in Britain were 'mercantilists' and convinced that government should support the national economy. If mercantilism is defined as a form of economic nationalism that connects the power of the nation with the economic strength of the state, Britain's government policies almost without exception were mercantilist. It was obvious to anyone that prosperity came with power and the other way around. Daniel Baugh correctly claims that between 1650 and 1750:

Everyone then responsible for public policy thought that English wealth could not long be sustained without power to defend both trade and the realm, and also thought that England's power to defend could not be long sustained without trade and wealth. The evidence is ubiquitous and consistent. The first place to look is to the opening words of the 1651 and 1660 Navigation Acts. Moreover, in the decades after *The wealth of nations* was published, no one shared Smith's outlook on this question. Power and prosperity could not be separated.<sup>1164</sup>

Not even Adam Smith *himself* endorsed the ideas that Baugh subsumes under "Smith's outlook". Smith also thought that political economy was about wealth and power of the state and he was in favour of the Navigation Acts.<sup>1165</sup> Things certainly did not simply change in the decades after he wrote his magnum opus. In a Memorandum for the consideration of his Majesty's ministers, of 31 March 1800, it reads:

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century Britain' [http://www.knaw.nl/Content/Internet\\_KNAW/publicaties/pdf/20041102\\_18.pdf](http://www.knaw.nl/Content/Internet_KNAW/publicaties/pdf/20041102_18.pdf), 349–378, page 350. An almost identical quotation is in Ashworth, 'Revenue, production and the early modern English/British fiscal-state'.

1163 For the ideas of List in this respect I refer to Bachinger and Matis, *Entwicklungsdimensionen des Kapitalismus*, chapter 3.1.

1164 Baugh, 'Maritime strength and Atlantic commerce, 188.

1165 He thinks they were "... not favourable to foreign commerce, or to the growth of that opulence which can arise from it." But he nevertheless calls the regulations "... as wise ... as if they had all been dictated by the most deliberate wisdom" and explicitly indicates why: "As defence, however, is of much more importance than opulence, the act of navigation is, perhaps, the wisest of all the commercial regulations of England." See Smith, *Inquiry into the nature and causes of the wealth of nations*, 464–465. Please note that Smith explicitly refers to 'nations' in the title of his book and claims that "... the great object of the political oeconomy of every country, is to increase the riches and power [sic] of that country". Ibidem, 372.

It is obvious that the present strength and pre-eminence of this country is owing to the extent of its resources arising from its commerce and its naval power which are inseparably connected.<sup>1166</sup>

Just about everyone who was important in foreign and economic policy would have endorsed this claim. The empire *at least in principle* was meant to be a commercial rather than a territorial enterprise. In practice it had a tendency to territorially expand because of decisions taken at its margins.

The 'empire' that was designed to serve these purposes is best thought of as a 'maritime imperial system' because its value was seen to derive from maritime commerce rather than territory and dominion. From the perspective of 'blue-water policy' the positive benefits from possessing colonies were that they stimulated commerce by producing commodities for exports and markets for English goods; they protected and sustained overseas naval bases; they served to enlarge the pool of English-controlled shipping and seamen. Otherwise, from a policy standpoint colonies had to be regarded as a potential burden.<sup>1167</sup>

The costs of wars and protectionism may have been enormous, but Parliament apparently considered them worthwhile. While it had a constitutional right to refuse funds for war, it never did.<sup>1168</sup> Political commentator David Robinson in 1825 voiced the following warning about the dangers (!) of free trade policies that in his view would be a disaster for Britain.<sup>1169</sup>

The greatest improvements have been made in our manufactures when they have been the most free from such (foreign) competition. Our cotton manufacturers have made the greatest varieties in their articles, and the greatest reductions in their prices, when it has been perfectly unknown. Our iron and several other articles, which a few years since were greatly inferior to those provided in other countries, have been brought to equal, and in some cases to surpass those of all other parts, entirely without such competition. Under a system which studiously prevented such competition, which jealously excluded the foreigner from our home market, we have far outstripped all other nations in manufactures ... we have rendered ourselves the first manufacturing nation in the universe.

The quotations above already show that when I here refer to mercantilism, I do not mean a simple obsession with bullion and balances of trade but a much broader set of measures that basically had in common that they were meant to support the national economy, primarily on behalf of the state.<sup>1170</sup>

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1166 I found this in O'Brien and Engerman, 'Exports and the growth of the British economy', 177. The memorandum was written by Henry Dundas, president of the Board of Control of the East India Company.

1167 Baugh, 'Maritime strength and Atlantic commerce', 186.

1168 Allen, *Global economic history*, 28.

1169 I found this in Ashworth, *Customs and excise*, 374–375.

1170 For some general literature discussing the concept of mercantilism in which its attention to

How exactly the advantages of state competition and the specific way in which it was implemented in Europe can be set off against its disadvantages to me looks insoluble in the sense that state competition was a driving force of economic development and innovation in the world as it was that simply can not be compared to alternatives in a peaceful world of free and fair competition. Some scholars have been so fascinated by the role of massive violence and coercion in European history that they try and positively connect them to economic development. Just think of Werner Sombart (1863 – 194), who extensively wrote on the tight connection between war and capitalism, or John Nef (1899 – 1988), who wrote on war and human progress, or Frederic Lane (1900 – 1984), who discussed the connection between war, organized violence, protection and economic development.<sup>1171</sup> The role of the military in economic development and industrialisation also attracted the attention of the father of world history, William H. McNeill, in his *The pursuit of power*<sup>1172</sup> and later that of Linda Weiss and John Hobson who claim that whereas Europe was propelled forward by permanent competition, including war, the very absence of warfare was the essence of the lack of a “will to develop” in China.<sup>1173</sup> Spanish historian Rafael Torres Sánchez, in a recent volume that he edited, takes it as a fact that “Europeans managed to grow not so much by accreting years of peace and *despite* war but rather *with* war.”<sup>1174</sup> That is an interesting or rather very challenging thesis, if for the sake of argument we consider it true. But this is not obvious: the *nineteenth century* at least was a period in which relatively few wars were waged in Europe. It is easy to imagine all sorts of income generated by war – booty, reparations or conquest – or to think of an improvement of one’s competitive advantage by the destruction of the economic power or economic viability of one’s opponent, just as it is easy to imagine how war pushes an economy to the very limits of its potential. However, it is also only all too easy to come up with disadvantages and costs. A detailed systematic analysis of the effects of actual warfare, the preparation for war and its consequences in my view is definitely is of the highest desiderata for global economic history. Patrick O’Brien’s analysis

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production and competition clearly comes to the fore, and for references to a huge amount of literature, see Magnusson, *Mercantilism: the shaping of an economic language* idem, *Mercantilism, critical concepts in the history of economics* and several publications by Erik Reinert. See under notes 232, 1129 and 1187. For Britain that, as I want to emphasize again, was a very mercantilist country, I refer to the publications under notes 1159 plus *The William and Mary Quarterly* 69, 1 (2012) 3–70.

1171 Sombart, *Krieg und Kapitalismus*; Nef, *War and human progress* and Lane, *Venice in history*.

1172 William McNeill, *The pursuit of power*. See under ‘Industrial Revolution’.

1173 Weiss and Hobson, *States and economic development*, chapters two and three. See in particular 60–61, and 83–87. They here build upon ideas developed in Crone, *Pre-industrial societies*, Part Two.

1174 Torres Sánchez, *War, state and development*, the back flap.

of the contributions of warfare with Revolutionary and Napoleonic France to the consolidation and progress of the British Industrial Revolution show us what such an analysis might look like.<sup>1175</sup> The positive effects warfare *can* have on an economy, *in particular* if the fighting takes place elsewhere and the war is won, can be seen in the striking fact that the US economy grew almost ten per cent per year during World War II.<sup>1176</sup>

But as far as I can see, many questions here are still open and very probably will never be really settled. In the specific context of pointing at the salutary effects of massive military spending, Giovanni Arrighi has introduced the concept of ‘military Keynesianism’. He defines it as: “...the practice through which military expenditures boost the incomes of the citizens of the state that has made the expenditures, thereby increasing tax revenues and the capacity to finance new rounds of military expenditures.”<sup>1177</sup> Personally, I am not convinced that this has been a felicitous choice. The term ‘Keynesianism’ suggests ‘deficit spending’. In that respect it would have been helpful if Arrighi had also explicitly and systematically referred to government borrowing. As I see it, Keynesianism is a way of combating under-consumption and underinvestment. The question then becomes how effective military expenditures of Britain’s government have been in that respect. To be able to judge, one has to differentiate between various sources out of which these expenditures were paid. The bulk of regular revenue came from taxes. Over the entire very long eighteenth century, the bulk of Britain’s taxes were collected as excises and customs on fairly ordinary consumer goods. I fail to see how taking money from ordinary consumers and transferring it to the military can create a substantial amount of extra income. If those consumers hadn’t had to pay those taxes, they, or at least most of them for most of the time, would have had no problem in finding other ways to spend it. Taxes paid by rather wealthy people may indeed have given some boost to the economy – and in the end to tax revenue – when they were transferred to the military. The reason is that we are talking about money here that otherwise may *not* have been spent. The effect is optimal when the military ploughs all this money back into Britain’s economy. In such a scenario, taxes can contribute to combating under-consumption and under-investment.

This effect of mobilising money that otherwise might have been lying idle will in all probability have been bigger in case of government borrowing or direct and massive use of the money printing press. Government bonds were tradable and thereby as such increased the money supply. In my view, it is only in this case that

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1175 O’Brien, ‘Contributions of warfare with Revolutionary and Napoleonic France’.

1176 Milanovic, *The haves and the have-nots*, 144.

1177 See for this definition Arrighi, *Adam Smith in Beijing*, 266. See further idem, *Long twentieth century*, the Index under ‘military Keynesianism’.

one might really speak of a ‘Keynesian’ effect. Such a policy might ‘create’ money and boost investment and consumption. One might, however, have serious doubts whether we actually are discussing a serious Keynesian impulse here. The people who lent money to government did not do so for free. They wanted their money back, with a bonus. A quite substantial part of government expenditure therefore always consisted of debt servicing. That was done with tax money that to a large extent was collected on consumption of ordinary goods and in that way actually diminished consumption. This means such loans basically boil down to a sort of deferred taxes with dubious effects on consumption and as a rule can only be repaid in a growing economy.<sup>1178</sup> One may of course also wonder whether there is not a limit to the ‘healthy’, ‘Keynesian effects’ of public debts. In current debates several experts claim that when they amount to some eighty to ninety per cent of GDP they become a brake on economic growth.<sup>1179</sup> In (Great) Britain public debt in the period discussed here was over 100 per cent for many decades; between 1780 and 1845 it was never lower than 150 per cent!<sup>1180</sup>

Whatever the actual effect of public debt may have been on various early modern economies at large, it is in any case striking that people defending a ‘Keynesian’, positive interpretation of public debt as a means to combat under-investment and under-consumption were very exceptional at the time. In Britain, most people regarded public debts as a necessary evil. Adam Smith, for example, spoke of a “pernicious system”. David Hume claimed: “either a nation must destroy public credit, or public credit will destroy the nation”. They were both convinced that national debt was not a good thing, especially not when it was as large as it was in Britain.<sup>1181</sup> Isaac de Pinto (1717 – 1787), a Dutch Jewish scholar and investor in the Dutch East India Company, in that respect was clearly an exception with his claim that “... the internal expenses of a monarch, or of the state, return into the nation, encourage and improve it. The nation in a body pays

1178 See for this point of view and some references, Bonney, ‘Introduction’, 14–15. A large amount of the money that the state borrowed, however, was never itself paid back and the amount of money in circulation thus continued to be ‘enlarged’.

1179 See e.g. Carmen M. Reinhart and Kenneth S. Rogoff, [http://scholar.harvard.edu/files/rogooff/files/growth\\_in\\_time\\_debt\\_aer.pdf](http://scholar.harvard.edu/files/rogooff/files/growth_in_time_debt_aer.pdf) *American Economic Review: Papers & Proceedings* 100 (May 2010) 573–578 and S. G. Cecchetti, M.S. Mohanty and F. Zampolli, ‘The real effects of debt’, Bank for International Settlements Working Papers No 352, September 2011, <http://www.bis.org/publ/work352.pdf>. For the critique see: T. Herndon, M.I. Ash and R. Pollin, ‘Does high public debt consistently stifle economic growth? A critique of Reinhart and Rogoff’. This text can be found on the website of the Political Economy Research Institute of the University of Massachusetts. I consulted it 28–05, 2013.

1180 See Macdonald, *Free nation deep in debt*, 355.

1181 See for these quotes by Smith and Hume and some by other commentators, Hoppit, ‘Checking the Leviathan, 1688–1832’, 286, and Rothschild, ‘English Kopf’, 39. For debates on national debt in eighteenth-century Britain and Hume’s ideas in particular see Hont, *Jealousy of trade*, chapter four.

these expenses, or rather lends the money for its own advantage” to which he added, that loans can make “the numerary wealth and circulation increase with the debt”.<sup>1182</sup> The writer Samuel Taylor Coleridge, (1772 – 1834), in his essay of 1809 ‘On the vulgar errors respecting taxes and taxation’ regarded national debt as an engine of national growth.<sup>1183</sup> The first major economist, though, who explicitly sang a long song of praise of national debt, would be Friedrich List who wrote in 1858: “The system of public debt is one of the finest creations of modern politics and a blessing for the nations.”<sup>1184</sup> Marx thought it was extremely important for the development of capital:

The public debt becomes one of the most powerful levers of primitive accumulation. As with the stroke of an enchanter’s wand, it endows unproductive money with the power of creation and that turns it into capital ... The state’s creditors actually give nothing away, for the sum lent is transformed into public bonds, easily negotiable, which go on functioning in their hands just as so much hard cash would.<sup>1185</sup>

All in all, I think the concept of military Keynesianism with its supposedly ‘self-enforcing’ virtuous circle in any case for the early modern pre-modern growth context we are discussing here is rather underspecified. If, as Arrighi sometimes seems to suggest, the real Keynesianism and the real virtuous circle resides in the fact that investments in the military could be an excellent investment as they could support trade and empire-building, that of course may very well be true, or not, but there is nothing much ‘Keynesian’ about it. To the extent that a thing like ‘military Keynesianism’ actually existed, the chances of finding examples of it in Western Europe must have been substantial. In China, that lacked all characteristics of a fiscal-military state *à la* Britain, they definitely were absent.

The debate about what government ideally should do and what a state should ideally look like to promote growth is still open. But arguments that governments should in any case do much more than just provide incentives and a level playing field for economic agents and, in particular, that in the past in economically

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1182 De Pinto, *An essay on circulation and credit in four parts and a letter on the jealousy of commerce*, 20 – 21.

1183 This essay is now available as a chapter in Samuel Taylor Coleridge Google eBook *The friend: a series of essays* (London 1812). I found this reference in *The Economist* May 19<sup>th</sup> 2012, page 19: ‘A debt to Coleridge’.

1184 List, *Nationale System der politischen Ökonomie*, 265. In German: “Das Staatskreditsystem ist eine der schönsten Schöpfungen der neueren Staatskunst und ein Segen für die Nationen.”

1185 *MEW*, 23, pages 782 – 783. In German: „Die öffentliche Schuld wird einer der energischsten Hebel der ursprünglichen Akkumulation. Wie mit dem Schlag der Wünschelrute begabt sie das unproduktive Geld mit Zeugungskraft und verwandelt es so in Kapital ... Die Staatsgläubiger geben in Wirklichkeit nichts, den die geliehene Summe wird in öffentlich leicht übertragbare Schulscheine verwandelt, die in ihren Händen fortfungieren, ganz als wären sie ebenso viel Bargeld.“

successful states they always *have done* much more than just that, are increasingly gaining ground. When it comes to my personal conviction I can do no better than quote what Sophus Reinert says in his book about the political economy of early modern Western Europe:

This book maintains that the historical evidence now is so heavily in favor of industrial and military policies successfully encouraging long-term economic development in England, admittedly through far more complex means than simply setting tariffs to encourage domestic manufactures, that the burden of proof falls on neoclassical economics, not on the historic record.<sup>1186</sup>

## 26. Was industrialising Britain a developmental state?

Amongst economic historians and economists who have seriously studied economic development over a longer period of time, the concept of the state as a pro-active development agent and a more positive view on many mercantilist strategies is gaining ground. Many classic economists and neo-institutionalists surprisingly enough – ignoring massive historical counterevidence – insist on the notion that the state ideally should confine itself to promoting and facilitating the market. Two theoreticians of the ‘developmental state’ with, in my opinion, an excellent knowledge of economic history stick out and indicate the direction for future research: Erik Reinert from Norway and Ha-joon Chang from South Korea. For Reinert, the foundation of the rise of the West consists of its diversity and permanent competition and emulation between states that led to its mercantilist forms of competition. In his view, that had positive effects. He considers mercantilism to have been at the root of all successful capitalism<sup>1187</sup> and fully endorses Herbert Norman’s argument about it: “... the mercantile system ... was the crutch with which capitalism learned to walk.”<sup>1188</sup> Producing primary products is for the most part a dead-end street for development and it does not make countries rich because such products have diminishing returns. Mercantilists with their emphasis on producing and exporting the ‘right’ goods, i. e. goods with high added value and not simple commodities understood that. Even without using modern jargon they already knew that countries should try to focus on producing and exporting products with increasing returns and leave the equality assumption behind, as not all economic activities are qualitatively alike. For an economy to develop its production, it has to permanently be up-

1186 Sophus Reinert, *Translating empire*, 7.

1187 Erik Reinert, How rich nations got rich. Essays in the history of economic policy. Working Paper 2004/01 Sum Centre for Development and Environment, University of Oslo 2004, page 13.

1188 Norman, *Japan’s emergence as a modern state*, 110.

graded and diversified. If that means you have to protect infant industries, then that is perfectly rational. Just relying on comparative advantage, as is suggested by classical economists and free traders, can easily become a trap. If it means producing primary products it can easily lead to decreasing returns and it does not provide many backward and forward linkages and learning effects. Again, mercantilists did not use these terms, but they looked around and compared rich countries with poor countries to find out what apparently increased the wealth of nations. They also knew that one normally can not earn much money – and thus not accumulate much – in a setting of perfect competition so that monopolies need not necessarily be bad for development.

South Korean economist Ha-joon Chang, although with at times differing areas of emphasis and with less virulence overall, has set out to show that what mainstream economics and the Washington Consensus try to tell us about economic growth and the role of the state in promoting it, simply does and can not correspond with the historical record. In his *Kicking away the ladder*, his most influential and in this context most relevant publication, he convincingly shows how countries became rich whose governments did *not* confine themselves to creating a level playing field and providing incentives but actively intervened in the economy to steer it in a certain direction. Actually, so one can conclude from his many examples, no major country ever became rich by following the advice of Adam Smith, mainstream (neo-)classical economists or institutionalist economists like Douglass North or Daron Acemoglu and their colleagues. All wealthy industrialised countries, for example, developed their economies behind tariff walls and practised infant industry protection and it therefore would be unfair to not allow other countries ‘the ladder’ of protectionism that they themselves as a rule only threw away once they had reached a certain level of wealth. Virtually all developed countries now, as Chang writes, “used infant industry promotion measures” to later on the same page of his book add: “Interestingly, it was the UK and the USA, the supposed homes of free trade policy, which used tariff protection most aggressively.”<sup>1189</sup> No major country ever became rich by simply confiding in the market, comparative advantage or export-led growth. Smith’s ideas may have made sense in a highly productive and developed economy as Britain was at his time, and even there they were only fully implemented many decades after they had been written down: in a poor country they do more harm than good. Many institutions, moreover, which in mainstream institutional economics are regarded as necessary preconditions for growth actually only emerged when the economy already was growing and a

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1189 Ha-joon Chang, *Kicking away the ladder*, 59.

certain wealth already existed: they, in brief, often were *effect* or symptom rather than *cause*.<sup>1190</sup>

An analysis of mercantilist Britain as a developmental state would certainly be helpful and would to my mind show striking resemblances alongside certain big differences, of course. Britain, for example, almost up until the end of the long eighteenth century clearly was not a developmental state in the sense that government itself actually spent money in order to ‘develop’ something. Here the comment by Patrick O’Brien leaves not much doubt: “Patrick Colquhoun’s estimates (1814) imply that only 0.5 per cent of total public revenues collected during the long reign of George III was devoted to objectives that might nowadays be defined as developmental.”<sup>1191</sup> Nor was there some kind of master plan created by some kind of British MITI.<sup>1192</sup> There was, as we might expect, a lot of improvisation and luck and most of what government did was primarily to strengthen the state rather than to develop the economy. But as it turns out, having a strong state is a necessary precondition for government to be able to implement any effective economic policy and for an economy to be able to develop. This claim is often misunderstood in the sense that a strong state would by definition imply ‘weak’ subjects. It might be helpful to differentiate between various dimensions of state power and in that respect follow Linda Weiss and John Hobson.<sup>1193</sup> The main distinction they make is that between ‘despotic power’ on the one hand and ‘infrastructural’ or ‘organic power’ on the other. These distinctions are not theirs. They were introduced by Michael Mann, who uses the concepts ‘infrastructural’ and ‘despotic’ power, and by John Hall, who writes about ‘organic’ state power.<sup>1194</sup> Despotic power concerns the range of actions that rulers can undertake without resorting to routine, institutionalised negotiation with civil society groups. It basically concerns the extent to which rulers can do as they please with their subjects. This should be distinguished from ‘infrastructural’ or ‘organic power’, which can be defined as the capacity of rulers to actually penetrate civil society and to implement political decisions logistically throughout the realm, which, of course, always implies that the state disposes of a great amount of knowledge.

We are talking about two quite different kinds of power that tend to stand in an inverse relationship to each other: as a rule, states with strong despotic powers have been infrastructurally weak and vice versa.<sup>1195</sup> Only a state that is

1190 Ha-joon Chang, *Kicking away the ladder*, chapter 3.

1191 O’Brien, ‘Political preconditions for the Industrial Revolution’, 128.

1192 MITI stands for Japan’s Ministry of International Trade and Industry.

1193 See their *States and economic development*, 6–8.

1194 Mann, ‘Autonomous power of the state’ and *Sources of social power*, passim, and Hall, *Powers & liberties*, 133–144.

1195 Mann, ‘Autonomous power of the state’. The definitions are on page 113. Mann’s theory of

infrastructurally or organically strong will be able to implement its policies and thus (help to) change an economy. That was the case in Britain where the state was not a force separated from and so to say confronting society but where it clearly was embedded in society and where state and society bargained with each other. In that respect, the existence of Parliament in particular, where all those with a certain clout in the country could bargain in an institutionalised setting and with results that were regarded by all as binding, at least in principle, must have been of enormous importance. It was an enormous advantage as compared with the situation in China, where the state even when it was functioning well according to its standards – which it mostly did not after 1780 – was not embedded and measures announced by the rulers might lack wide support. Institutions in infrastructurally strong states are not only legitimate but also flexible and adaptable. For Britain, one might prove this by referring to the fact that its state did not collapse under the enormous stress of war and industrialisation, thanks to a combination of repression but also flexibility. This flexibility, which proved itself very important during the process of industrialisation and economic modernisation, however, never was such that government wanted to stop that process or rejected it. *How* important the state actually became for wealth and *that* what it does is not confined to promoting the market shows in table 23. The countries referred to in the table are all amongst the richest of the world and have been so for decades on a row. In all of them, the share of the state in GDP is very high in contrast to what classical economists like to suggest, indicating that a big state and wealth can go together and that apparently in wealthy economies the state does far more than just promoting the market.

## **27. The European state system and the development of civil society: the non-monopolisation of the sources of social power**

In the previous paragraphs we have been discussing the state as the institution of institutions and its (possible) role in economic development. When it comes to states in Europe, however, their set-up and development simply cannot be discussed in isolation. More than anywhere else in the world, states in Europe interacted systematically with one another. Time and again, so often that it has almost become a truism, Europe's dynamism ever since the High Middle Ages has been explained by the fact that Europe was not an empire but a highly

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power has not convinced everyone. See, for a critical analysis of his ideas in which he himself participates, Hall and Schroeder, *Anatomy of power*.

competitive state-system or in Michael Mann's terms an "acephalous federation".<sup>1196</sup> References to this are too numerous to even try to discuss them all.<sup>1197</sup> According to David Landes "...Europe's great good fortune lay in the fall of Rome and the weakness and division that ensued."<sup>1198</sup> Much of the behaviour of the member states in that acephalous federation can be explained by the competition that developed between them and that in its most violent and radical form in particular, i. e. war, had an enormous impact on state-formation.<sup>1199</sup> In Europe, competition between states, whatever its precise importance for economic *growth*, definitely became a major driving force for *development*. I discussed that importance and the debates about it earlier on in this text and in several publications to which I refer the reader.<sup>1200</sup> Not since the Imperium Romanum did Europe's core become one empire again. The continent continued to be an extremely competitive system. But it was not only characterised by competition between states. The 'parcellisation' of sovereignty not only existed at the highest level. As Michael Mann nicely puts it, in Western Europe in those regions with a legacy of feudalism, none of the sources of social power (political, ideological, economical and militarily) was ever again monopolised by a state that was not in some way 'institutionally' checked during the Middle Ages and the early modern period.<sup>1201</sup> Rulers in Western Europe always had to bargain with subjects. All this bargaining ultimately led to the emergence of Western nations, in which "all four sources of social power [were] entwined", a circumstance that provided them with their enormous power.<sup>1202</sup> Competition existed not only *between* states but also *within* states. This allowed subjects to have exit and voice and obtain all sorts of liberties, privileges and thus protection that in the end also depended from the state.<sup>1203</sup> The permanent interplay between (civil) society and government is supposed to have contributed to the infrastructural strength of Western states and nations. The importance of 'inclusive institutions' and 'trust' has been emphasised so often in analyses of the origins of growth and development, in particular in publications by Acemoglu, Robinson and Putnam, that it does not need to be discussed here again. The same goes for their possible *disadvantages*.

In many texts about European exceptionalism, authors emphasise that Eu-

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1196 Mann, *Sources of social power, I*, 397.

1197 See for a small selection note 2 of my article 'Governing growth'.

1198 Landes, *Wealth and poverty*, 37.

1199 For that logic see Tilly, *Coercion, capital, and European states*. A very interesting study pushing Tilly's logic to its limits is Porter, *War and the rise of the state*.

1200 See my 'Governing growth'.

1201 Mann, *Sources of social power, I and II*.

1202 Mann, *Sources of social power, II*, 250

1203 For the concepts 'exit' and 'voice' see Hirschman, *Exit, voice, and loyalty*.

rope not only had a particularly strong 'civil society' but that its society on top of that was quite 'open' and 'socially mobile'. That claim, in my view correctly, has not been left undisputed. It is rather one-sided and optimistic.<sup>1204</sup> I fully endorse Braudel's thesis that in any case Western capitalism – usually regarded as the main motor behind Western growth – could flourish because Western society in a certain sense was *less* open and *less* socially mobile than various other civilisations, including that of China. In studies on the 'uniqueness' of Western society, all too often the focus is entirely on concepts such as 'rights' and 'protection'. What tends to be ignored is that, in practice, the rights and the protection that were claimed for certain individuals or groups could easily have negative implications for other individuals or groups. This is evidently so in the case of privileges of all kinds, which by their very nature withheld rights and protection from the *non*-privileged. All this surely also applies to early modern Britain, that provided an environment where capitalists were not only allowed to ceaselessly accumulate but often protected, encouraged and helped to do so. There was a lot of collusion between the rich and the powerful. We would be well advised to pay more attention to the role of privilege, protection, exclusion, hierarchy and manipulation in 'the rise of the West' and be less enchanted by the ideology that this rise was caused by equality and equal rights, protection and social mobility for all, and by freedom and fair competition.<sup>1205</sup> Here, again, one must be very careful with broad generalisations that ignore context and 'orders of magnitude'. This specific position of Western European subjects *combined with* the general climate of competition clearly fostered dynamism. The infra-structural power and economic activism of Western states would be unthinkable without the exiting inter- and intra-state competition, just like the rise of the West in terms of power as well as in terms of wealth would in my view have been impossible without the presence of such strong states. Considering the fact that many instances of institutional, organisational, technological and scientific progress can directly or indirectly be related to Europe's competitive structure that for me too – with the rise of science and technology as far as that was autonomous – would be 'the ultimate' explanation of the rise of the West. If it would make sense to speak in such terms, which can be severely doubted.

That Europe was a competitive state-system that in its Western part lacked despotic emperors or even despotic rulers, of course, as has already been pointed out, also had enormous costs and disadvantages. Those were evident to all who want to see them. Whatever effects political competition may have had in terms

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1204 See for that tendency e.g. the various publications of Gellner, Hall, Macfarlane and Mann dealing with the rise of the West.

1205 See Braudel, 'À propos des origines sociales du capitalisme' and idem, *La dynamique du capitalisme*, 75–79.

of stimulating certain production, consumption, and innovation, and in terms of mobilising societies to their limits – and thereby showing them were those limits were –, I suppose no economist in his right mind would consider the specific forms European competition took, to wit mercantilism and war, as *overall* economically rational behaviour. I think that *in the end* they did stimulate development and growth and we will never *know* whether economic development would have been faster without them. What we do know is that to the extent that societies lacked the kind of institutionalised co-ordinated mix of visible- and invisible-hand competition that characterised the West, they had more problems with taking off. Competition and the way in which it was institutionalised in all its varieties *in the end*, in my view, were fundamental to the rise of the West, but much of their overall economic spin-off that impacted on all competing parties was indirect and almost an unintended side-effect. I agree with Wong and Rosenthal when they write that that the benefits of warfare – and I would add of mercantilism that was the normal mode of international economic competition – were indeed “indirect, contingent, and secured at tremendous cost” and that even the advantages from fragmentation were “unintended and, indeed, unanticipated.”<sup>1206</sup>

## 28. Culture and growth: Western cultural exceptionalism and how to measure it

In the literature on economic growth, one generally comes across two varieties of cultural explanations for differences in wealth, one in which reference is made to very general, all-encompassing traits that would typify a culture as a whole and one in which explanations are offered via references to very specific cultural traits and very specific, concrete behaviour. This same dichotomy can be found in literature dealing more explicitly with the Great Divergence. I already referred to the problematic nature of the second strategy in chapter X of this book. So I will start here with some comments with regard to the first one in the context of the Great Divergence debate and also mainly focus on them. What immediately strikes any critical reader when he looks at examples of ‘deep’ cultural explanations is that they may indeed provide the ‘ultimate’ clues to what one wants to explain but that the ‘depth’ they provide comes at the price of a big loss in *concrete* explanatory power. They may be ‘fundamental’ but at the same time they for that very same reason as a rule leave a lot to be desired when it comes to showing what *precisely* caused the Great Divergence as it occurred at a certain

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1206 See for these quotes Rosenthal and Wong, *Before and beyond the divergence*, 126 and 5.

place at a certain moment in time. Let us again take the comparison of China with Great Britain, or in this case more broadly the West, as an example and illustration.

Joseph Needham, in all probability the scholar who has done more than any scholar to try to convince his readers of “the genius that was China”, always liked to picture its culture as a kind of antithesis to that of Europe. For him, the West was inherently and permanently instable, subject to a schizophrenic, creative tension, whereas China always tended towards a homeostatic equilibrium. He regarded the West as characterized by a psychology of dominance, what one might call a Faustian soul, expressing itself in exploitation of nature, assumptions of cultural superiority, and political confrontation with others and an in-built penchant for warfare whereas China preferred cooperation. In his view, Western thinking was more ‘masculine’ i.e. rigid and looking for certainty, whereas China exemplified more feminine characteristics like equity and flexibility. He also characterised Western thinking as more ‘mechanical’ and Chinese thinking as more ‘organic’. For him, the contrast between what motivated Zheng He to make his voyages and what motivated Vasco Da Gama was striking. He considered Zheng He and his men to have been driven by curiosity and to have remained calm and peaceful, whereas Vasco Da Gama and his men were violent, looking for land, bullion and honour.<sup>1207</sup> With several Chinese scholars, he liked to claim that Chinese ‘science’ was primarily ‘practical’ and Western science primarily ‘theoretical’.<sup>1208</sup> Maybe Needham was correct in all these contrasting characterisations that fascinatingly enough indicate that the defender of Chinese culture *par excellence* in the end came up with exactly the same contrast as Max Weber, supposedly the Eurocentric *par excellence* who claimed: “Confucian rationalism meant rational adjustment to the world; Puritan rationalism meant rational mastery of the world.”<sup>1209</sup> This rational mastery of the world was a result of the invention of modern science and its manifold applications in technology that too might be connected to a certain Western restlessness as thinking in the West was founded on a basis of Judeo-Christian and Classical ideas and modes of arguing that in many respects were incompatible with one another and that with increasing contacts with other ‘worlds’ and other world views became increasingly hard to uphold. This led to a situation of principled scepticism and a search for new foundations for certain knowledge. What made Europe in the end dif-

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1207 For a brief summary of Needham’s views in this respect see Finlay, ‘China, the West, and world history’. For an analysis of Needham’s views on Western and Chinese ‘science’ see Cohen, *Scientific Revolution*, 418 – 488. A very succinct comparison of the Western and the Chinese mind and of the causes for the existing contrasts can be found in Needham, *Grand titration*, 119 – 120.

1208 See e.g. Cohen, *Scientific Revolution*, 428, 439 and 442, and Yifu Lin, ‘Needham Puzzle’.

1209 Weber, *Religion of China*, 248.

ferent in this respect was the fact that it faced permanent epistemic instability and sustained epistemic challenges. In this respect too, it was never at ease.<sup>1210</sup> The ‘restlessness’ of Europe that is so emphasised by Needham has always been a ‘topos’. William McNeill, father of modern world history, regards it as Europe’s essence and its “true uniqueness”.<sup>1211</sup> Ricardo Duchesne in his book with the telling title *The uniqueness of Western civilization* dedicates an entire chapter to references to and discussions of the “restlessness of the Western spirit” and another one to “the continuous creativity of the Western mind.”<sup>1212</sup> But the point here, as with all big and encompassing cultural contrasts and explanations, is: what exactly does all this mean for a *concrete* i. e. a *historical* explanation of the Great Divergence? Even if Charles Murray were right when he claims in his highly controversial but quite fascinating and challenging book on human accomplishment that there are a concentration of excellence in the arts and sciences in the West, what then are its exact causes and what its exact effects?<sup>1213</sup>

Hardly any publication on the rise of the West omits a reference to the fact that Western Europe was not an empire but a *dynamic*, competitive state-system with a *dynamic* culture. A ‘cultural’ factor that is often referred to and that certainly would have played a role in the specific economic development of Western Europe as compared to other parts of the world was its relative openness to external influences in the sense of its willingness to look for and adopt ideas and practices encountered in other civilisations. As many scholars have pointed out, such openness fosters innovation.<sup>1214</sup> I, of course, am not referring to a general attitude of what we would nowadays call ‘tolerance’ and ‘appreciation’ of ‘the Other’, but to a very pragmatic attitude in which information, knowledge and power were increasingly intertwined regarding the adoption of what was considered ‘useful’. There was no place in the world where intercontinental exchanges of whatever kind were so important as in Western Europe, just like there was no place in the world where so much information was collected and discussed about so many other parts of the world or where so many people were convinced that this knowledge was power. The Italian writer Tommaso Campanella (1568–1639) as early as 1599 wrote in his *La monarchia di Spagna*: “Knowing the world is already half possessing it”.<sup>1215</sup> What Headrick claims for the nineteenth century, was already true for previous centuries: “In every part of

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1210 See for this thesis Dengjian Jing in his forthcoming book with Princeton University Press.

1211 See e.g. McNeill, *Rise of the West*, 539.

1212 Duchesne, *Uniqueness of Western civilization* chapters 6 and 4. In this book, the author shows a real passion for making me say things I do not say about Weber and Western society.

1213 Murray, *Human accomplishment*.

1214 See e.g. notes 145–146.

1215 I found this quotation in Gruzinski, *Quatre parties du monde*, 157.

the world, Europeans were more knowledgeable about events on other continents than indigenous people about their neighbours.”<sup>1216</sup>

In Western dealings with people in its colonies in particular but also with other foreigners there was a – I would think uniquely – intense and combined effort to ‘explore, control and utilise’ that, for better and for worse, was almost entirely lacking in, for example, the Middle Kingdom.<sup>1217</sup> There were quite close links between intercontinental trade and empire on the one hand and the rise of ‘science’, or, if that is too expansive a word, the accumulation of useful and reliable knowledge on the other.<sup>1218</sup> In Western countries, such information was of the utmost importance, economically and otherwise, and governments as well as private persons were extremely interested in collecting it.<sup>1219</sup> Here, again, the fact that Europe was a unity in diversity had relevant implications. It consisted of a large number of independent but competing ‘laboratories’ in each of which ideas could emerge, be borrowed and tested.<sup>1220</sup> That definitely was an advantage. According to Joel Mokyr “... Europe differed in that the seeds of innovation sprouted and flourished”, as an effect of political competition.<sup>1221</sup> People propagating new ideas in his view “...were able to play different political units, as well as spiritual and temporal authorities against each other. Multicentrism made it possible for original thinkers to move between different regions and spheres of influence, to seek and change protectors. When some centres were destroyed by political events, the centre of gravity shifted elsewhere.”<sup>1222</sup> Admittedly, China consisted of millions of competing individuals and many different regions. So there is no reason to believe that as such it would generate less dynamism. But even those millions of people in China did *not* cover ‘all under heaven’. The overwhelming majority of them, as Han, shared many ideas and interests. People living in the Qing Empire were not living in a world that was as ‘diverse’ as that of many Western Europeans living in their parcellised small continent with its many overseas connections and colonies. What matters here is not so much the absolute size of societies in terms of numbers of people, but their diversity and

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1216 Headrick, *Tools of empire*, 208. Here again the difference between early modern north-western Europe and Qing China is immense.

1217 See, for that combined effort Abernethy, *Dynamics of global dominance*, passim, e.g. page 39.

1218 For the connection between knowledge and empire in early modern Britain see e.g. Drayton, *Nature’s government: science, imperial Britain, and the ‘improvement’ of the world* and his ‘Knowledge and empire’. For the situation in the Dutch Republic, see, for example, Cook, *Matters of exchange*.

1219 See under note 947.

1220 I refer back to notes 320 – 323.

1221 Mokyr, ‘Intellectual origins of modern economic growth’, 340.

1222 Mokyr, ‘Intellectual origins of modern economic growth’, 342.

the nature and ease of interaction in expanding networks as Dudley emphasises.<sup>1223</sup>

Reference to *permanent* or at least quite static cultural or systemic traits can certainly contribute to explaining differences in wealth that emerge steadily over time but in my view it can never suffice to explain the relatively sudden and substantial historical change we refer to as the Great Divergence. In that respect, an approach like that of Jack Goldstone looks more helpful; he points out that several Eastern and Western societies reacted differently to their great revolutionary upheavals in the early modern era, which in the East tended to lead to conservative reactions, whereas in Great Britain they created a climate in favour of progress and change from 1688 onwards.<sup>1224</sup>

What I am saying is that despite these similarities, which were evident up to 1850, there was one significant difference that separated western and northern Europe from all other parts of Eurasia, and that was an intellectual shift that began around 1500, which then had a very shifting and uncertain trajectory, limited for centuries to a small circle of scholars and theologians, but nonetheless by 1660 started producing significant changes in the way elites acquired and validated knowledge. Over the next century and a half, roughly by 1830, the new empirical and sometimes theoretical knowledge gathered by these new methods led to the wide application of steam power in Great Britain, and a host of other technical and industrial innovations, that transformed the economies and then the societies of north-western European countries over the course of the nineteenth and twentieth centuries.<sup>1225</sup>

The problem of how to explain change by referring to something ‘permanent’ also appears with references to Christendom or rather Western Christendom as a fundamental trait of the West and as a source of its exceptional history, also in economic respects. Such references have always been popular and still have not disappeared, even though they have become less straightforward. Joseph Needham, to again refer to that fascinating scholar, claims that the idea that nature functions like a machine and according to laws is fundamental for the emergence of Western scientific thinking. That idea, in his view, is Western or rather Christian as Christianity has a celestial Lawgiver, i. e. a God that ‘fixed’ laws to which all nature ‘obeys’. Chinese thought lacks a personal Creator God and therefore lacks confidence that the code of nature’s laws could be unveiled.<sup>1226</sup> According to Deepak Lal, it was “a ‘package’ of cosmological beliefs,

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1223 Dudley, *Mothers of innovation*. See also his *Information revolutions in the history of the West*.

1224 Goldstone, *Revolution and rebellion in the early modern world*, chapter 5.

1225 Jack A. Goldstone, *The divergence of cultures: enlightenments and conservatism in Europe and the Old World*. Working Paper N10 – 73 December 2010 Mercatus Center, George Mason University, page 9.

1226 I take this from Cohen, *Scientific Revolution*, 453 – 455. See there for further references and

political decentralisation, and the application of the ‘inquisitive Greek spirit’ that led to Promethean growth in the West and to its ascendancy. He becomes even more explicit and writes: “The midwife in delivering the package that led to Promethean growth in the West was the Christian church. The individualism it inadvertently promoted is the unique cosmological belief of the West. ... an unintended consequence of the Church’s acquisitive hunger. ... [that led to individualism and a legal revolution] ... That merely technological and scientific developments were insufficient to deliver the Industrial Revolution is borne out by the failure of Song China to do so, although it had these ingredients.”<sup>1227</sup> The existence of a specific Western European marriage and family pattern with characteristics that are considered supportive of individualist and market-oriented behaviour has also been regarded as an effect of Christianity or rather of the influence of the Catholic Church that in the twelfth century codified in canonical law that a marriage had to be based on mutual and voluntary consent of both partners. This, in combination with the fact that people married relatively late, often after having worked outside their parental house for several years and set up independent household led to a relatively egalitarian position for both partners.<sup>1228</sup> In essence these characteristics continued to exist also when circumstances e.g. with the Reformation changed. The importance of developments in the field of law can hardly be overestimated, but it of course is very hard to pin down to what extent they are cause and to what extent they are effect.

What makes the many references to Christianity and Christendom even more problematic is that so much in Western society is ‘Christian’ in one way or another and that Christianity has meant so many different things in so many different places and at so many different times – just think of the differences or even stark contrasts between Catholicism and Protestantism – that such claims can easily become devoid of any concrete content. Jack Goody fiercely opposes the idea of European exceptionalism, but nevertheless points at the exceptional fact, as he sees it, that the Italian Renaissance institutionalised a switch to the secular that became a permanent feature of the intellectual landscape in Europe. In explaining why this institutionalisation happened in the West rather than the East, he tends to accord a prominent role to merchants and their interest in

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explanation. Needham, by the way, also claimed the Chinese too could have had science and technology, had they lived in favourable conditions. See Needham, *Clerks and craftsmen*, 82.

1227 Lal, *Unintended consequences*, 174 and 173.

1228 Moor and Van Zanden, ‘Girl power’. Western Europe already in Middle Ages had ‘weak’ family structures. See e.g. Lynch, *Individuals, families and communities in Western Europe*. For the positive effects of such family structures on the development of a market economy, see De Vries, *Industrious revolution*, 10 – 18.

literacy and numeracy.<sup>1229</sup> This, in a nutshell, would mean that for as far as he accepts any long-term explanation for the rise of the West it would not be Christianity but its forced ‘retreat’. Many scholars have claimed that modernity began with the Renaissance or the Reformation and was opposed by Catholicism. This is exactly the opposite of the thesis defended by Thomas Woods, *How the Catholic Church built Western Civilization*.<sup>1230</sup> The claim by Rodney Stark that Christianity was the embodiment of reason and the origin of freedom, capitalism and Western success, will certainly not convince everyone, in particular not the many scholars who think the Enlightenment is the essence of Western exceptionalism and modernity.<sup>1231</sup> Historical sociologists such as Michael Mann and John Hall take a more sociological angle: in their view, Christianity provided normative pacification and consensus and kept medieval Europe, not only its elites, together via an ideological network of power and trust. Mann even goes as far as to claim it was the necessary basis for all what followed in European history after the Early Middle Ages.<sup>1232</sup> Reading Victor Hanson’s *Why the West has won* one tends to become somewhat less optimistic about Western individualism, rationalism and about normative pacification. Hanson points at the “singular lethality of Western culture at war in comparison to other traditions that grew up in Asia, Africa, and the Americas” and claims the existence of a specific Western way of war that can explain how the West became so powerful, which of course contributes to explaining how it became so rich.<sup>1233</sup> I can only say here that to me an approach looks more promising, in which not so much the content of Christian beliefs but rather their functions and effects and the impact of the Western Churches as institutions hold pride of place. A recent, very interesting and helpful example would be the analysis by Karel Davids.<sup>1234</sup> The list of exceptional traits that have been attributed to Europe’s culture could easily be extended. For me, the point is not so much whether one would be willing to accept European exceptionalism in any or all of these respects. Neither is the point whether it would be possible to prove its existence, which I think in several respects can be done fairly easily. The point is that all those ‘unique’

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1229 Goody, *Eurasian miracle*, 94–105.

1230 Woods, *How the Catholic Church built Western Civilization*.

1231 Stark, *Victory of reason*. The number of studies looking at the Enlightenment as the essence and apogee of Western modernity is innumerable.

1232 See for these claims Mann, *Sources of social power, I*, e.g. chapter 15, ‘European conclusions’, and for pregnant phrases e.g. pages 337–338 and 381–390. For John Hall’s view, that is less outspoken, see e.g. Hall, *Powers and liberties*, 123.

1233 Hanson, *Why the West has won*. The quote is on page XV. For an opposing view see Lynn, *Battle*. For an interesting and in the context of this book quite relevant article see Thompson, ‘The military superiority thesis and the ascendancy of Western Eurasia in the world system’.

1234 Davids, *Religion, technology, and the Great and Little Divergences*.

features share the problem of how to exactly connect it to the emergence of modern economic growth.

For many if not most global historians dealing with the Great Divergence, in particular those who are devoted anti-Eurocentrists, any reference to culture – and, for that matter, institutions – as an explanation for differences in wealth between ‘the West’ and ‘the Rest’ apparently counts as Eurocentric arrogance if not blatant racism. The idea that there might have been something in Western culture that might have been more conducive to growth clearly is unacceptable to them. Ian Morris explicitly opts for an almost exclusively materialist approach in his analysis why the West rules or rather ruled. What he, in his own words, is up to is “... to say that culture, values, and beliefs were unimportant and to seek the reason why the West rules entirely in brute material forces.”<sup>1235</sup> Considering his rather curious claim that “... the histories of Eastern and Western thought have been broadly similar across the last five thousand years”, that is less surprising than it may sound.<sup>1236</sup> According to him people are “clever chimps” that are curious and extract energy from the environment. What is crucial in his perception is that in large groups they, “as opposed to individuals, *are* all much the same.”<sup>1237</sup> If other people had been located and challenged like the inhabitants of Western Europe, they would have developed likewise: “Given enough time, Easterners would probably have made the same discoveries and had their own industrial revolution, but geography made it much easier for Westerners ...”<sup>1238</sup> Wong and Rosenthal also argue along these lines.<sup>1239</sup> Basically Prasannan Parthasarathi does so as well when he explicitly claims that the Great Divergence was caused by the fact that different regions in the world were confronted with different problems and therefore took different trajectories, *not* by different institutions or cultures.<sup>1240</sup> Robert Marks is yet another scholar arguing along these lines: other countries could also have been the first to industrialize if only they would have had colonies and coal.<sup>1241</sup> For Jared Diamond, claiming that Europeans are something peculiar amounts to indefensible

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1235 Morris, *Why the West*, 29. On page 571 it reads: “... culture and free will never trump biology, sociology, and geography for long” and on page 620: “Even if everything in this phase [the period between the Ice Age and about 2100 CE] had gone as differently as could be imagined ... the deep forces of biology, sociology and geography would still have pushed history in much the same direction.”

1236 Morris, *Why the West rules*, 569.

1237 Morris, *Why the West rules*, 26 and 27. See also pages 29 and 559.

1238 Morris, *Why the West rules*, 565. See also page 500, where Morris writes that Newton, Watt and their colleagues “were probably no more brilliant than Cicero, Shen Kuo and theirs; they just thought about different things.”

1239 See their comments on page 322.

1240 Parthasarathi, *Why Europe grew rich*, ‘Introduction’, e.g. pages, 1–3.

1241 See the quotation under note 476.

racism. Reacting in the *New York Review of Books* to a comment on his highly successful book *Guns, germs and steel* he writes: “That prevalence of racist theories, as loathsome as they are unsupported, is the strongest reason for studying the long-term factors behind human history.”<sup>1242</sup> In that book itself it reads: “Probably the commonest explanation [of major differences in wealth between various parts of the world] involves implicitly or explicitly assuming biological differences among peoples” and “Today, segments of Western society publicly repudiate racism. Yet many (perhaps most!) Westerners continue to accept racist explanations privately or subconsciously.”<sup>1243</sup> Not entirely consistent, he even sets out to find out why New Guineans (did) wind up technologically primitive, despite “their superior intelligence.”<sup>1244</sup>

As always, Andre Gunder Frank is very explicit “... Europe did not pull itself up by its own economic bootstraps, and certainly not thanks to any kind of European ‘exceptionalism’ of rationality, institutions, entrepreneurship, technology, geniality, in a word – of race.”<sup>1245</sup> Jack Goody over the last couple of years wrote no less than four books to show that the West up until the Industrial Revolution basically was nothing special and to combat what he sees as “the pervasive Eurocentric or Occidental bias of so much Western historical writing, and the consequent ‘theft’ by the West of the achievements of other cultures in the invention of (notably) democracy, capitalism, individualism, and love.”<sup>1246</sup> I could easily go on for a while and refer to, for example, publications by James Blaut or John Hobson.<sup>1247</sup> David Landes definitely has a point when he writes that referring to culture as an explanatory variable in discussing wealth and poverty, is not very popular: “It has a sulphuric odour of race and inheritance, an air of immutability.”<sup>1248</sup> In the first chapter of his *The uniqueness of Western civilisation* Ricardo Duchesne provides many striking examples of how the West and its culture are now disparaged by many global historians.<sup>1249</sup>

It is fascinating to see how far many Western intellectuals want to go to deny

1242 <http://www.nybooks.com/articles/archives/1997/jun/26/guns-germs-and-steel/>, consulted on 18–8-2011.

1243 The two quotations are from Diamond, *Guns, germs and steel*, 8 and 9. The last claim is irrefutable: if one publicly denies being racist Professor Diamond will claim one probably is one in private and if one explicitly denies being one he will say one subconsciously is one anyhow.

1244 Diamond, *Guns, germs and steel*, 22. See also page 14: “...New Guineans are on the average at least as smart as Europeans.”

1245 Frank, *ReOrient*, 4.

1246 See his *Capitalism and modernity; Theft of history; Eurasian Miracle and Renaissances: the one or the many?* The quotation is from the back-flap of *The theft of history*.

1247 See Blaut, *Coloniser’s model of the world* and idem, *Eight Eurocentric historians*, the Index under ‘racism’, and Hobson, *Eastern origins of Western civilisation*, chapter 1.

1248 Landes, *Wealth and poverty*, 516.

1249 Duchesne, *Uniqueness of Western civilisation*, chapter 1.

any specific positive traits to their own culture. But there are and have always been exceptions. I present some recent examples, without any pretence of completeness, and in chronological order. In the 1990s three books were published dealing with the wealth and poverty of nations and with a strong emphasis on culture, in particular the role of trust. Two of them were written by Alain Peyrefitte and one by Francis Fukuyama.<sup>1250</sup> These books had hardly any, not to say no, impact at all on the Great Divergence debate as such. With the latest book by Leonard Dudley, *Mothers of innovation*, the topic looks to be back on the agenda. A very explicit exception, of course, is David Landes, who in a book that sold more copies than all of the Californians ever sold together, made this famous – or notorious – statement: “If we learn anything from the history of economic development, it is that culture makes all the difference.”<sup>1251</sup> The book received wide public acclaim, but amongst historians and social scientists the idea prevailed that the author, when it comes to his strong emphasis on work ethic did not really prove his case, as far as anyone ever might be able to do that. Thomas Sowell, in his 1999 book *Conquests and cultures*, time and again emphasised the central role of culture that he regarded as a kind of human capital: “The particular culture or ‘human capital’ available to a people has often had more influence on their economic level than their existing material wealth, natural resources, or individual geniuses.”<sup>1252</sup> In his words, “The receptivity of a given culture to ideas and innovations, and the ability of that culture to take these advances and carry them further, has been crucial.”<sup>1253</sup> On the debate about the Great Divergence his impact, however, has been negligible.

That certainly was not the case with Gregory Clark’s views on the role of culture in the Great Divergence. In 2007 he published his controversial *A farewell to alms* in which he attributed a crucial role to culture in explaining the Great Divergence, although he explicitly emphasised that he regarded it as a *dependent* variable. Clark is an established economic historian and with his book he quite explicitly took position in the Great Divergence debate when it was already going on for several years. Therefore some extra comments are in order. As early as 1988, Clark had admitted, “albeit reluctantly”, that culture must have played a

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1250 Peyrefitte, *Du “miracle” en économie*; idem, *La société de confiance* and Fukuyama, *Trust: the social virtues and the creation of prosperity*. Fukuyama, as usual, was quite outspoken: “... a nation’s well-being, as well as its ability to compete, is conditioned by a single, pervasive cultural characteristic: the level of trust inherent in the society.” Fukuyama, *Trust*, 7.

1251 Landes, *Wealth and poverty*, 516. Six pages further in the book, on page 522, it reads “...culture can make all the difference.”

1252 Sowell, *Conquests and cultures*, 334–335. See for many similar claims his chapter 6 ‘Overview’.

1253 Sowell, *Conquests and cultures*, 361.

part in economic development.<sup>1254</sup> In *A farewell to alms* that reluctance seems to have disappeared entirely and he writes: “David Landes is correct in observing that the Europeans had a culture more conducive to economic growth.”<sup>1255</sup> But he is against using culture as an explanatory force *per se*, that is against “... invocations of movers from outside the economic realm” as they “...merely push the problem back one step.” In his view, ideologies “may transform the economic attitudes of societies. But ideologies are themselves also the expression of fundamental attitudes in part derived from the economic sphere.”<sup>1256</sup> With that proviso, he claims that Britain became the first industrial nation because ‘bourgeois’ or ‘middle class’ values were more prominent and more widely spread over society there than anywhere else. The values he has in mind are: patience, hard work, ingenuity, innovativeness, honesty, rationality, curiosity and learning, thrift, prudence, negotiation. Comparatively speaking, in his view, they turned Britain into a peaceful, thoughtful, literate and educated nation.<sup>1257</sup> His explanation for the spread of these values – an explanation inspired by publications of Oded Galor and Omer Moav – is a mechanism of natural selection.<sup>1258</sup> A couple of quotations will suffice to give a flavour of his distinct way of thinking. According to him, a society emerged in England that “... rewarded middle-class values with reproductive success, generation after generation.” He thinks one might therefore “... speculate that England’s advantage lay in the rapid cultural, and potentially also genetic, diffusion of the values of the economically successful throughout society in the years 1200 – 1800.”<sup>1259</sup> For those who did not get the point, he succinctly claims, in another publication, that the British, and others, became genetically (sic!) capitalist: “The triumph of capitalism in the modern world thus may lie as much in our genes as in ideology or rationality” or as he puts it elsewhere in “a survival of the richest.”<sup>1260</sup>

Robert Allen, best known for his emphasis on relative factor costs, in his book on the British Industrial Revolution from a global perspective, does not ignore the importance of culture, far from it. I already quoted him writing: “The cultural changes between 1400 and 1800 were immense and in the direction of promoting invention.”<sup>1261</sup> But he does not focus on them. Joel Mokyr, who can be a hard-nosed economist, nevertheless, in a book published in 2009, holds the

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1254 Clark, ‘Economists in search of culture’, page 161.

1255 Clark, *Farewell to alms*, 11.

1256 Clark, *Farewell to alms*, 183.

1257 Clark, *Farewell to alms*, 8, 11, 166, 183 – 184.

1258 See, for example, their ‘Natural selection and the origin of economic growth’. See also Galor, *Unified growth theory*, chapter 7.

1259 Clark, *Farewell to alms*, 8 and 271.

1260 See Gregory Clark, <http://www.econ.ucdavis.edu/faculty/gclark/papers/Capitalism%20-Genes.pdf> and Clark and Hamilton, ‘Survival of the richest’.

1261 Allen, *British Industrial Revolution*, 269.

view that the Industrial Revolution basically was: "...the outgrowth of the social and intellectual foundations laid by the Enlightenment and the Scientific Revolution." He thinks that the answers to both the questions why Britain industrialised first and why large parts of Europe followed suit in the end "need to be sought in the realms of knowledge and institutions, not geography."<sup>1262</sup> In his view, "...an enlightened age was what was necessary to create the modern age of industrialism and opulence" and "The Enlightenment was what set Europe on a different track toward economic modernity."<sup>1263</sup> We have repeatedly seen that Jack Goldstone holds quite similar views. Deirdre McCloskey is convinced that material economic forces cannot explain the rising tide of modern economic growth that has made the wealthy countries in our world so much wealthier than they were only two centuries ago. According to her "...innovation (not investment or exploitation) caused the Industrial Revolution" and that innovation was caused by "talk and ethics and ideas". It took a change in ideology, i. e. "changing forms of speech about markets and enterprise and innovation" as "economics is something that happens between people's ears."<sup>1264</sup> She sings a song of praise of the 'bourgeois' virtues like love, faith, hope, courage, temperance, prudence and justice. What caused industrialisation in England was a change "in what England wanted, what England paid, what England valued".<sup>1265</sup>

In the last couple of years culture has been put back on the agenda of historians dealing with economic development. Let me just give three examples. Joyce Appleby published a book on capitalism in 2010 called *The relentless* (sic PV) *revolution* in which she clearly regards it as uniquely western and approaches it "as a culture", that it is "as much a matter of values and ideas as of supply, demand and balance sheets."<sup>1266</sup> The role of culture in Niall Ferguson's

1262 See for these two quotations Mokyr, *Enlightened economy*, 11 – 12.

1263 Mokyr, *Enlightened economy*, 487 and 489. He in this respect tends to emphasize the importance of informal institutions and cultural beliefs: "... the traditional emphasis on formal institutions has been over-emphasized, and ... the enforcement of property rights by the state was less crucial than the Northian interpretation has suggested. The importance of institutions extended beyond politics and formal institutions. We need to take into account "cultural beliefs"..., which created an environment in which inventors and entrepreneurs could operate and cooperate freely. Equally important, we need to pay attention to those institutions that stimulated and encouraged technological progress and not just the growth that depends on well-functioning markets. Formal institutions such as state-enforced patent rights may have been overestimated at the expense of informal private order institutions. Mokyr, 'Institutional origins of the Industrial Revolution', the web-version, page 3. The two publications referred to in this note provide excellent examples of what such a cultural-institutional approach might look like.

1264 McCloskey, *Bourgeois dignity*. For the quotes see pages 6 and 8.

1265 For these virtues see her *Bourgeois virtues*. For the quote see her review of Clark, *Farewell to alms* in *European Review of Economic History* 12, 2 (2008) 138 – 148, page 148.

1266 Appleby, *Relentless revolution*. See the interior flap and the advance praise on the back flap by Sean Wilentz.

*Civilization* (sic!) is central as shows in his six Western killer apps: competition, science, property rights, medicine, the consumer society and work ethic. The title of Ricardo Duchesne's book, also from 2011, needs no further comment: *The uniqueness of Western civilization*. It is a fierce attack, to large extent justified, on those who simply ignore the importance of culture and deny that European culture would in any relevant respect have been unique.

As indicated, the problem with all those references to culture and whether one points at general characteristics or specific traits, continues to be the vagueness of the concept. How can one operationalise the cultural concepts that are central in these books? How can one measure them and convincingly show they were more present in some regions, states, or civilisations than in others? How can one convincingly show that they actually had a relevant and concrete impact on the emergence of modern economic growth? The most important direct driving force behind that type of growth has been innovation. As I already indicated, the values that scholars such as Clark, Landes, McCloskey, Weber, but even Adam Smith already refer to, strikingly enough, almost without exception are 'conformist' rather than 'innovating'.<sup>1267</sup> The same could be said with regard to 'trust' that is often regarded as so important for development. In that respect, approaches like those of Joel Mokyr and Leonard Dudley, who in their analyses always try to look for direct links between culture, institutions and innovation, seem the most promising and the most adequate.

Each of the separate 'values', referred to in previous paragraphs, as indicated earlier on<sup>1268</sup>, need not necessarily promote growth, let alone modern growth. Their impact is very much context-dependent. The way in which they are often bundled together e.g. in the work of Clark who praises the innovativeness, rationality, thrift and prudence of the British bourgeois, moreover often does not add up to a consistent argument. When Ferguson claims that the West was characterised by the fact that it became a consumer society and developed "a mode of material living in which the production and purchasing of clothing and other consumer goods play a central role, and without which the Industrial Revolution would have been unsustainable", that is not easy to square with another Western killer app he refers to, its specific work ethic, i.e. "a moral framework and mode of activity, derivable from (among other sources) Protestant Christianity, which provides the glue for the dynamic and potentially unstable society created by apps 1 to 5."<sup>1269</sup> He also, and that is a common problem with many claims arguing the importance of culture, is not exactly concrete when it comes to time and place. Take, for example, the claims of

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1267 See for Smith under note 438.

1268 See pages 145 – 151.

1269 See for both definitions Ferguson, *Civilization*, 13.

Deirdre McCloskey for her 'bourgeois values': how exactly can those values be connected to economic growth and more importantly in the context of my analysis, to the emergence of *modern* economic growth? Why, if they are so fundamental, did they have so little economic impact in other parts of the world and other periods of time than those McCloskey focuses upon? Ricardo Duchesne does a good job in presenting a counterpoise to a lot of exaggerated and above all scientifically not very helpful anti-Eurocentric self-flagellation. But in all his bashing of anti-Eurocentrists, he is not able to show concretely anywhere how he thinks the Great Divergence can be concretely connected to Europe's culture. Ultimately, so it seems, that is not what he is really up to, but then why does he devote two chapters, almost hundred pages, of in total some 520 in his book to current debates on the Great Divergence?

Even in the work of Gregory Clark, a methodologically quite sophisticated economist, references to culture as explanatory factor in the end leave much to be desired. His claim that certain behavioural patterns are transmitted genetically and that culture can be reduced to a kind of epiphenomenon of demographic and economic trends is extremely improbable and I have never come across any data that would make it probable. Besides, are Britain and countries that did not – or much later – have modern economic growth really that different when it comes to the spread of certain 'middle-class' genes over society? Clark's anecdotic references can hardly count as proof. Moreover and very importantly, did the richest and 'fittest' in pre-industrial Britain really overwhelmingly have a 'bourgeois' mind-set? The answer of course is: "No". In all probability it took quite a different disposition (if any!) to become and be rich during the sixteenth century than in an industrialising, let alone an industrial world. War and 'warriors' have placed a big stamp on the development of British society. Whatever else the inhabitants of (Great) Britain may have been, they were also a 'warrior race'. The independent existence of the realm and its empire definitely were not primarily built on bourgeois values like honesty, curiosity, learning, thrift, prudence or negotiation, but determined to a far higher degree by gentlemen who considered themselves natural leaders and thought in terms of courage, honour, self respect and indifference to danger.<sup>1270</sup> Gentlemen and their values also played a fundamental role in Britain's so-called 'gentlemanly capitalism'. Its main actors certainly were not sober, hardworking middle-class men, obsessed by time, as Weber likes to portray them. Even the new gentry of wealth in the service sector with their characteristic mixture of amateurishness and efficiency had an ethos that was much closer to that of aristocrats. They certainly were not indolent but enjoyed their freedom from continuous work, resented any 'tyranny of the clock' that would have indicated they were *not* gentlemen, and

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1270 See James, *Warrior race*. I took the characteristics of the leaders of this race from page XIV.

operated in a world where leisure often was difficult to distinguish from work.<sup>1271</sup> All in all, Clark is very vague about the *mechanisms* by which his values spread, what values actually were dominant in Britain and how they would relate to the emergence of *modern* economic growth. His emphasis on discipline, especially when it is broadened to the importance of human capital in general, for economic growth and for different growth rates between countries, definitely presents an interesting hypothesis that would deserve more systematic testing.

Cultural explanations in this context always tend to be associated with Max Weber, even though Weber was much less of a ‘culturalist’ than is suggested by the never-ending references to his ‘thesis’, that actually was only a fairly minor part of his work.<sup>1272</sup> Weber’s work continues to be very influential amongst people who write about the economic rise of the West as is quite obvious in the publications by Appleby, Duchesne, Ferguson or Landes. Interestingly enough, Appleby is more impressed by Weber than by Smith or Marx because of Weber’s “emphasis on contingency and unintended consequences in the formation of capitalism”.<sup>1273</sup> Next to scholars who still focus on the very specific claims Weber made about Calvinism and capitalism and think the German sociologist has a point with ‘his thesis’<sup>1274</sup>, there currently is an increasing number of scholars who, whether inspired by Weber or not, study topics like ‘work ethic’, ‘discipline’ and their connection to economic growth. We have just referred to Gregory Clark who quite explicitly does so. It has become commonplace to describe Europe in the early modern era, if not already earlier on, as a ‘disciplining’ society. Calvinists and other Protestants played a prominent role in this disciplining offensive. In Protestant countries, but not only there, the number of holidays tended to be reduced, which was positive for total production. The rise

1271 I strongly paraphrase here from Cain and Hopkins, *British imperialism*, chapter three.

1272 See, for example, the silly attack on Weber by Blaut, who sees two basic reasons why Weber’s theories about European exceptionalism would be wrong: Europeans did not have special qualities and “... the history of society in general is much more than the history of ideas.” Blaut, *Eight Eurocentric historians*, 29. A clear example of this ‘scaling down’ of his oeuvre, to just give one extra example, can be found in the way in which Prasanna Parthasarathi in his last book thinks he refutes Weber’s ideas whereas he only talks about Weber and culture. See Parthasarathi, *Why Europe grew rich*, under ‘Weber, Max’. Even that refutation has not entirely succeeded.

1273 Appleby, *Relentless revolution* 18. Appleby thus claims exactly the opposite of Hobson with regard to Weber’s approach. See the comments by Hobson on page 52.

1274 For that specific thesis see Max Weber, ‘Die protestantische Ethik und der „Geist“ des Kapitalismus’, *Archiv für Sozialwissenschaft und Sozialpolitik* 20,1 (1905) 1–54; 21, 1 (1905) 1–110. For Weber’s broader ideas about “the development of a capitalist ethos”, see e. g. his *Wirtschaftsgeschichte*, chapter 4, 9. See for a recent ‘application’ Jacob and Kadane, ‘Missing, now found in the eighteenth century’. For a critical test, finding little empirical support for the Weber-thesis, see Delacroix and Nielsen, ‘The beloved myth’. *Österreichische Zeitschrift für Geschichtswissenschaften* 23, 3 (2012) is entirely dedicated to new interpretations and critiques of Max Weber’s ideas on Protestantism and capitalism.

of Protestantism also had other, quite concrete and direct economic consequences.<sup>1275</sup> Protestants were kicked or pushed out of several non-protestant countries. By emigrating and taking their money, skills and networks with them, they strengthened the economies of the (protestant) countries receiving them. Protestantism, moreover, broke the back of the economic power of the Catholic Church – in particular when it comes to landholding and the collecting of ‘taxes’ – and strengthened (central) government those who bought expropriated goods and land from it. In that sense, it played a major part in ‘primitive accumulation’ as it occurred e.g. in Britain, the Netherlands or Prussia. It, moreover, was essential for the emergence of more bureaucratic, ‘rational’ and representative states.

One can also find a Weberian inspiration behind several analyses that focus on institutional or juridical peculiarities of the West. Randall Collins ‘re-constructed’ Weber’s last theory of capitalism and interestingly focuses on the medieval church, claiming that according to Weber, “...the institutional pre-conditions for capitalism were developed in medieval Europe, in one specialized part of it, the Church” and that “... the bourgeois capitalism that we take as its ‘pure’ form emerged upon the ruins of medieval religious capitalism.” For Weber, cloisters were proto-factories with a disciplined labour force. The Cistercians even had “the Protestant ethic without Protestantism.”<sup>1276</sup> Weber reputedly accorded a fundamental role to law in development. He inspired several scholars in this respect, for example Harold Berman – even though this scholar correctly claims he wants to and should go beyond Weber and Marx – and Toby Huff. Berman sees what he calls the ‘Papal Revolution’ of the High Middle Ages as the great turning point in modern European legal history as it gave birth to the modern Western legal tradition with its various legal systems, the first of which happened to be canon law that then separated itself from secular law and asserted its own kind of jurisdiction. Next to canon law, he refers to several varieties of secular law: feudal law, manorial law, mercantile law, urban law and royal law. The striking thing, in Berman’s view, is that these legal traditions transcended ‘national borders’ and that in Europe law developed into a “legal science” that he even refers to as a “prototype of science”. Law was fundamental for the emergence of the modern state in Europe, and a fundamental precondition for capitalism as it developed there. According to Berman, the European tradition of law was almost entirely European in its origins and unique in

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1275 For these connections between Protestantism and economic development see Gorski, *Disciplinary revolution* and idem, ‘The Little Divergence’.

1276 For these claims see Randall Collins, *Weberian sociological theory* (Cambridge 1986) chapters 2 and 3.

the world.<sup>1277</sup> Toby Huff has a less broad legal-historical perspective and almost exclusively focuses on specific links between law, corporations – in particular universities –, and the development of knowledge.<sup>1278</sup> But whatever the exact focus or goal, every historian will be struck by the importance in the history of Europe of law and legal science and by the omnipresence of people who had studied them and made a living as ‘lawyers’. In no civilisation in the world was their importance as great as in Europe. In my view, understanding and comparing law is extremely important for global economic history and as yet underdeveloped as a field of study. We can only hope that the boom in global history will soon extend to global legal history.<sup>1279</sup>

## 29. Culture does make a difference. But how can one convincingly prove that?

The problem of cultural explanations is not so much that they do not make sense. I am convinced they do because there is often a close connection between the culture(s) and the institutions of a country and the importance of institutions for economic development is undeniable. If culture were so irrelevant, then why did it require so much cultural change for countries to catch up? The problem is that it is so extremely hard to make cultural explanations empirically valid and show how exactly certain cultural traits would promote or hamper (modern) economic growth. Culture clearly can have effects on wealth. One could give numerous examples. Let me, with no other further-reaching goal than to show in how many respects culture might make a direct difference for an economy, refer to cultural traits that to my mind were present in Qing China and not or to a far lesser extent in Great Britain and that must have made an economic difference. At the level of the central state, the preference for small, lean, and cheap government certainly must have had an impact on the economy, just like the connected, preference for low taxes, the refusal to incur public debts – until far into the nineteenth century – and the policy to interfere little in the domestic

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1277 Harold Berman, *Law and revolution: The formation of the Western legal tradition* and idem, *Law and revolution, II: The impact of the Protestant Reformations on the Western legal tradition*. The reference to law as a prototype of Western science is in his *Law and revolution I*, 151 and the admonition to go beyond Marx and Weber in that same volume, 538 – 560.

1278 For Huff’s ideas and the way in which he uses Weber’s ideas see e.g. his *Intellectual curiosity* under ‘Weber, Max’.

1279 See for some literature Cooker and Schäfer, *Solomon’s Knot* and Ma and Van Zanden, *Law and long-term economic change*. See for very interesting efforts to write global legal history, the oeuvre of Lauren Benton <http://history.as.nyu.edu/object/laurenbenton.html>

economy, including in monetary affairs which was visible in the circumstance that there was no central bank and the government did not coin silver. There definitely was a certain arrogance regarding the outside world as one considered oneself 'all under heaven' and therefore was not always open to foreign ideas or in favour of going abroad when that might have been helpful. One simply was less curious about the outside world and thus less challenged by it. Because of this attitude, there was also nothing like what Europeans at the time would consider a foreign policy. There was no economic nationalism, no emulation of other countries, no mercantilism and no empire building like in Britain. Of course, all this was not solely a matter of cultural differences but culture surely played a role.

Qing China's ruling elites were predominantly conservative in the sense that they were in favour of keeping the status quo and were inspired by the past far more than by some unknown 'better' future. Ideas of change, progress, improvement or enlightenment were much less popular in China than they became in Britain. In the eyes of the elites ruling China, farming was the essential economic activity and agriculture the backbone of society. They idealised traditional country life and the traditional peasant household with its clear division of labour in which men plough and women weave.<sup>1280</sup> Central government was fairly successful in its efforts to prevent the emergence of a class of landlords running large farms where landless labour was employed. It implemented policies to prevent people from becoming landless. Partible inheritance was almost universal and endorsed if not enforced by law. The family – in whatever exact extension and definition – with its very powerful male head was the cornerstone of society and it was recognized as such. The bulk of production took place in the household and it was often frowned upon women who worked with or for strangers. Social arrangements were less formalistic and legalistic than they were in Britain where law and lawyers were facts of ordinary life. There was a tendency to keep things informal and personal and to live in a world of general norms rather than specified, written laws. Family and firm were not normally separated. When it comes to status, literati outshone people in the military or in the professions.

I could go on to refer to several other cultural differences between Britain and China that must have mattered but whose importance for the Great Divergences is very hard to pinpoint exactly. Let me, just for this matter of valuing certain activities and occupations, present some concrete information to show that

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1280 It is striking in this respect, that in Britain there was such a broad, state-supported effort to 'improve' agriculture and that this was considered only possible when peasants and cottagers and their 'irrational' lifestyle gave way to 'rational', improving, capitalist farmers. See Lis and Soly, *Worthy efforts*, 200–214.

‘values’ are anything but irrelevant. What is considered an honourable occupation and what is not can have a huge impact on economic life.<sup>1281</sup> In Qing China, there were an absolutely stunning number of people who prepared for and did examinations to be able to become government officials, or at least member of the so-called ‘gentry’.<sup>1282</sup> At the macro-level of the entire economy, this must have been quite inefficient even if at the level of those involved it may have been rational in the sense that *if* they got some kind of a (semi-official) job – which increasingly they did not – it might clearly pay, whereas it of course also might be the case that they actually could not conceive of something better to do anyhow.<sup>1283</sup> The bulk of talented men in Qing China continued to try to improve their status via the official exams, which meant many years of very intense study. In 1800, there were only around 20,000 official posts in the empire, drawing on a talent pool of no less than 1,400,000 upper and lower degree holders!<sup>1284</sup> After the Great Taiping Rebellion, 1851 – 1864, there were some 1.5 million literati with a degree and about three million candidates for the biennial qualifying examinations.<sup>1285</sup> People who did not pass the exams could increasingly buy jobs or at least degrees and titles. By 1800 there were an estimated 350,000 holders of purchased degrees in the empire, and that number would spiral upward as the government became more fiscally strapped in the nineteenth century.<sup>1286</sup>

1281 See for some general comments: Baumol, ‘Entrepreneurship, productive, unproductive and destructive’, and Murphy, Shleifer and Vishny, ‘The allocation of talent: implications for growth’.

1282 For the characteristics of this social status group of landlords-literati see Chang, ‘Chinese gentry’; Ch’ü, *Local government in China under the Qing*; Elman, *Cultural history*; Osterhammel, ‘Gesellschaftliche Parameter’ and Smith, *China’s cultural heritage*, chapters 6 and 7.

1283 For an analysis trying to figure out the rate of return of education in Qing China at a societal i.e. macro level and at the individual level see Xuyi, Péter Földvári and Bas van Leeuwen, ‘Human capital in Qing China: economic determinism or a history of failed opportunities?’, Paper presented at the *Asian Historical Economics Conference*, Japan, September 2012. I consulted it at the website of Bas van Leeuwen at the University of Utrecht. The authors find no trace of aggregate productivity-improving effects of education. Looking at the rate of return of education at the individual level – corrected for foregone wages, life expectancy and the probability of successful examination – they claim “... for a rational decision maker it was not profitable to take any exams” and “The lack of financial incentives acted hence as an efficient deterrent for the majority of the population, helping to preserve the elite’s positions” (17). Actually, there were millions of Chinese who during Qing rule did prepare and take exams. Apparently they were irrational and ‘undeterred’. Might not the fact that, in contrast to the authors, they not only looked at official incomes of educated ‘officials’, but knew that *actual* incomes often were a manifold of them, make their behavior somewhat more ‘rational’ after all?

1284 Rowe, *China’s last empire*, 52.

1285 Elman, *Cultural history of civil examinations in late imperial China*, 584.

1286 Rowe, *China’s last empire*, 114.

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## Why not China?

### A world of striking differences

In this book, a lot has been said about ‘why Britain’ and ‘why the West’. There would, however, not have been a Great Divergence as we know it if modern economic growth had emerged somewhere else in the world or if the rest of the world had soon caught up with the West. The Great Divergence debate is about why Britain and then the West took off but also about why so many countries did not and fell behind. As indicated at the very beginning of this book, one of the reasons why the question of why Britain was first while the rest of the West followed suit and the rest of the world was left behind for so long has again become a major and burning issue in economic and global history is the fact that several scholars have begun to claim emphatically that the West had not been so special after all. Several highly advanced economies, especially in East Asia, would, according to those scholars, have resembled Britain on the eve of its Industrial Revolution so much and would have been so advanced, that Britain’s industrialisation basically could only be explained via a kind of *deus ex machina* called ‘contingency’. Such claims have in particular been made for China. They kindled a new debate and had a major impact on the way in which ‘the rise of the West’, in economic terms at least, came to be perceived. That was very salutary, but I think there are good reasons to claim that revisionism went too far. In my view, at least it has now been fairly effectively shown that actually China’s economy – to again focus on this country – not only functioned quite differently from that of Western Europe, in particular Great Britain, but also was less advanced than revisionists assume and that chances that it would industrialise were only a fraction of the chances that Britain’s economy would. I hope to have shown in the text that the chance that Qing China might have become the world’s first industrial nation for several reasons was about nil. I even think its potential to quickly catch up in the nineteenth century – even had it been left to its own devices – were tiny. At the end of the text, I would like to wrap up several comments already made with regard to the general situation in China and to add

some specific comments with regard to the actual situation there at the very moment that Britain took off.

My ultimately rather negative assessment of China's economic potential – at least as compared to the West – starts from the conviction that the Californian claim that Britain's economy and that of China on the eve of Britain's industrialisation would have been surprisingly similar, is, to put it rather bluntly, quite weird.<sup>1287</sup> Granted, both economies were pre-industrial and therefore subject to Malthusian constraints, and both were quite advanced pre-industrial economies in the sense that in their own way they both had made the best, so to speak, of what was available to them. But, it should be emphasised here, they did that very much *in their own way*. Apart from the very basic overall resemblances just referred to, they were almost as different as can be. Let us begin with agriculture, the biggest sector in all pre-industrial economies. We see fundamental differences with regard to average farm size and whether that increased or decreased; with regard to the importance of scale effects, the use of animals, non-family and wage labour, and with regard to the sources of energy used. In Britain, non-human energy sources, i. e. animals, water and wind and, quite early on, coal played a far more important role. We also see fundamental differences in the organisation of domestic industry: whereas in Britain putting out was more prominent, a system of individual buying and selling was predominant in China. Urbanisation reached different levels in both countries and decreased in China, whereas it increased in Britain. The nature and function of towns differed in both countries. Labour was more expensive and less abundant in Britain where *wage* labour was far more normal. Britain's labour force had higher literacy and numeracy rates. Skills premiums were lower there. The country had more mechanics. Entrepreneurs, scientists, engineers, artisans and tinkerers were in closer contact to each other. There were substantial changes in China's consumer demand, but foreign goods played a less prominent role in those changes and in any case had less impact on production.

As regards accumulated surplus, both countries in principle had enough means at its disposal to pay for a take-off. In Britain, however, the purchasing power and market-orientation of the broad masses were higher. Britain's economy and society were far more open in terms of the exchange of goods, people and ideas with societies all over the globe. Collusion between economic and political power was far more normal there. Britain was a fiscal-military mercantilist state until the 1820s at least, while Qing China was not. Britain's government had far more tax income and far more other income because British people were willing to support government and lend money to it. The country's

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1287 For those who read French: I presented the argument that I synthesise here more extensively in my 'Monde de ressemblances surprenantes?'

tax system was more efficient. The same goes for its monetary and financial system. It, in contrast to China, had a system of funded debt, a national bank and state-supported paper money. Its bureaucracy was more efficient and less corrupt than China's. It had a strong army and the strongest navy in the world. Its government endorsed most economic innovations. The country had a strong sense of national identity, unity and commitment, and relatively inclusive institutions to put it in Acemoglu's and Robinson's terms. In brief: Britain and China during the very long eighteenth century were completely different societies with completely different economies. To regard them as surprisingly similar because their economies both were organic might be helpful as an eye-opener at the beginning of a debate. But it is not very helpful in progressing it any further. There were not only quite substantial structural differences between the countries and their economies were also clearly heading in different directions, with Britain's economy showing many more indications of change and improvement, whereas China's economy was heading for involution.

The revisionist view of China's economy over the very long eighteenth century in any case has turned out to be far too optimistic. China at the time not only was quite different from Britain, but also poorer and it had less potential for development. The revisionist claim that the wealthiest parts of China were as wealthy as the wealthiest parts of Western Europe on the eve of Britain's industrialisation now seems to be refuted. Claims that China was the world's silver sink also had to be substantially qualified. The claim that China was a highly advanced economy at the time – in the eighteenth century – “flooding [sic!] the world market with Chinese manufactures” simply cannot be upheld.<sup>1288</sup> In the last decades of the eighteenth century, the country's export had already acquired ‘peripheral’ traits; that is *before* industry took off in Britain and *before* the country became politically ‘colonised’. Exports of porcelains had diminished substantially because of European import substitution, as Europeans started to produce their own porcelains or substitutes. The same goes for silk textiles. Their export became less important. Exports of silk increasingly referred to *raw* silk instead of textiles. China's cotton fabrics, the so-called nankeens, in the end could not compete with those made in Britain. China had already become an exporter of tea, by far the bulk of its exports, other semi-manufactured goods and raw materials, decades *before* the First Opium War.<sup>1289</sup> The imports of opium, that were the immediate cause of that war, clearly became a big problem. Opium actually became China's main import. As already indicated, its price tended to *go up* whereas the prices of the country's main export products tended

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1288 Marks, *Origins of the modern world*, 16.

1289 See for this thesis Gang Deng, *Chinese maritime activities & socioeconomic development*, the chapter ‘Markets and trade patterns’.

to go *down*. This was a quite exceptional, unfortunate combination for a peripheral country during the nineteenth-century trade boom.<sup>1290</sup>

It those opium imports were so obnoxious, why weren't they stopped? Imagine Chinese junks with Chinese crews trying to sell opium in Newcastle. Those increasing imports are not only a clear proof of British greed and unscrupulousness. But who needs that proof? They also are proof of the weakness of China's state and, lest we forget, of the enormous collusion with the British by many Chinese.<sup>1291</sup> One, moreover, may also wonder why, if China's economy indeed was as highly developed as Californians like to claim, it did not manage to come up with other new products to make up for the famous silver drain that started to hit the country, in particular during the second quarter of the nineteenth century. That drain that is referred to in every text discussing China's predicaments indeed caused big problems. That is also surprising: in terms of value, it was quite small as compared to GDP.<sup>1292</sup> The fact that so much silver left the country and therewith depleted China's 'monetary' stock could have been dealt with more effectively. A drain like the one China was confronted with need not have been a problem if the country had had a well-organised efficient state. Britain dealt with far bigger export deficits in its commodity trade. The same goes for the costs of war, including the reparations that had to be paid. Over the entire period between 1843 and 1899, China's war reparations totalled 713 million *taels*. On average that boils down to some twelve million *taels* or one to one and a half grams of silver per capita per year.<sup>1293</sup> Government's *foreign* debts at the time, also a topic that has elicited huge debates and has often been considered a major problem at the time and in historiography, in the period from 1861 to 1898 increased to some 270 million *taels* in total. That is considerably less than a *tael*, i. e. considerably less than thirty-seven gram of silver per capita.<sup>1294</sup> As compared to what had become 'normal' in the West, the sums of money involved are absolutely tiny.<sup>1295</sup> Relatively minor financial claims and losses,

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1290 Williamson, *Trade and poverty*, 33–34.

1291 Lovell, *Opium War*, chapter 1.

1292 See Man-houng Lin, *China upside down*.

1293 I here refer for these data to a paper by Kent Deng, *Miracle or mirage? Foreign silver, China's economy and globalisation from the sixteenth to the nineteenth centuries* <http://www.lse.ac.uk/collections/economicHistory/GEHN/GEHNPDF/KentDengSILVER.pdf>.

Deng claims to have taken them from *Dictionary of Chinese History* by Zhao Dexin from 1990, pages 874–880. The value of the *tael* fluctuated during this period. Those fluctuations have been considered in this calculation.

1294 For these data, I refer to the paper by Kent Deng, *Sweet and sour Confucianism*, presented at the Tenth Global Economic History Conference, September 2006 in Washington, pages 36–37.

1295 France after Waterloo had to pay reparations that, including additional payments and interest, amounted to some twenty per cent of its GDP i. e. some 300 grams of silver per capita. See White, 'Making the French pay'. Another example would be the payments of

however, in Qing China led to huge problems because of inadequate institutions. What was really disastrous for China's economy was the Taiping Rebellion, which would have been a major disaster for every economy and society.<sup>1296</sup> We will not even discuss the fact that the Qing, ruling over an empire with some 400 million people, could not simply kick out the British attacking them with a couple of thousand people over a distance of a couple of thousand miles during the First Opium War.

China's economy and in particular its state apparently were *not* so highly developed, healthy and strong after all. They, in any case, could not resist what effectively was a fairly minor threat. The state apparatus over time became even weaker and government in the nineteenth century often was not even able to fulfil the absolute minimum of what one might expect from any government. Many of the emerging problems were connected to the extremely weak financial basis government had.<sup>1297</sup> The country's bureaucracy was very seriously understaffed and under-paid, and often under-qualified for the more technical parts of their job. The bulk of routine work, because of that under-staffing and under-funding, had to be left to clerks and runners, who officially were not in government service and were not paid from government funds but by their direct employer or more often by the populace. The number of soldiers who were actually fit for war was surprisingly small; their payment, training and discipline were bad and getting worse. In the end, for the ordinary populace, China's state began to present the worst of all worlds. Officially, its subjects were lightly taxed. In reality they had to pay very substantial amounts of money to a state – or rather to its official and semi-official representatives – that increasingly was unable to deliver public goods like maintaining the granary system, supporting its landless peasants, taking care of infrastructure and providing security. The tax system differentiated between regions. As such, this does not have to be problematic, although it complicated matters and to some extent punished the wealthy and developing regions. It also differentiated between social groups, with many exemptions for wealthy people, whereas many ordinary people were made to pay far more than the official rates. A substantial part of taxes was still collected in kind, which was enormously costly and very vulnerable to fraud. By far the most important tax was that on land, which made the tax system quite inflexible. A lot of land was not taxed at all. Total tax income was far too low to

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Prussia to Napoleon. There are varying estimates of the total amount of money that Napoleon 'collected' in Prussia between 1806 and 1812. But it was at the very least half a billion francs. That boils down to at the very least 225 grams of silver per inhabitant of Prussia. See for this estimate Macdonald, *A free nation deep in debt*, 333. In Great Britain, just after the Napoleonic Wars, public debt amounted to over 800 million pound sterling. Per inhabitant of England Wales, Scotland and Ireland that was some 4400 grams of silver.

1296 Deng, *China's political economy in modern times*, chapter 4.

1297 See my 'Staatsfinanzen Chinas und Großbritanniens im langen 18. Jahrhundert'.

give government the means to effectively steer the country in a certain direction, if it had wanted to, which does not seem to have been the case. Taxes were not increased and no money was borrowed. Government therefore had to improvise. It lacked institutional arrangements to quickly and effectively react to emergencies. Illegal and a-legal practices abounded. Complaints about corruption and fraud were legion, which means that in the end property rights were often not well respected and infringed upon. From the 1780s the situation worsened. The Californians manage – which is quite amazing – to completely avoid referring to the enormous problem of corruption, already endemic over the entire eighteenth century and only increasing from the end of the rule of the Qianlong Emperor.<sup>1298</sup> One never reads anything about that very well documented phenomenon in their books. Qing Government indeed became part of the problem and not the solution.

Government, of course, was not the only problem. As compared to Great Britain, with its wave of inventions and innovations in science and technology as well as in institutions and organisations, Qing China from the beginning of the long eighteenth century onwards simply was quite static. The country undeniably had an excellent track record in the field of science and in particular technology. But under the Qing, change and development clearly were *not* normal and increasingly institutionalised as they were in the West. The country may indeed have invented the printing press, the compass, gunpowder, paper money and many other things, but the 250 years of Qing rule did not see much real innovation. No breakthroughs occurred in mining (neither in drainage nor in ventilation), in iron production, in the enormously labour-intensive irrigation or in the husking of rice. What is also very striking is the almost entire lack of major institutional innovations as compared to Britain with its financial, political and military ‘revolutions’. Even if China may still have been extremely good in incrementally improving the efficiency of what it was already doing – which I think was less and less the case – we see no major innovations that put it on a *new* trajectory: it just was not heading anywhere new. Even if we take the broad ‘Schumpeterian’ definition of innovation, and look at its various elements, Qing China simply was not very innovative as compared to Great Britain.

After the conquests of the Qianlong emperor (r. 1736–1795) the realm was also confronted with problems of overstretch. It had become too big to be efficiently ruled along the same lines, with the same resources and with the same number of personnel as it had been in the past. In several regions, tensions arose between Han settlers and the original population, in particular along the borders

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1298 See e.g. Park, ‘Corruption in eighteenth-century China’; Shawn Ni and Pham Hoang Van, ‘High corruption income in Ming and Qing China’; Qian Chen, ‘Needham puzzle reconsidered’, and Tuan-Hwee Sng, ‘Size and dynastic decline’.

of China Proper and in China's newly acquired 'periphery'. Finally, there were problems of over-population. Even if there may have been a tendency to picture China's situation under the late Qing in terms that were too gloomy and too 'Malthusian', population increase did cause serious problems: many farms simply became too small, many tracts of soil became exhausted and grave ecological degradation occurred. But all those things referred to in standard textbooks as bringing China down in the nineteenth century could only do so because China was too weak to begin with. I agree with William Rowe when he writes in his recent book on the Qing Dynasty:

Nevertheless, it is undeniable that systemic failures within the Qing empire itself became manifest around the turn of the nineteenth century (Qing rulers and subjects themselves noticed these developments with alarm) which made the nineteenth-century divergence not merely a matter of being left behind by Europe in relative terms but also of an intrinsic and absolute loss of capacity.<sup>1299</sup>

In the area of bureaucratic initiative and morale, so he writes "troubling signs appeared well before this date (1795 PV)."<sup>1300</sup>

The message that Qing China was a country of good governance, a message that Roy Bin Wong systematically spreads, again in his 2011 book with Jean-Laurent Rosenthal, in that respect is far too optimistic. According to them, it was only in the nineteenth century with foreign intervention and in particular when the country had to pay war reparations – especially those after the war with Japan – that things began to go wrong. At a time when the West became less bellicose and its costs and damages of war decreased, so they claim, China in contrast had to invest more in, and suffered more from, war. That is a quite idiosyncratic perspective. To begin with, the many military campaigns of the Qianlong Emperor were more expensive than the First Opium War and in any case military conflict and its costs in China were miniscule compared to those of, for example, the Napoleonic Wars for the European states involved. As indicated, by far the most devastating conflict China was involved in during the nineteenth century was the Taiping Rebellion for which one cannot primarily blame the Westerners, although Western powers did interfere after it had broken out ... to save the Qing regime. When it comes to the war reparations that so often are referred to as a major cause of China's predicament, we already indicated that on a per capita basis they were tiny compared to what countries losing wars in Europe had to pay.<sup>1301</sup> The take-off in Britain and later the rest of the West indeed,

1299 Rowe, *China's last empire*, 149–150.

1300 Rowe, *China's last empire*, 88. Deng, *China's political economy in modern times*. chapter 3 with the telling title: 'The withering state and its consequences' paints an even more negative picture.

1301 See note 1295.

as Gunder Frank wrote, was preceded by a 'decline of the East', be it for different reasons for different regions and with different chronologies.<sup>1302</sup> When we confine ourselves to its economy we can see that, as already briefly discussed, India had already lost a significant share of the world's textiles markets to Britain before that country had a clear technological advantage in producing them, i. e. at least before 1800. Indian competitiveness suffered because of developments in India itself that drove up wages and prices. For China, we indicated that its exports of porcelains and silk textiles shrunk already in the last decades of the eighteenth century. In the Ottoman Empire, de-industrialisation set in later; only after the 1820's. But there we see a striking loss of political and military power.<sup>1303</sup> The Iranian Empire of the Safavids basically already collapsed in 1722.

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1302 Frank, *ReOrient*, 264 – 276.

1303 For more details about Asian de-industrialisation I again refer to Williamson, *Trade and poverty*, chapters 5, 6 and 7.

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## Concluding comments

This book contains a comparison between what economists in their more theoretical reflections have recently contended about modern economic growth as well as its causes on the one hand and the explanations provided by global (economic) historians about the Great Divergence, which is generally considered to be the result of the first manifestation of that growth, on the other. Drawing upon those theoretical insights and upon my reading in the field of economic history, I also presented my personal assessment of the current explanations of the Great Divergence. The text did more than just take stock. To be able to structure my analysis and my assessment I first had to define as precisely as possible what to my view was the ‘essence’ of that Great Divergence. I did so in an extended introduction. When there is no clarity about the thing to be explained, there, of course, can never be clarity about the explanation. The Great Divergence was defined as the beginning of the great divide between rich countries and poor countries in global economic history. For Great Britain and China, the countries that function as case studies in this text, it was dated to the period between roughly 1680 and 1850. The explanandum of the text consisted of *the take-off into modern economic growth* that caused this gap to emerge.

The point of departure of my brief overview of current thinking about growth in economics was the usual distinction between ‘proximate causes’ and ‘ultimate causes’. Those proximate causes were discussed in terms of the factors of production, i. e. land (or as it was described here more broadly ‘geography’ or ‘natural resources’); labour (in terms of its quantity, quality and costs, and somewhat more unusual in terms of mass consumption) and capital (in particular discussed in terms of its required accumulation) and their allocation (in terms of division of labour, specialisation and exchange). Ideas about the importance of innovation, which according to most modern economists are the essence of modern economic growth and its most important proximate cause, were also separately discussed. Then the attention switched to ‘ultimate causes’, with a focus on the assumed importance of institutions and culture.

The ideas of economists were then confronted with the explanations one comes across in the publications of (global) historians dealing with the Great Divergence. I focused on the assumptions, lines of reasoning and claims found in analyses and debates over roughly the last two decades. The reason for that time frame is the fact that since the second half of the 1990s, the old debate about ‘the rise of the West’ has been fundamentally reconfigured. The text presented an analysis, confrontation and evaluation of the validity of all those assumptions, lines of reasoning and claims, not an exhaustive chronological overview or a reproduction of the debates as they have actually been waged. My goal was to provide a general thematic analysis of the explanations that have been suggested for the Great Divergence as it was caused by the take-off into modern economic growth in parts of the world.

In the examples and the more in depth-analyses in the text, I focused, obviously, on Great Britain, as the first industrial nation and the nation where modern economic growth first emerged, and, for those regions where it did *not* emerge, on (Qing) China. The reason for choosing Qing China as a contrasting case is that China under the Qing happens to be the country that up until now – for better or for worse – with Great Britain and the rest of Western Europe has held centre stage in the Great-Divergence debate. Reference was also made to the situation in other parts of the world because what we know about those regions might be useful in assessing the validity and range of the assumptions, approaches and claims that one encounters in debates about Western Europe and Qing China.

## 1. Geography

Insofar as ‘growth-economics’ has dealt with geography, the emphasis has long been on ‘the geography of poverty’, i. e. on the limits to growth set by geography. It focused on the various ways in which geography can explain that a country is *not* rich. A clear example would be the work by Jeffrey Sachs and colleagues in which the importance of geographical disadvantages in terms of, for example, climate, disease or location is discussed. Global historians have always been sensitive to potential negative effects of geography on growth, most clearly in the sense that, almost without exception, they were heavily influenced by Malthus and his ideas about the limits to growth. Amongst contemporary economists, a specific variety of this emphasis on the potentially negative effects of geography on economic development prevails in their focus on the so-called ‘resource curse’ and on ‘Dutch disease-effects’, two concepts that surprisingly enough indicate a *negative* correlation between good resource-endowments and economic development. These concepts, too, have certainly had their impact

amongst (other) social scientists and historians dealing with development and growth. To a much larger extent, that was also the case with dependency theory and world-systems analysis, which, from the very beginning, were just as 'popular' if not more so amongst historians and other social scientists than amongst economists. According to proponents of these approaches, poor 'peripheral' countries, whatever else their features may be, characteristically specialise in the production of raw materials that are supposed to suffer from structurally deteriorating terms of trade. This would then make them poor compared to 'core' countries of the global economy that specialise in manufactured goods and services. Dependency and world-systems analysis are not narrowly geographical: international and domestic power relations also play an even fundamental role in them. Without them, geography, in the sense of resource endowment, need not have had its negative effects. Reference to resource-endowment and different specialisations in these approaches, moreover, are not so much integrated in an explanation of why the rich took off: they *primarily* function in an explanation why the poor did not catch up, i. e. at least most of them. Many (global) historians, as well as many social scientists, still endorse core-periphery thinking in which the specific relations between regions in various parts of the world and their differing specialisations explain the gaps in wealth between them. Thinking in terms of the 'development of under-development' is still very much alive in their circles.

The specific claim that primary products would always suffer from deteriorating terms of trade no longer finds serious support. This, however, does not mean that economists would deny potentially negative consequences of specialising in the production of primary goods, far from it. There is an increasing awareness that even if in the short term there might be good reasons for such a specialisation in terms of comparative advantage, specialising in producing and exporting resources can indeed be very bad for long-term development. In several resource-rich regions, wealthy and developed economies emerged, but in many more of them that was not the case. Jeffrey Williamson definitely has a point with his claim that (one of) the disadvantage(s) of producing primary goods resides not such much in their problematic terms of trade but in their price-volatility. That can certainly explain some of the problems incurred by countries exporting primary products. In current economic theory, however, most scholars including Williamson, who connect meagre development and growth with specialisation in the production and export of primary goods, do so by pointing at the decreasing returns that characterise such specialisation. It generally involves little adding of value, little human capital, only few backward and forward linkages and hardly any spin-off. This means you cannot base a developed economy on them. A country that wants to become rich has to specialise in products that have a high added value, many backward and forward

linkages, and many spin-offs, and thus require much human capital. On top of that they have to have a fairly strong market position. When it still is in an initial stage of development, a certain emphasis on producing and exporting primary resources in which it has a comparative advantage does not necessarily need to be a disadvantage for a country, far from it. It can yield the necessary funds for supporting growth if those funds can be and are used in a general strategy of diversifying and upgrading production, in which export sectors are connected with the rest of the economy and too big a dependency on foreign capital and knowledge is avoided. At any rate, whether such a strategy is possible and whether it can and will be turned into part of a broader policy also depends on existing institutions, although the impact of factor endowments certainly is not negligible, even with good institutions. A strong resource-dependency *in combination with* specific, 'extractive' institutions is bound to have a negative impact on long-term growth and development. Although most economists would thus admit that geography matters and in some cases can be a fundamental hindrance to growth, the bulk of them would agree that growth does *not* depend on geography.

Amongst global historians, the situation is strikingly and surprisingly different. In many of their publications, the focus is primarily on what one may call 'the geography of wealth', i. e. how geography one way or another made the West rich. Eric Jones already paid a lot of attention to Europe's specific environment in his explanation of the European miracle. In the work of some members of the California School, that emphasis has become even stronger, e. g. in the influential work of Kenneth Pomeranz with his emphasis on the "geographic good luck", "fortunate geographic accidents", "crucial accidents of geography" and "massive windfalls of fuel, fibre and perhaps even food" and his many references to the "fortunate location of coal" and ghost acreage. Jared Diamond and Ian Morris are even more explicit. In Diamond's case, geography made Eurasia richer than the rest of the world whereas for Ian Morris the exceptional wealth of the West in the end also is clearly due to geography. In the work of all the scholars referred to geography is regarded as at least a very important (contributory) cause of the Great Divergence.

Several economists and economic historians to whose work we have referred, such as Stanley Engerman, Kenneth Sokoloff, Daron Acemoglu, Simon Johnson and James Robinson in their analyses of economic (non-)development focus on somewhat more indirect connections: to wit the presumed connections between resource endowment in the widest sense of the word, the coming into being of certain institutions and the subsequent emergence of certain path-dependent virtuous or vicious circles of development. Their approach as such looks much more promising than the fairly simplistic examples of geographical determinism of in particular Diamond and Morris. They explicitly oppose geographical de-

terminism and defend the position that institutions ultimately 'rule'. Their modus operandi has not been not without problems so far. Their actual work is not always free of the geographical determinism they reject and not always sensitive enough to contingency. Their analyses, moreover, depart from *assumptions* about wealth, poverty, inequality and social structures in the regions they discuss rather than from ascertained facts and thus might turn out to be castles built on quicksand. This might in particular apply to the case of Latin America. As yet their analyses also were somewhat superficial in their generalisations and focused too much on static, either-or comparisons between separated slices of history, which means they tend to compress it and often eliminate agency. But such shortcomings probably are inherent to great theses. The point is whether one can improve on them.

Their strategy of focusing on the interaction between geography and institutions certainly has its value and fertility. A more confined but more concrete way of showing connections between geography and economic development and an approach that I personally consider quite fertile – as I hope I have shown in comparing Britain's wheat economy with China's rice economy – is that of focusing on the potential of specific staples to become the core of a specific mode of production that in turn might facilitate certain paths of development and hamper others. Again, we are dealing with possibilities, probabilities, dependencies, or 'logics' at best, not necessities. In history, by definition, context always matters. Rice regions do not necessarily develop like the Lower Yangtze regions did; wheat regions not necessarily like Southern England.

In my view, geography in the widest sense of the word, including location and the local availability of resources, definitely can be an important factor in explaining wealth and poverty. But no one has been – nor will anyone ever be – able to come up with general i.e. 'universal' and unequivocal causal connections between specific geographical factors and wealth or growth, let alone modern growth. When it comes to sustained and substantial economic growth, geography can *at best* be a *necessary* precondition but never a full or even major explanation. It simply is too static for that. Even if it provides challenges or possibilities and contributes to the emergence of growth, it per se does not suffice to explain its continuation. When it comes to the central question of why Great Britain and then Western Europe took off whereas China and other parts of the world did not, the literature does not, in my view, provide convincing indications that geographical factors per se were in any way decisive. Britain clearly had some advantages. As an island it was relatively protected from disease and it was hard to conquer. It only needed a small standing army – but on the other hand built an enormous fleet that was far bigger than necessary for sheer defence. Transport and communication domestically as well as with the rest of the world were relatively easy. It was fairly close to the New World. It had lots of

coal, was not scourged by major natural disasters and its climate was not unfavourable to economic activities. All of this, of course, is not irrelevant and in the right conditions and when efficiently exploited even very helpful, but it does not suffice to explain the island's take-off. The same goes for geography in the rest of Western Europe. To reduce the fact that China did not industrialise to geography would also be very far-fetched. Its geography was quite different from that of Britain, but one simply cannot defend the claim that overall geography would have favoured Britain more than it did China. It seems that the role of geography for the take-off that took place in the West is quite exaggerated by many scholars studying the Great Divergence.

## 2. Labour and consumption

When it comes to the role of labour in the (emergence of) modern economic growth, there is no clear consensus amongst economists at least in terms of the impact of its quantity and costs. One can read about the advantages of large and increasing populations and labour supplies as well as about their disadvantages. Some scholars write about the advantages of low wages as a consequence of large and increasing populations and labour supplies, others emphasise their disadvantages. In debates on economic development, scholars arguing along the lines of Ester Boserup confront scholars who are more impressed by Malthus's ideas. Claims that population increase would be positive for innovation, popular amongst new growth theorists, face claims in which its impact is regarded as negative as it would tend to lower wages, which would then remove the incentive to innovate. Whereas some economists have pointed at the potentially positive effects of high wages on economic development in terms of the incentives they give to innovation, the possibility they provide for improving human capital and the high domestic consumer power they imply, others in contrast – I here need only refer to Arthur Lewis, Kaname Akamatsu or Kaoru Sugihara – focus on the advantages of low wages and an abundant supply of labour in terms of the possibility to make higher profits.

Amongst historians dealing with the Great Divergence, opinions seem just as divided, although those who primarily look at the pre-industrial world in Malthusian terms of limits to growth in all probability still are in the majority. Historians like Gregory Clark who do see possible advantages of rising population tend to do so under the influence of unified growth theory, pointing out that more people would mean more clever brains and thus increasing chances and an increasing necessity that someone might come up with an invention or innovation. Overall high and sustained population growth more often seems to have been the consequence of growth than its cause. In empirical studies, the

connection between population increase and increasing innovation looks tenuous, if not absent. There, on the other hand, are quite a few counterexamples in which a decreasing population or a decreasing labour supply are accompanied by high levels of innovation. All in all, there does not seem to be general relation with clearly described *ceteris paribus* conditions between demographic development and economic development. Population and labour supply are vague categories.

Probably it is better to, at least as a point of departure for an analysis, focus on wage- and income-levels as more concrete indicators of labour scarcity. The most explicit thesis that has recently been defended about the connection between the height of wages and innovation, in this case explicitly referring to the emergence of the Great Divergence, is that of Robert Allen, who explains Britain's take-off in terms of a mix of relatively high wages, relatively cheap energy in the form of coal, and relatively low interest rates. Britain's unique set of factor endowments would have put the country on a capital- and energy-intensive route that was easier to pursue for Western European countries trying to catch up than for countries elsewhere. This approach definitely is promising and overall I think the differences in factor-endowments and factor costs between Britain and China – and many other countries – definitely go a long way in explaining their differing economic histories. In the *specific* setting of Britain in the eighteenth century, factor-endowments and factor-costs may indeed have provided *incentives* for mechanisation, but even for that case there are some caveats. Britain's mechanisation did not take place in the regions with the highest wages nor was the mix of factor costs that Allen refers to in itself sufficient to explain Britain's take-off. Location, for example, was also quite important, for various reasons. Allen's thesis about factor costs and in particular his emphasis on the importance of high wages, cannot be – and as far as I see is not meant to be – turned into a general thesis connecting high wages and the emergence of modern capital-intensive growth. His analyses, however, do at the very least strongly qualify Mokyr's contrasting claim – which we already referred to – that "...successful economies relied on a reservoir of cheap, elastically supplied labour" and that "The lesson to be learned from the experience of European countries during the Industrial Revolution is that low wages, all other things being equal [sic!] facilitated the accumulation of the capital necessary for the diffusion of the new technologies ..."<sup>1304</sup> The economic history of the USA in the nineteenth century, in my view, would also disprove that. Allen, on the other hand, seems to exaggerate in his general suggestion that low wages would always keep nations *off* the path to industrialisation. Let us therefore now briefly discuss that possible connection.

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1304 Mokyr, 'Dear labor, cheap labor and the Industrial Revolution', 195.

I would agree though with Allen that, *in the British* context, relatively high wages – i. e. relatively *high* from a European and global perspective but relatively *low* from a British perspective – combined with relatively low cost of energy and money – and a good location – go a long way in explaining the trajectory of Britain’s economy to industrialisation. It would not require a major effort, though, to point out several important industrial regions in Western Europe that were characterised by wages, that compared to wages in the rest of the country or other Western countries were low. A ‘low-wages route’ to industrialisation definitely is possible. That has recently been emphasised in particular by Kaoru Sugihara, who basically argues along the same lines as Kaname Akamatsu, although his emphasis on the role of labour is more explicit, and, in a different broader context, Arthur Lewis already some decades ago. The analysis in this text focused on the ideas of Sugihara and his claim that there has existed a specific labour-intensive, industrious and *low-wage* East-Asian route to modern economic growth. A detailed analysis of this claim and its implications for the Great Divergence-debate led to several conclusions; to begin with, it exaggerates the contrast with early industrialisation in Britain. Labour intensification, now often referred to as an ‘industrious revolution’, actually was a phenomenon that occurred in many regions of *Eurasia* before *and* during the early phases of their industrialisation. It may have been pushed further in East Asia but that *as such* did not make its industrialisation more probable. Parts of north-western Europe, first and foremost Britain in the decades before industrialisation started, also witnessed a process of labour-intensification but here this occurred in a context of increasing division of labour that was based on individuals rather than on households, as was the case in East Asia. This *could* lead to relatively higher productivity increases as it made possible a more efficient allocation of labour and, overall, a more efficient integration of individuals in the market. That in principle *may* have made it easier for Britain to take its road to industrialisation than for East Asia.

The first country taking the East-Asian road to industrialisation was Japan. It did so after the Meiji Restoration of 1868. To my view it is quite clear that this road, not just in the case of Japan but in all known cases, could only exist as a supplemental accompaniment to more capital-intensive, high-wage varieties of economic modernisation elsewhere, from which it borrows and with which it interacts. Akamatsu’s flying geese-model is explicitly built on that assumption. Essential, though, to my view is the fact that even though labour-intense routes to industrialisation, including Lewis’s industrialisation on the basis of “unlimited supplies of labour”, indeed *may* enable a country to catch up, it is extremely unlikely that labour-intensification as such could *autonomously* and *independently* lead to a take-off into modern growth. And that is what we want to explain in this book. Finally, and that would be my last comment, the specific

labour-intensive industrialisation that many economists perceive in East Asia, or for that matter in other parts of the world, can never be more than a transitory phase in the emergence of really substantial and sustained growth and high wealth. The wealth in 'mature', developed economies is based on a level of productivity that is so high that no amount of industriousness could ever suffice to reach it. Such mature economies by definition have to use a relatively large amount of capital goods and energy per capita. All in all the (presumed) existence of an Asian route of industrialisation, or indeed of any other labour-intensive 'industrious' road to industrialisation, whatever their importance, which of course as such is huge, has no implications for our explanation of the take-off in the West and provides at best a partial explanation for some regions' ability to catch up with a large supply of labour.

In literature dealing with the 'industrious revolution' in early modern global economic history, two other elements, apart from the increased labour input, are often referred to: the availability and development of skills in the labour force, something that in particular Kaoru Sugihara likes to point at for the Asian case, and changes in patterns of consumption, that according to Jan de Vries at least in the case of north-western Europe and its north Atlantic offshoots were intrinsically connected to those changes in labour input. Obviously it is not only costs and quantity of labour that might matter for economic growth, but also its skills. Many economists at the moment think the importance to modern economic growth of what they call 'human capital' and thus of education and skill-formation can hardly be overestimated. Most global (economic) historians, strikingly enough at the moment, hardly seem interested in labour. In publications by Californians, one in any case looks in vain for comments on its quality in terms of skills or its availability for a labour market. Overall, studying production as it actually takes place and its requirements and organisation i. e. studying what used to be called 'modes of production' no longer seems fashionable. The focus has clearly switched from (the organisation of) 'production' to (the gains reaped in) 'exchange'. That is quite surprising and not exactly helpful: how can one study the emergence of modern economic growth – that is characterised by huge changes in methods and organisation of production – without actually discussing the sphere of production? Without certain skills and knowledge, those huge changes would have been simply unthinkable.

Notwithstanding Sugihara's references to the skills of the Asian labour force, I can only, looking at the available literature, conclude that when it comes to the specific human capital needed for the specific breakthrough that we refer to as the 'Industrial Revolution', the situation in Western Europe, first and foremost Britain, simply was more favourable than in the rest of the world. All indicators I found with regard to available skills point in that direction, as does all the circumstantial evidence. It would be interesting to try to find out whether and to

what extent this might be attributed to the fact that Western Europe and in particular Britain and the Netherlands were the wealthiest parts of the world. Besides, but that basically is an institutional matter, in Western Europe and again in particular in Britain, there was more labour available to work for wages on a labour market than in other parts of the world. That made a more efficient specialisation and allocation of labour possible than in a setting where most labour continued to be employed in a system of household production and it facilitated – and was facilitated by – accumulation of capital and capital goods. The existence of an extended labour market in principle also made it easier to concentrate labour (and thus production); to profit from scale effects and to systematically discipline labour to perform tasks in a more anonymous formal setting. It also implied that more people had to buy goods and services to be able to satisfy their wants, which in turn increased the chance that profitable large-scale productive units could emerge.

Successful industrialisation and modern economic growth require the existence of a growing mass market for (manufactured) goods. The specific way in which Jan de Vries interprets the concept of an industrious revolution, as a transitional phase to modern economic growth via a reallocation of labour that was a response to changing consumer demand, seems to provide a fertile hypothesis, which systematically tries to integrate the demand-side in the analysis of the emergence of modern growth, which was long overdue. Modern economic growth can only persist in what is nowadays called a ‘consumer society’. Consumption in modern economies less than ever is just a matter of passively absorbing what happens to have been produced. It also and increasingly has become an active force in stimulating and steering production.

The changes in consumer behaviour in North-western Europe in particular (especially Great Britain and the Netherlands) in the early modern era were such that they have been characterised as a ‘consumer revolution’. For our analysis, the interesting question again is whether they were something uniquely Western that might have contributed to the fact that modern economic growth emerged first in Britain and spread with relative ease over other Western European countries. As it turns out, substantial changes in consumer behaviour, just like ‘industrious revolutions’, were *not* uniquely European phenomena. They occurred in several highly developed economies during the early modern period. But in my view, what happened in the West, in any case in Great Britain, again did have some specific traits that had major consequences for economic development and increased the possibility that Great Britain might industrialise. In Britain’s consumer revolution imported (semi-)luxurious consumer goods, initially primarily consumed by a relatively large – i. e. relatively *larger* at least than in non-Western European societies – middle income segment of the population, played a major role. Those goods triggered a process of import sub-

stitution, which is highly relevant for an explanation of the Great Divergence and without which the industrial revolution as it actually occurred in Great Britain would have been unthinkable. Outside the West, as we again in particular showed for China, there was no such response, and there was no need for it, as most 'new', semi-luxurious consumption goods were not imported from abroad. In the Western context of prevailing mercantilism, rapidly rising demand for foreign manufactured goods was bound to lead to efforts to try to produce goods like silk or cotton textiles or porcelain domestically, and to stop the drain of bullion used in paying for them in doing so. The fact that the economies of Western Europe were so open in terms of the relative size of their imports and exports as compared to their entire economy clearly also played a role. For them, imports provided more of a challenge. Import substitution also played a part in other regions, but that was *once* industrialisation had taken off in the West and in a context where one had to react to Western imports. It, for example, clearly was important in Japan's industrialisation. The chances that China would have started a process of industrialisation over import substitution *before* its opening in the second half of the nineteenth century are very slim.

### 3. Accumulation

Accumulation has always been a very important – for quite some time even *the* dominant – issue in studies of economic growth. It is obvious that growth requires investment in more and preferably better capital goods and that this requires money and resources. Overall, amongst economists dealing with modern economic growth, accumulation, however, has increasingly lost its central place. Of course, one needs substantial amounts of capital for investment. But, as a rule, in our current global economy, finding capital, in particular when the prospects of profit are not too bleak, does not have to be a bottleneck. For many scholars dealing with the Great Divergence, though, capital accumulation and existing levels of wealth still hold a very central position. Many of them are still primarily fascinated by the question of how the West managed to find the means to take-off in terms of money, resources and labour power as shows in the many comparisons of the wealth or rather the income of nations just before take-off. Many global historians focusing on the Great Divergence question still devote particular attention to 'the contribution of the periphery'; this is first and foremost true of all those working in the tradition of dependency-theory and world-systems analysis and, more recently, also many scholars who endorse the emphasis of the California School on the importance of 'ghost acreage'.

When it comes to accumulation as such, that is, to the amount of capital Great Britain needed for the first take-off and the amount of capital it would have taken

other countries that did not take-off, the conclusion can only be that the capital requirements of the first take-off into modern economic growth that is at the heart of our analysis *relatively speaking* were so small that *in principle* they must have been less of an issue than they often seem to be in older literature. They definitely could have been met by several societies. Admittedly, after 1850, with the coming of the so-called Second Industrial Revolution, but in essence already with the coming of the railways, capital requirements clearly became higher and catching up more 'expensive'. But then Britain had already taken off. Looking at the huge amounts of resources that were available in all of the advanced organic economies in the world as well as at the low capital requirements of the take-off as it actually took place in Great Britain, I am convinced that those capital requirements as such in terms of sheer amounts of money, resources or people were not an insurmountable problem in several societies, far from it. In this book, I defend the claim that finding the wherewithal to take off *as Britain did* was not at all a major bottleneck. The necessary means could and in the end were fairly easily mobilised in Britain and might have been fairly easily mobilised in China and other advanced organic economies. The first take-off actually was quite cheap. A wide array of arguments in the text showed not only that accumulation was not the real problem, but also that it was not necessarily the real solution. Many of the wealthiest countries of the pre-industrial world including (parts of) countries like China, Japan or India were not as poor as to be stuck in a poverty trap. Several countries that had accumulated a lot, such as Spain or Portugal, continued to be quite poor and industrialised quite late. The Netherlands, up until the 1820s, very probably were just as rich as Great Britain and continued to be quite rich. But they took off quite late. On top of that, as already pointed out repeatedly, the essence of the Great Divergence was the emergence of growth that was sustained and substantial. Such growth by definition cannot be a matter of simply adding capital, even though an increased capital-input certainly played a role. The motor of modern economic growth does not reside in the *quantity* of accumulated resources but in the *quality* of capital used in production. That quality as far as it is embodied in physical capital, of course, is not a free lunch but not necessarily beyond reach. The costs of human capital are far higher in the end.

Simply put, there are two methods to accumulate: via rents – that via of the use of power, whether political, economical or both – and via profits – that is by earning income in free and fair competition on a market. This neat distinction is anything but neat in reality but it certainly is helpful as a first approximation. A further helpful distinction then would be that between rents or profits acquired abroad or at home. Amongst (global) historians, there is a tendency to pay more attention to collecting rents abroad than to collecting them domestically. There is some logic to this focus as one might claim that internal accumulation in the

West is ultimately only a kind of internal re-allocation and not a way to actually *on an aggregate level* become richer than the rest of the world, although this argumentation certainly would underestimate the necessity of (*domestic*) 'primitive accumulation' as Marx called it to find the investment needed to increase production. Rent collecting *abroad* has its limits and as such can never guarantee sustained growth like the growth the rich world has now known over many decades. The contribution of the periphery in terms of rents was not necessary for the West to take off, even in cases where it was substantial – which *as compared to total GDP* it never was – and it as such can never explain the enormous economical changes and the enormous increases in wealth in the Western economies that took off. It was too small as a percentage of GDP to be regarded as the necessary or sufficient condition for the growth that caused the Great Divergence. Modern growth is simply not a matter of primitive accumulation, even if of course it will clearly have helped at certain times and places. The West in any case did not simply become developed, industrial and rich thanks to coercive external extraction like trading slaves and exploiting their labour or appropriating bullion from Latin America. The correlations between external rents and economic development do not fit such a thesis in terms of the countries involved, the amounts accumulated and chronology. The same goes for profits made by Western developed countries in their trade with less developed countries.

In discussions on the levels of accumulation as they existed in various countries, foreign trade usually receives ample attention. Domestic income, though, tends to be much larger than foreign income, regardless of whether it comes from 'coercion' or 'profit'. In the most advanced economies of Western Europe, the bulk of income that could be used for accumulation came from 'profits' simply defined here as the difference between total costs and total income. On markets with free and fair competition, those profits usually tend to decrease with increasing competition, which, of course, is something of a problem for those who like to identify the rise of the West with the rise of exactly such markets. They provide permanent challenges and as such require dynamism and change, to which we will turn soon, but on the other hand hamper large-scale accumulation. Old-style Marxists, in my opinion with good reason, emphasise the *specific* nature of what for them still is a uniquely Western type of *capitalist* accumulation. For them it is not so much the *amounts* accumulated as well as the *logic* and *dynamics* of accumulation that count. There are more than enough examples of enormous accumulation in non-capitalist settings. You do not need capitalism to accumulate, far from: in capitalism it often is harder. They do pay serious attention to primitive accumulation, which basically is a form of rent seeking, but focus on the workings of the capitalist mode of *production*. Essential to the logic and dynamics of accumulation in capitalist market economies as classical Marxists see them and a *conditio sine qua non* for it are

the proletarianisation of the labour force in which ordinary producers lose their means of subsistence and the process of permanent competition in which profits are generated by lowering labour costs and increasing and improving investment in capital goods. This means that for them, too, markets, domestic as well as foreign, in several respects are fundamental much more than just any kind of accumulation. But as Marxists and followers of Schumpeter emphasise, most competition on markets in so-called capitalist economies actually is *not* entirely free and fair, but is characterised by all sorts of monopolisation without which profits would be too low and too uncertain.

#### 4. Specialisation and exchange

Development of trade and foreign trade in particular is often regarded as essential for the economic development of countries. For mercantilists it was the basis of almost all their policies. No one would want to deny this importance. Sustained growth cannot exist without an outlet for extra production. Optimal use of scale effects as a rule requires growing markets. Specialisation in sectors with high productivity and added value requires a supply of raw material. The rise of the West has time and again been interpreted as the rise of the market, which means the rise of exchange with reference to the logic of a growth model basically developed by Adam Smith, in which division of labour and specialisation in a setting of (ideally) perfect competition would increase production.

When it comes to explaining the Great Divergence, the standard claim that ‘the West’ would have had bigger or better functioning exchange networks or markets, which would have then triggered its unique development, has lost much of its credibility. As compared to Qing China, to stick to our favourite ‘test-case’, Western countries were quite small. Their markets, moreover, often were badly integrated. Early modern Britain was something of an exception. No domestic market in Europe was better integrated but as compared to China, and even as compared to several Chinese regions, the number of its inhabitants was anything but impressive. Even if we include all its colonies or even broader all its main trade partners, it still was fairly small. When we focus on the market for consumer commodities, the place, so to speak, where the first industrial revolution was decided, *absolute* size does not seem to have been what really mattered or made a major difference for beginning industrialisation. Comparing Great Britain and China, Great Britain simply did not have an advantage here. Major differences in this respect did exist when it comes to *foreign* trade, its relative size, its growth and the character of goods exchanged. Those differences may not as such provide an explanation of Great Britain’s take-off, but they do show some clear differences with almost all countries in the world and especially with the

globe's big empires. Of course the tempo in which exchange grows and whether this leads to bottlenecks and the characteristics of the commodities that are exchanged do matter. In these respects Great Britain may have been in a more favourable, i. e. much more challenging position than China, as its exchange was more diverse and caused more bottlenecks than in China with its more uniform and very smoothly operating market systems. But once again, we have to realise that exchanging commodities of whatever kind i. e. including services, money and labour, is an economic activity. Persons, firms or countries that profit more from it apparently – for whatever reason – are more efficient and productive, so the gains from trade to confine us to the case of countries, apart from exceptional and mostly not very long-lasting windfall situations, are more part of the *explanandum* than of the explanation.

It has often been claimed that Great Britain had a quite open economy and profited from that fact. The term 'openness' in this context can have quite different meanings and connotations. So some specification and differentiation is in order here. Great Britain over the eighteenth century indeed developed quite an open economy in the sense that imports and exports as a percentage of its GDP were substantial and the absolute amounts involved were growing quickly. It did not just import many products, but also knowledge, technologies, skills and people. It was not unique in this respect, but this openness clearly provided stimuli to a far higher extent than was the case in big empires such as Qing China, or for that matter a country like France. Initially, manufactured goods figured prominently amongst its imports, which challenged domestic production, triggered import-substitution and did this so successfully that Great Britain even started to massively export some products it had formerly imported. What we now call Britain's 'Industrial Revolution' would not have been possible without a high level of imports and exports. It is not hard to understand how in general such a kind of openness can have quite positive effects on an economy. The concept of openness, however, in this context is often also interpreted as 'having low barriers to trade'. In this respect, calling Great Britain 'open' would be quite 'optimistic', at least up until the 1830s. Considering the firm conviction of many economists that free trade is good for growth and protectionism bad, that is certainly a very interesting observation that obliges us to confront the ideas about the growth-enhancing potential of foreign trade that long have been mainstream and still find many defendants with what economic history suggests us.

Trade theory long taught that countries should specialise according to their comparative advantage and do so in a setting of a minimum of barriers to free exchange. Choosing the right specialisation in a context of free and fair competition would increase efficiency and income for all countries involved. When Great Britain took off, it had a comparative advantage in manufactured products

and it was a rational choice to focus on producing them for export and importing those raw materials and foodstuffs in the production of which it was *relatively* less efficient. That strategy, in contrast to what Pomeranz is claiming, does not *explain* why Great Britain took off, nor it can it explain why it could continue to pursue it for so long. That again is a matter of its efficiency in manufacturing and in the service sector. As I put it earlier on in the text: Great Britain had so much ghost acreage because it had modern economic growth, *not* the other way around. That without those massive imports growth would have fairly soon petered out or at least decreased is extremely important but another matter.

For Great Britain, *after* a long mercantilist and protectionist run up, this strategy worked out very well. But that was not the case for all countries at the time. From the 1820s onwards, overall, up to the First World War, global trade boomed for several reasons. This era of globalisation, however, also was the era of the Great Divergence. For countries that were not (yet?) industrialised, the right thing to do according to mainstream economics would have been to specialise corresponding to their comparative advantage in producing primary goods, and use the money earned that way to 'lift up' their economy. Whatever exactly was the 'strategy' they followed, there are clear examples of countries that did profit from their increased integration in the global economy such as the USA, Canada, Australia or New Zealand, and, with quite different factor endowments and a quite different institutional setting, the first East Asian industrialiser, Japan. In many countries that turned out to become 'Third World', things worked out differently and badly. They specialised according to their comparative advantage but fell behind. Apparently, the increase of global trade and global trade integration could work out differently for differing regions. We already hinted at this in our comments on geography: if we are to believe recent analyses of economic history, countries that fell behind did not do so primarily because of deteriorating terms of trade. They may have suffered from the price volatility of their primary produce exports but the essence of their predicament resided in the fact that they did not upgrade their production from primary products to products with a higher and increasing added value and a higher knowledge content but voluntarily or involuntarily continued producing simple products with a low added value.

In the longer run, there indeed are good and bad forms of specialisation, but economies do not have to be stuck with the bad ones just because they initially choose them. The reasons why primary-producing countries do upgrade production and develop or don't certainly can vary. But politics and institutions and their exact factor endowments play a large role here. It certainly is not just a matter of trade-relations and initial specialisation. For an economy to upgrade production, it needs co-ordination of production strategies and even then it is far from easy in an open, internationally competitive environment. It therefore

will not come as a surprise that there have always been economists who favoured protection of certain sectors of the economy, in particular industry, at least until they were able to hold their own in international competition, the famous plea for protecting infant industries. The strategy would then be to first protect an economy against imports, then produce the imported goods oneself, then if possible begin to export them and with the money earned upgrade domestic production to goods with more added value and embodying more knowledge. This strategy has often been considered a way of catching up for late-comers, but actually it boils down to doing exactly what Great Britain, the first industrial nation, itself did, e. g. in much of its textiles production and to what *almost all* major wealthy countries appear to have done during their take-off. Meiji Japan in so far is exceptional here that it went through the stages just described *without* substantial protection of its own upcoming industries as international treaties made that impossible.

The traditional claim of mainstream economists that an economy should open up in terms of lowering its barriers to trade as much as possible in order to start a trajectory of growth is currently challenged by an increasing number of economists and looks to have been refuted by economic historians. There are many examples of open economies that continued to be underdeveloped and protected, more closed economies in which the economic situation clearly improved and growth set in. An open, low-barrier economy might in several ways benefit from trade and develop, but there are numerous and in the case of developing and developed economies *more* examples of economies that first went through an initial phase of protectionism before they opened up and successfully competed on a global market. That does mean that protectionism would guarantee success? Far from it. In many countries, it only served non-competitive, rent-seeking producers at the expense of the consumers and other producers. Whether protectionism helps or hurts to a large extent depends on the context, the kind and length of protectionist policy, the strength of the state and the kind of overall economic policies it supports.

This is not all, one might say, about openness and growth. Competition on markets, domestic as well as international, can infuse dynamism into an economy. The challenges it presents in the end must provoke some response. Modern, highly integrated economies are characterised by institutionalised systematic research and devote staggering amounts of money, people and resources to further developing education, science and technology. In such a setting, Smithian dynamics of competition are almost bound to bring Schumpeterian innovation. Unsurprisingly, later adaptations of Smith's original logic began to claim that competition would turn innovation into an almost 'natural' outcome. In the days before the emergence of modern science and modern research and development, a transition from Smithian growth to Schumpeterian growth,

however, was anything but obvious. It did not occur in Qing China or the Dutch Republic in the long eighteenth century, although we have to realise that, as we will briefly explain later on, much of pre-industrial growth in Europe was in any case not really Smithian to begin with, as much of the growing trade was neither free nor fair. The pressure of competition, moreover, need not necessarily have an identical impact on production. Much depends on the way in which production is organised. In that respect it is not unimportant for an explanation of its take-off that wage labour and non-family labour was so important in Great Britain as compared to other economies. Production to a large extent depended on wage labour that in its turn to a large extent depended on a labour market. The level of 'proletarianisation', to which we will briefly return later on, provided Western and in particular British capitalism with a unique logic that again made Britain – because of the high wages of its proletarians, their permanent availability for and dependency on the labour market and the fact that they also depended on a market for their consumption – a far more likely candidate for innovation in production and for industrialisation than China or any other country in the world. The chance that labour-saving innovations will be introduced in the actual process of production increases to the extent that the 'maintenance costs' of labour have to be covered by the employer and actual wages tend to be higher. Classical Marxism in this respect still provides valuable insights into the workings of capitalism as against other modes of production. The pressure to do something about labour costs will as a rule be less acute in situations where labour also has other means to provide for subsistence than its wages. One might also expect that it usually is easier to no longer employ external hired labour than to ask a family member to go work somewhere else on her or his own account.

No one will deny that specialisation and exchange can be sources of growth. But that does not turn trade into the *motor* of modern, sustained growth. Trade without innovation reaches its limits as it exchanges products that are produced within the limits of the existing production functions and does not move the entire economy to a higher level. *Ceteris paribus*, the limits of Smithian growth are determined by the extension of the market. That determines how far specialisation can go. This extension of the market in turn is determined by existing technology, in terms of transport and communication, by institutional arrangements, in particular the level of trade barriers, and by income, and it normally is influenced by the factor endowment and size of the countries involved. Markets have extended enormously over the last centuries of increasing globalisation, thanks to all sorts of innovations, but even now distance has not been abolished and most trade of most countries for several reasons still is with nearby countries.

## 5. Innovation

Modern economic growth as sustained and substantial growth exists because of sustained innovation. At the moment, that seems to be the *communis opinio* amongst economists, even amongst institutionalists who do not pay much attention to innovation as such but emphasise that sustained innovation is only possible in the right institutional setting. Economists who believe in the overwhelming power of the market regard it as an ‘innovation machine’ in which competition ‘naturally’ generates innovation in an evolutionary process with ‘selection’ and ‘survival of the fittest’. Proponents of unified growth theory consider the increase of knowledge as something directly linked to the increase of population and thus also as fairly ‘natural’. Several proponents of the so-called new growth theory are less convinced of the direct connection between market competition and the growth of (applied) knowledge and emphasise the fact that knowledge in the end is a non-excludable good. The returns on investments in it therefore cannot easily be fully appropriated, which means that individual economic actors or firms can be expected to be hesitant to pay the high costs of producing and distributing knowledge in education, research and development. For them it thus is not at all certain that the market mechanism as such will generate sufficient human capital, invention and innovation so they see a fundamental role for the state in this respect. But one way or another, all modern growth economists end up emphasising the essential role of innovation.

Some scholars writing on the Industrial Revolution from a global perspective, such as Joel Mokyr and Jack Goldstone, full well realise the fundamental importance of innovation and all it takes and pay ample attention to it. But very influential scholars in the field of global history like Andre Gunder Frank, Kenneth Pomeranz, Roy Bin Wong, and quite recently also Ian Morris, in their analyses all but completely ignore the role of innovation as a continuing process and rather casually present inventions and innovations as fairly isolated and obvious responses to obvious challenges in terms of necessity being the ‘mother of invention’ or even as a matter of contingency. All this is simply not borne out by the historical record of countries that took off: the essence of innovation in modern economies is the fact that it is a *sustained* and *broad* process, *too sustained* and *too broad* to be just a response to a challenge or just an accident. It would be wrong anyhow to reduce innovations, let alone inventions, to simple reactions to economic stimuli driven by an economic logic. Many inventions or innovations were the result of, for example, sheer curiosity. Many necessities, by the way, never led to the ‘necessary’ inventions. This relative neglect and these rather casual explanations by many global historians again form a striking and perplexing contrast to what is going on in economic theory where innovation is increasingly studied as what it actually is: a very complex phenomenon.

The Great Divergence would have been unthinkable without sustained innovation, i. e. without sustained technological and scientific development. There obviously is more to modern economic growth than just innovation but there can be no doubt that *without* steady innovation it would soon have dwindled to nothing. Overwhelming evidence has been collected to warrant the claim that the 'West' in the eighteenth century was quite different and in a far better position to take off than 'the Rest' when it comes to the availability and development of those types of useful and reliable knowledge that may engender modern growth. All efforts at revisionism over the last decades in this respect to my view have been futile. Considering the discussions in particular amongst new growth economists, it is striking that the British state did not do much *itself* to create human capital and was not *itself* actively involved in the development of new useful and reliable knowledge. It, however, did not oppose it either and created a very favourable climate for its development and application, which was already much more than states outside the West did.

When it comes to the nature of innovation, two comments should be made regarding its role in modern economic growth in general and in the Great Divergence more in particular. The first one is that it would be a serious mistake to reduce innovation to changes in technology. Institutional innovation in the broadest sense of the word, although often interconnected with technological change and therefore with an impact that is not easy to determine separately, also plays a major part in improving productivity, something that historians and economists are only beginning to discuss. Institutionally, the West over the very long eighteenth century – and in my view already from much earlier onwards – was far more innovative than 'the Rest'. Anyone comparing the two countries over this period can only conclude that in this respect Qing China was institutionally fairly immobile and Great Britain quite dynamic. The second comment would be that permanent innovation in science, technology and institutions in turn requires a specific institutional set-up itself: it can only flourish in a societal structure in which change is a normal state of affairs and society has become, as Erik Ringmar calls it, a "self-transforming machine".<sup>1305</sup> In all probability, it matters less what exact characteristics institutions have as long as they are flexible. In this respect, too, Britain had an advantage over China.

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1305 Ringmar, *Why Europe was first*, chapter 3.

## 6. Institutions: markets, property rights and states

The claim in the previous paragraph that historians and economists are only just beginning to appreciate the role of institutional innovation in the emergence of modern economic growth will certainly strike many readers as odd. When it comes to explaining long-term macro-economic development, in all probability (new-) institutionalist economics has become dominant and mainstream. Many economists – I would guess the broad *majority* of them – as well as many historians explicitly claim nowadays that institutional differences provide the main explanation for wealth and poverty of nations. It can hardly be otherwise. How could “durable systems of established and embedded social rules that structure social interactions” *not* be fundamental for economic development? What else could determine how an economy develops than the way in which it and societal life are organised over the long run? Obviously, the problem is to determine *what kind* of institutions would promote growth in *what kind* of conditions and, very importantly, to find ways to exactly measure or at least appraise their impact. There are numerous institutions that may have at least some impact on the economy. But most economists and quite a few historians in their explanations of macro-economic long-term change focus on just a small number of them. In circles of mainstream economists, including (neo-)institutionalist economists, it is considered fairly obvious what growth-promoting institutions would look like. The focus still is on the market, that I, with institutionalist economists, interpret as a *system* of organising production and exchange that is not something natural as some economists would have it have but socially constructed, and on all those societal arrangements that enable it to function. This means the focus is actually on institutional *pre-conditions* of the productive sector, and not on institutional arrangements that are *integral* to the process of producing goods or services themselves. As most ‘institutionalists’ only refer to ‘enabling’ and ‘constraining’ i. e. pre-conditioning institutions, this overview of current debates also mainly had to confine itself to such institutions. In this text, the focus was on those that, rightly to my view, are still considered the two most important ones, the market and the state. Discussing the ideal context for growth to emerge, most institutionalists time and again refer to markets with free and fair competition and a state that via ‘good governance’ creates the environment in which those markets can function without any undue disturbance. The importance of the rule of law, monopolisation of violence and some centralisation of public power is, to me, so obvious that they do not need separate discussion. They do so with a heavy emphasis on the importance of well-secured and well-described property rights that in their view only the state can guarantee. Although the word is increasingly avoided, they basically claim

that what one needed and needs for modern economic growth is a market-economy or what used to be called capitalism *à la* Adam Smith.

Many recent and bestselling 'rise-of-the-West stories', e.g. those by Acemoglu, Johnson and Robinson, Ferguson, Jones, Landes, or Macfarlane, and to high degree also of Mokyr, still start from such assumptions. Considering the findings of recent empirical research into the economic history of several parts of the world in the early modern era and in the nineteenth century, that is quite surprising. The importance attached to property rights, including intellectual property rights – to begin with the core concept in institutional economics – as an explanation for the Great Divergence seems quite exaggerated. Many societies protected property and many already did so long before Great Britain took off. Even there, the temporal and spatial links with modern growth do not appear to have been very strong. I would personally be willing to endorse the thesis that property rights are a necessary condition for sustained, substantial growth. But they definitely are not sufficient. It, moreover, is far from clear that after the highly acclaimed Glorious Revolution, a turning point in global economic history according to many institutionalist economists, they actually were better protected than before. When it comes to the importance of markets in explaining modern economic growth, or rather of markets as mainstream economics like to describe them (i.e. systems of free and fair exchange), the situation seems far more complex and in several respects actually quite different from what mainstream economists have always suggested.

To adequately show this difference between theory and reality, it is helpful to make some distinctions and differentiate between different kinds of markets in terms of *what* is exchanged, *the reason why* exchange takes place and the *conditions* under which it takes place. Looking at what is exchanged, one can differentiate between commodities, services, capital in the sense of capital goods and capital in the sense of money for investment, and labour. Looking at the reasons for participating in market exchange, there is the fundamental difference between producers who are basically focusing on production for subsistence and sell surpluses on the market to get some money to buy certain necessities and pay taxes, producers who (to a certain extent) orient their production on what is happening on the market and finally producers who, no longer having their own means of subsistence, are fully dependent on it and are fully subjected to its competition. In terms of the conditions under which exchange takes place, most scholars distinguish between markets where exchange is free and fair and all parties involved are price-takers and markets where all sorts of extra-economic coercion or economic power influence behaviour, full well-realising that this distinction is far too neat and sometimes even somewhat misleading.

For consumer goods and services, so it appears, over time, 'abstract' markets not only emerged in the West but also in Qing China, for example. According to some scholars, they were even more developed or in any case bigger there, when we simply look at the total amount of goods and services involved. Markets for capital goods also were not uniquely European. It of course is very hard to actually prove this claim but overall I would say that when it comes to the market exchange of commodities, services and capital goods, there unmistakably are several differences between Britain and China. These, however, are too small to be able to explain why Britain took off and China did not. When it comes to labour markets, differences are striking. Overall, as far as we know now, there was much more wage labour in the West than anywhere else in the world and nowhere so it seems was wage labour more normal, and expensive, than in Britain. When it comes to money markets, to conclude, judging by the interest rates, more money was available and they worked much better in Great Britain than in China. Judging by the criterion of how much economic life took place on a market, Great Britain, all-in-all, was therefore a more developed market economy.

The fundamental underlying question here of course is that of the connection between markets and modern economic growth. There certainly is a tight connection between the emergence of modern economic growth and increasing exchange of commodities in the widest sense of the word (consumer and capital goods, labour and money). Extending markets for consumer goods can provide a stimulus to (industrial) innovation and the necessary outlet for the increased production. Economies with modern growth tend to import increasing amounts of food and raw materials. But these extensions cannot be simply described as *causing* modern economic growth as we hope to have shown for Britain's industrialisation. Many other countries had markets that were just as big, if not even much bigger than Britain. Increasing outlet, moreover, to a large extent was *caused* by sinking prices because of innovation and often paid for increasing imports. When it comes to capital goods, it would be hard if not impossible to decide whether Britain's economy *overall* was more capital-intensive than China's but in terms of certain *fixed* capital goods such as animals, implements and land per farm it clearly was. In that respect it is not irrelevant to point out that whereas in Britain there was an increasing tendency to try and profit from scale effects, such a tendency was lacking in China. Differences in labour markets and money markets were substantial and they too were such that it is easier to imagine industrialisation in Britain than in China.

Claims about markets easily turn into claims about capitalism. It has long been considered an indisputable fact that capitalism was a Western invention that first matured in the West. That no longer is the case. Most Californians, for example, would explicitly claim that Qing China too was capitalist, basically

because it clearly was a commercial society. To do so is to ignore that capitalism, at least in the perspective of just about everyone who ever discussed the concept, includes far more than the buying and selling of consumer goods on a market. Whatever else the concept may mean, it in any case refers to a mode of production and exchange that is characterised by (1) exchange on markets of not just consumer goods but also capital goods, labour and money, (2) a specific organisation of production with a focus on accumulation of profits on those markets and (3) permanent investment of those accumulated profits in capital goods. Using this definition eighteenth-century Britain and the Dutch Republic – and admittedly to a lesser extent most of the rest of Western Europe – were so much more capitalist than the rest of the world that one basically has to conclude they, with all the differences between them, were the *only* capitalist regions in the world. No part of the world had such a large labour market – and so many medium and large-scale enterprises and firms – and such low interest rates. The comparison with China in these respects provided striking results. In that country, there were hardly any fulltime wage labourers whereas interest rates were very high. The bulk of production took place in households which still had means of subsistence and there was not much large scale, productive (re-)investment. Considering its mode of production, it was far more improbable that China's economy would take the road to industry than Britain's.

What is very important in this context is that Great Britain not only had a market economy that was capitalist in the sense just described but on top of that also, as a kind of super-structure, a layer of economic life that was capitalist in the sense in which Braudel and Wallerstein use that term. At the commanding heights of Britain's economy, in particular in finance and long-distance trade, and there where the state had its interests, the ordinary rules of the market hardly applied. At that level, monopoly, lack of transparency, collusion between economic and political interests and interest groups and regulation were the rule. The capitalism of this anti-market was *not* a simple extension of the capitalism of the market: it had its *own* rules and logic. The way this top level functioned as well as the fact that it existed next to an 'ordinary' market economy again was unique for Western Europe and simply must have had wide-ranging economic effects. This may not have caused the *emergence* of modern economic growth but it is hard to imagine its *permanence* without the institutional arrangements and innovations that originated there. As indicated in the text, this combination of freedom and regulation and even coercion also characterised parts of Britain's labour market, inside Britain itself and even more in the Empire.

Many global historians, unsurprisingly enough anti-Eurocentrists who reject the idea that European society would be something peculiar, never refer to any institutions. Those who do, as a rule considered Eurocentrists, mostly argue

quite similarly to neoclassical and institutional economists and refer to the utmost importance of property rights, markets and good governance by which the state provides the right free market setting and incentives. This brings us to some concluding comments with regard to the state. The striking conclusion of our comparative empirical analysis must be that Britain, the first industrial nation, during its take-off until at least the 1830s, and in several respects even longer, was a fiscal-military, mercantilist and imperialist state that did almost everything that mainstream economists think a country wanting to grow should *not* do. Taxes were very high, as was public debt. There was an extensive bureaucracy and a government that intervened quite often in economic affairs. Expenditures for the army and navy were staggering. The country was very protectionist and not exactly democratic. It is still open to debate how exactly all these things might have been helpful to get modern economic growth going or in any case not so unhelpful as to block it. Whatever the outcome of that debate, it simply is a myth that the economic history of early modern Europe would be the history of the rise of the Smithian market. When Britain took off, in many respects, it was as unlike a night-watchman state as a state can be. This also applies to the other Western countries that took off in the nineteenth century. Actually it goes for *all* major countries that *ever* took off. Developing countries, i. e. countries in the process of taking off, *all* had states that can be called ‘developmental’, if one does not take the term to literally and with its twentieth-century connotations. All those states were economically very active, interventionist and intent on promoting growth. How exactly such states function, what kind of active intervention by them works and what kind doesn’t, how exactly effective growth-promoting policies have their effects and in what circumstances, still needs far more attention. But what economic historians have shown beyond any reasonable doubt is that the endlessly repeated mantras of all varieties of mainstream economics about the ideal setting for economic growth have hardly any relation to what actually happened in many periods of history.

Hardly any, if indeed any, state has ever confined itself to ‘facilitating’ economic life; indeed, they all tried to steer it. I already pointed out that Adam Smith is claimed to have said, “Little else is required to carry a state to the highest degree of opulence from the lowest barbarism, but peace, easy taxes, and a tolerable administration of justice.”<sup>1306</sup> The British case does not exactly look like a plain confirmation of this claim. Over most of the period from 1688 to 1815, Britain was at war and its taxes were far from ‘easy’. They steeply increased, as did public debt. Its administration of justice might have been tolerable, i. e. relatively speaking and considering the fairly low standards at the time. The state and the economy were tightly interwoven and the state was quite present in

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1306 See note 378.

several parts of the economy. Industrialising Britain had a state that ‘infra-structurally’ was very strong and had impressive logistical capabilities. It also was a very strong nation. It was the strongest, most efficient polity in the world at the time. It clearly had two faces: a let-well-alone face regarding how the gentry ran its local affairs and a very interventionist one regarding all matters considered of national interest. Again, differences with China are striking. Qing China had never been ‘infra-structurally’ strong and, with the passing of time, it became even weaker, especially from the 1780s onwards. At times, it was not even able to fulfil the minimum tasks one might expect of a state. It was even weaker as a nation. The differences with Britain are enormous, increasingly to the disadvantage of China, where, as indicated, the situation tended to deteriorate. When it comes to infrastructural power, there simply was no state in the world between roughly 1780 and 1850 that could match Britain. But all Western states that took off, not incidentally, were much stronger than China and so was the only Asian state that ‘made it’ or in any case began to make it in the nineteenth century: Japan. Industrialising Great Britain as a strong infrastructural state and nation in the end could take all sorts of, sometimes painful, measures that were deemed necessary for the economy. It, moreover, in the international economy was actor rather than acted upon. It certainly is no coincidence that countries that successfully modernised their economies were strong states and nations, in which governments could mobilise sufficient support and a sufficient consensus to implement very wide-ranging economic changes was in place.

Because of the permanent competition and many wars, states in Europe simply could not afford, if they valued their continued existence, not to be strong and thus try to support their economy. Even if that competition militarily, politically as well as economically was not exactly free and fair, it was nevertheless a form of competition in which emulation played a fundamental role. Competition and emulation were not only characteristic of the behaviour of most European states on an international level. They characterised West European society at many levels as the ‘sources of social power’, again to use an expression by Michael Mann, usually were not monopolised, whether we talk about politics, ideology, the economy or military power. Competition led to a certain freedom to manoeuvre and a certain protection for subjects as they had exit and voice. Europe’s dynamism had an important base in this configuration, in which, internationally speaking, particular states might come out on top but those who did not constantly had to upgrade not to disappear entirely from the map; domestically, the state had to bargain constantly with elites – again in particular and most clearly in the northwest – about the state’s and their interests. If I were forced to indicate what to my view would be the *fundamental* cause of the rise of the West in all its varieties, including the economic Great Divergence, I would refer to this non-monopolisation but at the same time close interaction of the

sources of social power, between and within states, and its differing effects in different contexts. It fuelled Western Europe's dynamism in the context of which economic modernisation could and in the right 'conjuncture' would occur.

## 7. Culture

Long-term substantial economic growth is impossible without and mainly driven by 'the right' institutional arrangements. It is very hard to imagine those institutional arrangements being able to persist effectively when they are incompatible with the culture of the society whose institutions they are. In that sense, culture, too, functions as an ultimate and some might claim even more ulterior cause of economic development. Whether one decides to do so, I think, is a matter of choice. Culture, in any case, does not exist in a vacuum: it permeates a society but on the other hand is also strongly influenced by developments in that society. In economics, paying attention to culture appears to be experiencing a revival, although actual research and theorising efforts to really integrate it into explanatory models are understandably scarce. This is not be unrelated to the fact that the many claims that have been made for the importance of culture have shown to be very hard to substantiate. A historian looking for the latest views of economics on the impact of culture in economic life will not find an unequivocal answer, let alone an unequivocal answer that provides him or her with a clear research strategy, methods and empirical outcomes. In practice, we see two different approaches. The first approach is the one in which societies (civilisations, states, ethnic groups and so on and so forth) are characterised by some overall cultural characteristics that are then supposed to explain their economic situation. Whatever may be the value of such an approach in other contexts, it does not seem to be very helpful for concretely answering the question that is central to this book. Contrasting Britain and China (or for that matter the West and the East) as restless versus at rest, individualistic versus collectivist, Protestant versus Confucianist, innovative versus conservative, open versus closed, certainly need not be senseless or groundless or even wrong as many anti-Eurocentrists seem to think, but it means generalising at such a high level of abstraction and using central categories that are so all-encompassing that it is (all but?) impossible to use them as operational variables in concrete, i. e. time and place-specific, direct explanations of the phenomenon we want to explain here. As far as we can judge on the basis of fairly intuitive indicators and circumstantial evidence, Britain's culture at the eve of its industrialisation was clearly more open to change and innovation, more fascinated by 'progress', 'improvement' and the applicability of useful and reliable knowledge. That must have made a positive difference. Discussing culture in this context inevitably

means discussing Weber. In my view, Weber's mega-cultural claim that the rationalisation of economic life (read: 'capitalism'), of public life (read: the legal-rational, bureaucratic state) and of the mastery of nature and society (read: science and technology) had been pushed further in 'the West' than in 'the Rest' still is a very respectable claim that has not been refuted, can be turned into testable hypotheses and would deserve more systematic comparative empirical research.

The other approach is one in which, in contrast, the attention is focused on specific concepts that imply a certain kind of behaviour, certain dispositions or capabilities. It turned out that their effects tend to be very context-dependent: that is, if it is at all possible to determine and measure them and their effects for the periods of time and the regions we are discussing here. That is already extremely complicated for contemporary society where researchers can use huge databases, surveys and interviews. Efforts to try and collect such material and bring it to bear on comparative theses about cultural traits such as industriousness, discipline, thrift, trust, willingness to innovate, individualism and so on and so forth still are in their infancy. We may wonder whether we will ever be able to muster enough of it to really to be able to come up with sufficient empirical underpinning. To get reliable information dense enough to really corroborate general theses would seem to be all but impossible for pre-industrial, pre-statistic societies.

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## A coda on Great Britain and China

What I presented in this book when it specifically comes to concrete historical analysis, at least so I hope, was not a neat arrangement of historical data with the benefit of hindsight but a systematic comparative analysis of the histories of Great Britain and China as they emerge from recent research in the light of what economic theory at the moment teaches us about the sources and engines of modern economic growth. The text dealt with the importance of geography, labour, the accumulation of capital in terms of capital goods and money, exchange and the allocation of the different means of production, innovation, and institutions and culture to modern economic growth. It showed enormous differences between West and Rest. For *none* of these ‘factors’, the situation in Qing China during the very long eighteenth century was clearly more favourable for modern economic growth than it was in Great Britain. For most of them, it clearly was less favourable. Apart from at the highest level of abstraction, that is, if it is taken to mean that they all were pre-industrial and had organic economies, the Californian claim that the advanced regions of Eurasia would have been regions of “surprising resemblances” in any case for Great Britain and China is demonstrably indefensible.

The comparative historical analysis informed by economic theory and based on recent findings by economists and historians presented in this book, in my view, has shown two things beyond any reasonable doubt. The first lesson is that the odds that economic growth would emerge in Great Britain were far higher than that this would happen in China. In my view, the chances that Qing China would be the first country in the world to industrialise – or even quickly catch up – were negligible to zero whereas for Britain the chances of a take-off were higher than anywhere else on the globe. That, of course, does not mean that Britain’s take-off was ‘inevitable’: it just means that the most likely place where it might happen was Western Europe, and in particular Great Britain. Industrialisation as it took place in Great Britain and more in general the modernisation of its economy can be regarded as a ‘logical’, or, in any case, quite ‘conceivable’ continuation of the route that Britain and its economy had already taken earlier

on: a route of high wages, capital-intensive and energy-intensive production with ample use of wage labour, of efforts to profit from scale effects in production and exchange, of specialisation and import substitution, of gearing useful and reliable knowledge to production and of openness to innovation. Looking at the trajectories taken by the economies of Great Britain and China it becomes plain that for these two countries, at least the Great Divergence was *not* as Peter Perdue and many others claim “a late, rapid, unexpected outcome of a fortuitous combination of circumstances in the late eighteenth century” but the outcome of “a deep, slow evolution out of centuries of particular conditions unique to early modern Europe”, as they explicitly deny.<sup>1307</sup> The economic trajectories of Great Britain and China over the early modern era were not similar but very different, their Great Divergence did have deep roots and it was not fortuitous, at least not in the ordinary sense of the word. The second lesson would be that when it comes to explaining the Great Divergence, mainstream economic theory with its focus on free markets, fair competition, and market-supporting institutions including a ‘minimal’ state, is fairly irrelevant at best and in most respects downright wrong. Great Britain and all the countries that took off after it, especially in their international economic relations, were *not laissez-faire* states. Britain’s state in any case before and during take-off was not lean and very pro-active in the field of economic affairs. It can best characterised as ‘mercantilist’ or even ‘developmental’, as long as these terms are not interpreted too strictly.

The debate on the Great Divergence is still open. The boldness of the claims made in it is not often matched by the solidity of the empirical evidence. There are good reasons to expect that many theses will have to be amended or refined and that the parameters of the debate might substantially change. But what I hope has become clear in this book is that global economic history and economic theory could learn a lot from each other. Economics is not a treasury filled with laws but a box filled with tools. For historians not to use those tools would be unwise, but for economists to ignore history would be even less wise. In the end, context, that is, history, is decisive.<sup>1308</sup>

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1307 Perdue, *China marches West*, 537.

1308 I can only endorse the following quotation by the great economic historian Paul Bairoch: “If I had to summarize the essence of what economic history can bring to economic science it would be that there is no ‘law’ or rule in economics that is valid for every period of history or for every economic structure.” Bairoch, *Economics & world history*, 164.

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## Bibliography

- Abel, Clarke, *Narrative of a Journey in the Interior of China and of a Voyage to and from that Country in the Years 1816 and 1817*, Cambridge Library Collection 2012, originally 1818.
- Abelshausen, Werner, David A. Gilgen and Andreas Leutzsch, eds., *Kulturen der Weltwirtschaft*, Göttingen 2012.
- Abernethy, David, *The Dynamics of Global Dominance. European Overseas Empires, 1415 – 1980*, New Haven/London 2000.
- Abramovitz, Moses, “The Search for the Sources of Growth: Areas of Ignorance, Old and New”, in: *Journal of Economic History* 52 (1993) 217 – 243.
- *Resource and Output Trends in the United States Since 1870*, New York 1956.
- Acemoglu, Daron, “Growth and Institutions”, in: Steven N. Durlauf and Lawrence E. Blume, eds., *The Palgrave Dictionary of Economics*, second edition; London 2008.
- Acemoglu, Daron, Simon Johnson and James A. Robinson, “Institutions as a Fundamental Cause of Long-run Growth”, in: P. Aghion and S. Durlauf, eds., *Handbook of Economic Growth*, Amsterdam /London 2005, Vol. 1 A, 385 – 472.
- “The Rise of Europe: Atlantic Trade, Institutional Change and Economic Growth”, in: *American Economic Review* 95, 3 (2005) 546 – 579.
- “The Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution”, in: *Quarterly Journal of Economics* 117 (2002) 1231 – 1294.
- “The Colonial Origins of Comparative Development: An Empirical Investigation”, in: *American Economic Review* 91 (2001) 1369 – 1401.
- Acemoglu, Daron and James A. Robinson, *Why Nations Fail. The Origins of Power, Prosperity and Poverty*, London 2012.
- Adas, Michael, *Machines as the Measure of Men. Science, Technology, and Ideologies of Western Dominance*, Ithaca, New York 1989.
- Adshead, S.A.M., *China in World History*, third edition; Houndmills and New York 2000.
- *Material Culture in Europe and China, 1400 – 1800. The Rise of Consumerism*, London 1997.
- Akamatsu, Kaname, “A Historical Pattern of Economic Growth in Developing Countries”, in: *The Developing Economies. The Journal of the Institute of Economics* 1 (1962) 3 – 25.
- “A Theory of Unbalanced Growth in the World Economy”, in: *Weltwirtschaftliches*

- Archiv. Zeitschrift des Instituts für Weltwirtschaft an der Universität Kiel* 86, 1 (1961) 196–217.
- Allesina, Alberto and Eliana La Ferrara, “Ethnic Diversity and Economic Performance”, in: *Journal of Economic Literature* 43 (2005) 762–800.
- Allen, Douglas W., *The Institutional Revolution. Measurement and the Economic Emergence of the Modern World*, Chicago/London 2012.
- Allen, Robert C., “Why the Industrial Revolution was British: Commerce, Induced Invention, and the Scientific Revolution”, in: *The Economic History Review* 64, 2 (2011) 357–384.
- *Global Economic History. A Very Short Introduction*, Oxford 2011.
  - *The British Industrial Revolution in Global Perspective*, Cambridge 2010.
  - “A Review of Gregory Clark’s *A Farewell to Alms. A Brief Economic History of the World*”, in: *Journal of Economic Literature* 46, 4 (2008) 946–973.
  - “Agriculture during the Industrial Revolution”, in: Floud and Johnson, *Cambridge Economic History of Modern Britain*, 96–116.
  - “The Great Divergence in European Wages and Prices from the Middle Ages to the First World War”, in: *Explorations in Economic History* 38 (2001) 411–447.
- Allen, Robert C., Tommy Bengtsson and Martin Dribe, eds., *Living Standards in the Past. New Perspectives on Well-being in Asia and Europe*, Oxford 2005.
- Allen, Robert C. and others, “Wages, Prices, and Living Standards in China, 1738–1925: in Comparison with Europe, Japan and India”, in: *The Economic History Review* 64, 1 (2011) Special Issue, 8–38.
- Allen, Robert C., Tommy E. Murphy and Eric B. Schneider, “The Colonial Origins of the Divergence in the Americas: a Labour Market approach”, in: *The Journal of Economic History* 72, 4 (2012) 863–894.
- Allen, Robert C. and Jacob Weisdorf, “Was There an ‘Industrious Revolution’ Before the Industrial Revolution? An Empirical Exercise for England, c. 1300–1830”, in: *The Economic History Review* 64, 3 (2011) 715–729.
- Amsden, Alice H., *The Rise of the Rest. Challenges to the West from Late-industrializing Economies*, Oxford/New York 2001.
- Angster, Julia, *Erdbeeren und Piraten. Die Royal Navy und die Ordnung der Welt, 1770–1860*, Göttingen 2012.
- Anstey, Roger, “The Volume and Profitability of the British Slave Trade, 1761–1807”, in: S.L. Engerman and E.D. Genovese, eds., *Race and Slavery in the Western Hemisphere*, Princeton 1975, 3–31.
- Antony, Robert J. and Jane Kate Leonard, eds., *Dragons, Tigers, and Dogs. Qing Crisis Management and the Boundaries of State Power in Late Imperial China*, Ithaca New York 2001.
- Aoki, M., *Toward a Comparative Institutional Analysis*, Cambridge Mass. 2001.
- Appleby, Joyce, *The Relentless Revolution. A History of Capitalism*, New York/London 2010.
- Arrighi, Giovanni, *Adam Smith in Beijing. Lineages of the Twenty-First Century*, London/New York 2007.
- *The Long Twentieth Century. Money, Power and the Origins of Our Time*, London 1994.
- Arrighi, Giovanni, Takeshi Hamashita and Mark Selden eds., *The Resurgence of East Asia 500, 150 and 50 Years Perspectives*, London 2003.

- Arroyo Abad, Leticia, Elwyn Davies, and Jan Luiten van Zanden, "Between Conquest and Independence: Real Wages and Demographic Change in Spanish Latin America, 1530–1820", in: *Explorations in Economic History* 49, 2 (2012) 149–166.
- Ashton, T. S., *The Industrial Revolution, 1760–1830*, London/Oxford/New York 1968, originally 1948.
- Ashworth, William, "Revenue, Production and the Early Modern English/British Fiscal-State", in: Simonetta Cavaciocchi, ed., *La fiscalità nell'economia europea secc. XIII–XVIII*, Florence 2008, 1045–1054.
- *Customs and Excise. Trade, Production and Consumption in England, 1640–1845*, Oxford 2003.
- Aston, T.H. and C.H.E. Philpin, eds., *The Brenner Debate. Agrarian Class Structure and Economic Development in pre-industrial Europe*, Cambridge 1985.
- Austin, Gareth, "The 'Reversal of Fortune' Thesis and the Compression of History. Perspectives from African and Comparative Economic History", in: *Journal of International Development* 20 (2008) 996–1027.
- "Resources, Techniques and Strategies South of the Sahara. Revising the Factor Endowments Perspective on African Economic Development, 1500–2000", in: *Economic History Review* 61, 3 (2008) 587–624.
- Austin, Gareth and Kaoru Sugihara, eds., *Labour-Intensive Industrialization in Global History*, London 2013.
- Auty, Richard M., *Sustaining Development in Mineral Economies. The Resource Curse Thesis*, London 1993.
- Bachinger, Karl and Herbert Matis, *Entwicklungsdimensionen des Kapitalismus. Klassische sozioökonomische Konzeptionen und Analysen*, Vienna/Cologne/Weimar 2009.
- Baechler, Jean, John A. Hall and Michael Mann, *Europe and the Rise of Capitalism*, Oxford/Cambridge 1988.
- Bairoch, Paul, *Victoires et déboires. Histoire économique et social du monde du XVIIe siècle à nos jours*, Three Volumes. Paris 1997.
- *Economics & World History. Myths and Paradoxes*, Chicago 1993.
- "The City and Technological Innovation", in: Higonnet, Landes and Rosovsky, *Favorites of Fortune*, 159–176.
- Balazs, Etienne, *Chinese Civilization and Bureaucracy. Variations on a Theme*, New Haven/London 1964.
- "China as Permanently Bureaucratic Society", in: Balazs, *Chinese Civilization and Bureaucracy*, 13–27.
- "The Birth of Capitalism in China", in: Balazs, *Chinese Civilization and Bureaucracy*, 34–54.
- Barbier, Edward B., *Scarcity and Frontiers. How Economies Have Developed through Natural Resource Exploitation*, Cambridge 2011.
- Barendse, R.J., *The Arabian Seas, 1640–1700*, Leiden 1998.
- Barrett, Ward, "World Bullion Flows", in: Tracy, *Rise of Merchant Empires*, 224–254.
- Barrow, Robert J., "Democracy and Growth", in: *Journal of Economic Growth* 1 (1996) 1–27.
- Bartlett, Robert, *The Making of Europe. Conquest, Colonization and Cultural Change, 950–1350*, London 1993.

- Baten, Jörg and Jan Luiten van Zanden, "Book Production and the Onset of Modern Economic Growth", in: *Journal of Economic Growth* 13, 3 (2008) 217–235.
- Bauer, Leonard and Herbert Matis, *Geburt der Neuzeit. Von Feudalsystem zur Marktgesellschaft*, Munich 1988.
- Baugh, Daniel A., "Naval Power: What Gave the British Navy Superiority?", in: Prados de la Escosura, *Exceptionalism and Industrialisation*, 235–260.
- "Maritime Strength and Atlantic Commerce. The Use of a Grand Marine Empire", in: Lawrence Stone, ed., *An Imperial State at War*, London 1994, 185–223.
- Baumol, William J., *The Free-Market Innovation Machine. Analyzing the Growth Miracle of Capitalism*, Princeton 2002.
- "Entrepreneurship, Productive, Unproductive and Destructive", in: *Journal of Political Economy* 98, 5 (1990) 893–921.
- Bayly, Christopher, *The Birth of the Modern World, 1780–1914*, Malden 2004.
- Becker, Gary S., *Human Capital. A Theoretical and Empirical Analysis, with Special Reference to Education*, third edition; Chicago 1994.
- Becker, Sascha O., Erik Hornung and Ludger Wössmann, "Education and Catch-Up in the Industrial Revolution", in: *American Economic Journal: Macroeconomics* 3, 3 (2011) 92–126.
- Becker, Sascha O. and Ludger Wössmann, "Was Weber Wrong? A Human Capital Theory of Protestant Economic History", in: *Quarterly Journal of Economics* 124, 2 (2009) 531–596.
- Beinhocker, Erich D., *The Origin of Wealth. Evolution, Complexity, and the Radical Re-making of Economics*, Boston 2006.
- Belfanti, Marco, "Was Fashion a European Invention?", in: *Journal of Global History* 3 (2008) 419–443.
- Belich, James, *Replenishing the Earth. The Settler Revolution and the Rise of the Anglo-World, 1783–1939*, Oxford 2009.
- Benjamin, Thomas, *The Atlantic World. Europeans, Africans and their Shared History, 1400–1900*, Cambridge 2009.
- Bentley, Jerry, "Web Browsing", in: *History and Theory* 44 (2005) 102–112.
- Berend, Ivan, *An Economic History of Nineteenth-Century Europe. Diversity and Industrialization*, Cambridge 2013.
- Berg, Annette van den, Antoon Spithoven and John Groenewegen, *Institutional Economics: an Introduction*, Houndmills Basingstoke 2010.
- Berg, Maxine, *Luxury and Pleasure in Eighteenth-Century Britain*, Oxford 2005.
- Berg, Maxine and Elizabeth Eger, eds., *Luxury in the Eighteenth Century. Debates, Desires and Delectable Goods*, London/New York 2007.
- Berghoff, Hartmut and Jakob Vogel, eds., *Wirtschaftsgeschichte als Kulturgeschichte. Dimensionen eines Perspektivenwechsels*, Frankfurt/New York 2004.
- Berman, Harold, *Law and Revolution, II: The Impact of the Protestant Reformations on the Western Legal Tradition*, Cambridge Mass. 2006.
- *Law and Revolution: The Formation of the Western Legal Tradition*, Cambridge Mass. 1983.
- Bernecker, Walther L. and Thomas Fischer, "Rise and Decline of Latin American Dependency Theories", in: *Itinerario. European Journal of Overseas History* 22, 4 (1998) 25–43.

- Bernhardt, Kathryn, *Rents, Taxes, and Peasant Resistance. The Lower Yangzi Region, 1840–1950*, Stanford 1992.
- Bernstein, William J., *A Splendid Exchange. How Trade Shaped the World*, New York 2008.
- *The Birth of Plenty. How the Prosperity of the Modern World Was Created*, New York 2004.
- Bertocchi, G. and F. Canova, “Did Colonization Matter for Growth? An Empirical Exploration into the Historical Causes of Africa’s Underdevelopment”, in: *European Economic Review*, XLVI (2002) 1851–1871.
- Bértola, Luis, Leandro Prados de la Escosura and Jeffrey G. Williamson, “Latin American Inequality in the Long Run”, in: *Revista de Historia Económica /Journal of Iberian and Latin American Economic History* 28, 2 (2010) 1–8.
- Biernacki, Richard, *The Fabrication of Labour. Germany and Britain 1640–1914*, Berkeley 1995.
- Black, Jeremy, *Military Power and the Fate of Continents, 1450–2000*, New Haven/London 1998.
- Black, Jeremy, ed., *War in the Early Modern World, 1450–1815*, London 1999.
- Blackburn, Robin, *The Making of New World Slavery. From the Baroque to the Modern 1492–1800*, London/New York 1998.
- Blaut, James M., *Eight Eurocentric Historians*, New York/London 2000.
- *The Coloniser’s Model of the World. Geographical Diffusionism and Eurocentric History*, New York 1993.
- Blue, Gregory, “China and Western Social Thought in the Modern Period”, in: Gregory Blue and Timothy Brook, eds., *China and Historical Capitalism. Genealogies of Sinological Knowledge*, Cambridge 1999, 57–109.
- Bonar, James, *Theories of Population. From Raleigh to Arthur Young*, London 1931.
- Bonney, Richard, ed., *The Rise of the Fiscal State in Europe*, Oxford 1999.
- Bonney, Richard, ed., *Economic Systems and State Finance*, Oxford 1995.
- »Introduction«, in: Bonney, *Economic Systems and State Finance*, 1–18.
- Boot, Max, *War Made New. Technology, Warfare and the Course of History, 1500 to Today*, London 2006.
- Bordo, Michael D. and Roberto Cortés-Conde, eds., *Transferring Wealth and Power from the Old to the New World. Monetary and Fiscal Institutions in the 17th through the 19th Centuries*, Cambridge 2001.
- Bordo, Michael D., Alan M. Taylor and Jeffrey G. Williamson, eds., *Globalization in Historical Perspective*, Chicago 2003.
- Borgstrom, Georg, *The Hungry Planet. The Modern World at the Edge of Famine*, second revised edition; New York 1972, originally 1965.
- Borsay, Peter, “The Culture of Improvement”, in: Paul Langford, ed., *The Eighteenth Century, 1688–1815*, Oxford 2002, 183–212.
- Boserup, Ester, *Population and Technological Change. A Study of long-term Trends*, Chicago 1981.
- *The Conditions of Agricultural Growth. The Economics of Agrarian Change under Population Pressure*, Chicago 1965.
- Bosma, Ulbe, “European Colonial Soldiers in the Nineteenth Century. Their Role in White Global Migration and Patterns of Colonial Settlement”, in: *Journal of Global History*, 4, 2 (2009) 317–336.

- Bowen, H.V., "British Exports of Raw Cotton from India to China", in: Giorgio Riello and Tirthankar Roy, eds., with the collaboration of Om Prakash and Kaoru Sugihara, *How India Clothed the World. The World of South Asian Textiles, 1500–1850*, Leiden/Boston 2009, 115–137.
- Brandon, Pepijn, *Masters of War. The State, Capitalism, and Military Enterprise in the Dutch Cycle of Accumulation (1600–1795)*, unpublished PhD thesis at the University of Amsterdam.
- Braudel, Fernand, "À propos des origines sociales du capitalisme", in: R. de Ayala and P. Braudel, eds., *Les écrits de Fernand Braudel II. Les ambitions de l'histoire*, Paris 1997, 359–371.
- *A History of Civilizations*, New York 1993, first published as a book, in French, in 1987.
  - *La Dynamique du Capitalisme*, Paris 1985.
  - *Civilization & Capitalism, 15th-18th Century. Three Volumes*, London 1981, 1982 and 1984, originally, in French, Paris 1979.
  - *Afterthoughts on Material Civilization and Capitalism*, Baltimore 1977.
  - ed., *L'Europe*, Paris 1982.
- Braun, Boris and Christian Schulz, *Wirtschaftsgeographie*, Stuttgart 2012.
- Bray, Francesca, *Technology and Gender. Fabrics of Power in Late Imperial China*, Berkeley/Los Angeles/London 1997.
- *The Rice Economies. Technology and Development in Asian Societies*, Berkeley/Los Angeles/London 1986.
- Bremmer, Ian, *The End of the Free Market. Who Wins the War between States and Corporations?* New York 2010.
- Brenner, Reuven, *History. The Human Gamble*, Chicago/London 1983.
- Brenner, Robert P., "Property and Progress. Where Adam Smith Went Wrong", in: Chris Wickham, ed., *Marxist Writing for the Twenty-First Century*, Oxford 2007, 49–111.
- "The Low Countries in the Transition to Capitalism", in: Peter Hoppenbrouwers and Jan Luiten van Zanden, eds., *Peasants into Farmers. The Transformation of Rural Economy and Society in the Low Countries (Middle Ages-19<sup>th</sup> century) in Light of the Brenner Debate*, Turnhout Belgium 2001, 275–338.
  - "The Origins of Capitalist Development. A Critique of Neo-Smithian Marxism", in: *New Left Review* 104 (1977) 25–92.
- Brenner, Robert P., and Christopher Isett, "England's divergence from China's Yangzi Delta: property relations, microeconomics and patterns of development", in: *Journal of Asian Studies* 61 (2002) 609–662.
- Brewer, John, *The Sinews of Power. War, Money and the English State 1688–1783*, London 1988.
- Brewer, John and Roy Porter, eds., *Consumption and the World of Goods*, London 2007.
- Brewer, John and Frank Trentmann, eds., *Consuming Cultures, Global Perspectives, Historical Trajectories, Transnational Exchanges*, Oxford 2006.
- Broadberry, Stephen and Bishnupriya Gupta, "The Early Modern Great Divergence: Wages, Prices and Economic Development in Europe and Asia, 1500–1800", in: *Economic History Review* 59 (2006) 2–31.
- Broadberry, Stephen and Kevin O'Rourke, eds., *The Cambridge Economic History of Modern Europe*, Two Volumes, Cambridge 2010.
- Broadberry, Stephen and Kevin H. O'Rourke, "Introduction to Volume 1", in: Stephen

- Broadberry and Kevin H. O'Rourke, eds., *The Cambridge Economic History of Modern Europe. Volume I: 1700–1870* Cambridge 2010, 1–4.
- Brousseau, Eric and Jean-Michel Glachant, eds., *New Institutional Economics: a Guidebook*, Cambridge 2008.
- Brownlow, Graham A., "Structure and Change: Douglass North's Economics", in: *Journal of Economic Methodology*, 17, 3 (2010) 301–316.
- Bruhns, Hinnerk and Wilfried Nippel, eds., *Max Weber und die Stadt im Kulturvergleich*, Göttingen 2000.
- Bruland, Kristine, "Industrialization and Technological Change", in: Floud and Johnson, *Cambridge Economic History of Modern Britain, Volume I*, 117–146.
- Bryant, Joseph M., "The West and the Rest Revisited: Debating Capitalist Origins, European Colonialism, and the Advent of Modernity", in: *Canadian Journal of Sociology/ Cahiers Canadiens de Sociologie* 31, 4 (2006) 403–444. This text sparked a debate in *Canadian Journal of Sociology/ Cahiers Canadiens de Sociologie* 33, 1 (2008) with contributions by Jack Goldstone, Rosaire Langlois, Joseph M. Bryant and Mark Elvin.
- Buchanan, J., *What Should Economists Do?*, Indianapolis 1979.
- Buoye, Thomas M., *Manslaughter, Markets, and Moral Economy. Violent Disputes over Property Rights in Eighteenth-Century China*, Cambridge 2000.
- Burbank, Jane and Frederic Cooper, *Empires in World History. Power and the Politics of Difference*, Princeton 2002.
- Buringh, Eltjo and Jan Luiten van Zanden, "Charting the 'Rise of the West': Manuscripts and Printed Books in Europe. A Long-Term Perspective from the Sixth to the Eighteenth Centuries", in: *The Journal of Economic History* 69, 2 (2009) 409–445.
- Burke, Peter, *A Social History of Knowledge II: From the Encyclopaedia to Wikipedia*, Cambridge 2012.
- *A Social History of Knowledge I: From Gutenberg to Diderot*, Cambridge 2000.
  - *Popular Culture in Early Modern Europe*, New York 1978.
- Cain, Peter J. and Anthony G. Hopkins, *British Imperialism, 1688–2000*, second edition; Harlow 2002.
- Cambridge History of China*, Volumes 8–11, General Editors, John K. Fairbank and Denis Twitchett.
- Campbell, Gwyn, *Structure of Slavery in Indian Ocean Africa and Asia*, London 2003.
- Capie, Forrest, "The Origins and Development of Stable Fiscal and Monetary Institutions in England", in: Bordo and Cortés-Conde, *Transferring Wealth and Power from the Old to the New World*, 10–58.
- Cardwell, D.S.L., *Turning Points in Western Technology*, New York 1972.
- Caton, Hiram, *The Politics of Progress. The Origins and Development of the Commercial Republic, 1600–1835*, Gainesville 1988.
- Cavaciocchi, Simonetta, ed., *Prodotti e tecniche d'oltremare nelle economie Europee secc. XIII–XVIII*, Prato 1998.
- Cerman, Markus, *Villagers and Lords in Eastern Europe*, Houndmills/New York 2012.
- Chang, Chung-li, *The Income of the Chinese Gentry*, Seattle 1962.
- *The Chinese Gentry. Their Role in Nineteenth-Century Chinese Society*, Seattle/London 1955.
- Chang, Ha-joon, *23 things they do not tell you about capitalism*, New York 2011.
- *Kicking away the Ladder. Development Strategy in Historical Perspective*, London 2002.

- Chang, Pin-tsun, "Chinese Migration to Taiwan in the Eighteenth Century: A Paradox", in: Wang Gungwu and Ng Chin-keong, eds., *Maritime China in Transition 1750 – 1850*, Wiesbaden 2004, 97 – 114.
- Chao, Kang, *Man and Land in Chinese History. An Economic Analysis*, Stanford 1986.
- Chapman, Stanley, *Merchant Enterprise in Britain. From the Industrial Revolution to World War I*, Cambridge 1992.
- Chen, Qian, "The Needham Puzzle reconsidered. The Protection of Industrial and Commercial Property Rights", in: *Economic History of Developing Countries* 27, 1 (2012) 38 – 66.
- Chen, Tsu-yu, "China's Copper Production in Yunnan Province 1700 – 1800", in: Eddy van Cauwenbergh, ed., *Money, Coins, and Commerce. Essays in Monetary History of Asia and Europe (From Antiquity to Modern times)*, Leuven 1991, 95 – 118.
- Chirot, Daniel, ed., *The Origins of Backwardness in Eastern Europe. Economics and Politics from the Middle Ages until the Early Twentieth Century*, Berkeley/Los Angeles/Oxford 1989.
- Chiswick, Barry R., and Timothy J. Hatton, "International Migration and the Integration of Labor Markets", in: Bordo, Taylor and Williamson, *Globalization in Historical Perspective*, 65 – 120.
- Christian, David, *Maps of Time. An Introduction to Big History*, Berkeley/Los Angeles/London 2005.
- Chua, Amy, *Day of Empire. How Hyperpowers Rise to Global Dominance – and Why They Fall*, New York 2007.
- Ch'ü, T'ung-tsu, *Local Government in China under the Ch'ing*, Cambridge 1962.
- Clarence-Smith, William Gervase, *The Economics of the Indian Ocean Slave Trade in the Nineteenth Century*, London 1989.
- Clark, Gregory, "In Defense of the Malthusian Interpretation of History", in: *European Review of Economic History* 12, 2 (2008) 175 – 199. A response to reviews of his *Farewell to Alms* in that same issue.
- *A Farewell to Alms. A Brief Economic History of the World*, Princeton 2007.
  - "What Made Britannia Great? How Much of the Rise of Britain to World Dominance by 1850 does the Industrial Revolution Explain?", in: Hatton, O'Rourke and Taylor, *Comparative Economic History*, 33 – 57.
  - "Labour Productivity in English Agriculture, 1300 – 1860", in: B.M.S. Campbell and Mark Overton, eds., *Land, Labour and Livestock. Agricultural Productivity in the European Past*, Manchester, 1991, 211 – 235.
  - "Economists in Search of Culture. The Unspeakable in Pursuit of the Inedible", in: *Historical Methods* 21 (1988) 161 – 164.
- Clark, Gregory and Robert C. Feenstra, "Technology in the Great Divergence", in: Bordo, Taylor and Williamson, *Globalization in Historical Perspective*, 277 – 314.
- Clark, Gregory and Gillian Hamilton, "Survival of the Richest. The Malthusian Mechanism in Pre-Industrial England", in: *The Journal of Economic History* 66, 3 (2006) 707 – 736.
- Cleveland, John, *Poems*, London 1651.
- Coase, Ronald, "The Nature of the Firm", in: *Economica* 4, 16 (1937) 386 – 405.
- Coats, A.W., "Economic Thought and Poor Law Policy in the Eighteenth Century", in: *Economic History Review* 13 (1960) 39 – 51.

- “Changing Attitudes Towards Labour in the Mid-eighteenth Century”, in: *Economic History Review*, second series 11 (1958) 35–51.
- Coclanis, Peter, “Ten Years After: Reflections on Kenneth Pomeranz’s *The Great Divergence*”, in: *Historically Speaking* 12, 4 (2011) 10–12.
- Cohen, H. Floris, *How Modern Science Came into the World. Four Civilizations, one 17th-Century Breakthrough*, Amsterdam 2011.
- “The Rise of Modern Science as a Fundamental Pre-Condition for the Industrial Revolution”, in: *Österreichische Zeitschrift für Geschichtswissenschaften* 20, 2 (2009) 107–132.
- *The Scientific Revolution. A Historiographical Enquiry*, Chicago 1994.
- Colley, Linda, *Britons. Forging the Nation, 1707–1837*, New Haven/London 1992.
- Collins, Randall, *Weberian Sociological Theory*, Cambridge 1986.
- Colquhoun, Patrick, *A Treatise on the Wealth, Power and Resources of the British Empire in every Quarter of the World*, London 1815.
- Conway, S., “Britain and the Impact of the American War, 1775–1783”, in: *War in History* 2 (1995) 127–150.
- Cook, Harold J., *Matters of Exchange. Commerce, Medicine and Science in the Dutch Golden Age*, New Haven 2007.
- Cooper, Tim, *How to Read Industrial Britain. A Guide to Machines, Sites & Artefacts that Shaped Britain*, London 2011.
- Cooter, Robert D. and Hans-Bernd Schäfer, *Solomon’s Knot. How Law Can End the Poverty of Nations*, Princeton 2012.
- Cortright, Joseph, “New Growth Theory, Technology and Learning. A Practitioner’s Guide”, in: *Reviews of Economic Development, Literature and Practice* Nr. 4 (Portland 2001).
- Cosandey, David, *Le secret de l’Occident. Du miracle passé au marasme présent*, Paris 1997.
- Cotterell, Roger, “The Development of Capitalism and the Formation of Contract Law”, in: Bob Fryer a.o. eds., *Law, State and Society*, London 1981, 54–69.
- Cowen, Tyler, *The Great Stagnation. How America Ate all the Low-hanging Fruit, Got Sick and will (eventually) Feel Better*, New York 2011.
- Crafts, Nicolas, “A Review of Williamson, *Trade and Poverty*”, in: *The Economic Journal* February 2013, 193–197.
- Crafts, Nicolas and C.K. Harley, “Output Growth and the Industrial Revolution. A Re-statement of the Crafts-Harley View”, in: *Economic History Review* 45, 4 (1992) 703–730.
- Crafts, Nicolas and Terence C. Mills, “From Malthus to Solow: How did the Malthusian Economy Really Evolve?”, in: *Journal of Macroeconomics* 31 (2009) 68–93.
- Craig, Lee, “Comment on ‘From Malthus to Solow: How did the Malthusian Economy Really Evolve?’”, in: *Journal of Macroeconomics* 31 (2009) 94–97.
- Craven, Paul and Douglas Hay, “The Criminalization of ‘Free’ Labour: Master and Servant in Comparative Perspective”, in: *Slavery and Abolition* 15, 2 (1994) 71–101.
- Crawford, J., *Chinese Monopoly Examined*, London 1830.
- Crone, Patricia, *Pre-Industrial Societies*, Oxford/Cambridge Mass. 1989.
- Crosby, Alfred W., *Ecological Imperialism. The Biological Expansion of Europe, 900–1900*, second edition; Cambridge 2004.

- *The Measure of Reality. Quantification and Western Society 1250–1600*, Cambridge 1997.
- *The Columbian Exchange. Biological and Cultural Consequences of 1492*, Westport Ct. 1972.
- Crouzet, François, *The First Industrialists. The Problem of Origins*, Cambridge 1985.
- Dabringhaus, Sabine, *Das Qing-Imperium als Vision und Wirklichkeit. Tibet in Laufbahn und Schriften des Song Yun (1752–1835)*, Stuttgart 1994.
- Dam, Kenneth W., *The Law-Growth Nexus. The Rule of Law and Economic Development*, Washington 2005.
- Darwin, John, *After Tamerlane. The Global History of Empire*, London/New York 2007.
- Das Gupta, Ashin, *Merchants of Maritime India, 1500–1800*, Aldershot 1994.
- Daunton, Martin, *Progress and Poverty. An Economic and Social History of Britain 1700–1850*, Oxford 1995.
- David, Thomas, *Nationalisme économique et industrialisation. L'expérience des pays de l'Est (1789–1939)*, Geneva 2009.
- Dauids, Karel, *Religion, Technology, and the Great and Little Divergences: China and Europe Compared, c. 700–1800*, Leiden/ Boston 2012.
- Davis, Lance E. and Robert A. Huttenback, with the assistance of Susan Gray Davis, *Mammon and the Pursuit of Empire, 1860–1912*, Cambridge 1986.
- Davis, Ralph, *The Rise of the English Shipping Industry in the Seventeenth and Eighteenth Centuries*, London 1962.
- Davis, Robert C., *Christian Slaves, Muslim Masters. White Slavery in the Mediterranean, the Barbary Coast, and Italy, 1500–1800*, Basingstoke 2003.
- Deakin, S. and F. Wilkinson, *The Law of the Labour Market. Industrialization, Employment, and Legal Evolution*, Oxford 2005.
- Deane, Phyllis and W.A. Cole, *British Economic Growth 1688–1959. Trends and Structure*, second edition; Cambridge 1967, originally 1962.
- Delacroix, Jacques and François Nielsen, “The Beloved Myth. Protestantism and the Rise of Industrial Capitalism in Nineteenth-Century Europe”, in: *Social Forces* 80, 2 (2001) 509–553.
- Deng, Gang, *The Premodern Chinese Economy. Structural Equilibrium and Capitalist Sterility*. London/New York 1999.
- *Chinese Maritime Activities and Socioeconomic Development; c. 2100 B.C.–1900 A.D.*, Westport 1997.
- Deng, Kent, *China's Political Economy in Modern Times. Changes and Economic Consequences, 1800–2000*, London/New York 2011.
- “Why the Chinese Failed to Develop a Steam Engine”, in: *History of Technology* 25 (2004) 151–171.
- “A Critical Survey of Recent Research in Chinese Economic History”, in: *Economic History Review* 53, 1 (2000) 1–28.
- “The Foreign Staple Trade of China in the Pre-Modern Era”, in: *The International History Review* XIX (1997) 253–304.
- Devine, T.M., “Scotland”, in: Floud and Johnson, *Cambridge Economic History of Modern Britain, Volume I* 388–416.
- Diamond, Jared, *Collapse. How Societies Choose to Fail or Succeed*, revised edition; Harmondsworth 2011, originally 2005.

- *Guns, Germs and Steel. The Fates of Human Societies*, London 1997.
- Dincecco, Mark, *Political Transformations and Public Finances. Europe, 1650–1913*, Cambridge 2011.
- Dixin, Xu and Wu Chengming, eds., *Chinese Capitalism, 1522–1840*, Houndmills 2000.
- Domar, Evsey D., “The Causes of Slavery and Serfdom. A Hypothesis”, in: *The Journal of Economic History* 30, 1 (1970) 18–32.
- Drayton, Richard, *Nature’s Government. Science, Imperial Britain, and the ‘Improvement’ of the World*, New Haven 2000.
- “Knowledge and Empire”, in: Marshall, *Oxford History of the British Empire*, 231–252.
- Drescher, Seymour, “The Williams Thesis after Fifty Years”, in: Northrup, ed., *Atlantic Slave Trade*. 141–149.
- Duchesne, Ricardo, *The Uniqueness of Western Civilization*, Leiden/Boston 2011.
- Dudley, Leonard, *Mothers of Innovation: how Expanding Social Networks gave Birth to the Industrial Revolution*, Cambridge 2012.
- *Information Revolutions in the History of the West*, Cheltenham 2008.
- Dunstan, Helen, *State or Merchant? Political Economy and Political Process in 1740s China*, Cambridge Mass. and London 2006.
- *Conflicting Counsels to Confuse the Age. A Documentary Study of Political Economy in Qing China, 1644–1840*, Ann Arbor 1996.
- Easterlin, Richard A., “Why isn’t the Whole World Developed?”, in: *The Journal of Economic History* 41, 1 (1981) 1–19.
- Easterly, William, *The White Man’s Burden. Why the West’s Efforts to Aid the Rest Have Done So Much Ill and So Little Good*, New York 2006.
- *The Elusive Quest for Growth. Economists’ Adventures and Misadventures in the Tropics*, Cambridge Mass. 2002.
- Easterly, W., and R. Levine, “Africa’s Growth Tragedy. Politics and Ethnic Divisions”, in: *Quarterly Journal of Economics* 112 (1997) 1203–1250.
- The Economist Pocket World in Figures, 2013 Edition*, London 2012.
- The Economist Pocket World in Figures, 2012 Edition*, London 2011.
- The Economist Pocket World in Figures, 2011 Edition*, London 2010.
- Elliott, John H., *Empires of the Atlantic World. Britain and Spain in America 1492–1830*, New Haven/London 2006.
- *Spain and its World, 1500–1700*, New Haven/London 1989.
- Elman, B.A., *A Cultural History of Civil Examinations in Late Imperial China*, Berkeley/Los Angeles/London 2000.
- Eltis, David, *The Rise of African Slavery in the Americas*, Cambridge 2000.
- Eltis, David and Stanley L. Engerman, “The Importance of Slavery and the Slave Trade to Industrializing Britain”, in: *The Journal of Economic History* 60 (2000) 123–144.
- Elvin, Mark, *Another History. Essays on China from a European Perspective*, Canberral/Sidney 1996.
- “Three Thousand Years of Unsustainable Growth: China’s Environment from Archaic Times to the Present”, in: *East Asian History* 6 (1993) 7–46.
- *The Pattern of the Chinese Past*, Stanford 1973.
- Emmer, Pieter C., *De Nederlandse Slavenhandel, 1500–1850*, second revised edition; Amsterdam 2003.
- Emsley, C., *British Society and the French Wars, 1793–1815*, London 1979.

- Engelen, Theo and Arthur P. Wolf, eds., *Marriage and the Family in Eurasia. Perspectives on the Hajnal Hypothesis*, Amsterdam 2005.
- Engerman, Stanley L., "British Imperialism in a Mercantilist Age, 1492–1849. Conceptual and Empirical Problems", in: O'Brien and Prados de la Escosura, *Costs and Benefits of European Imperialism*, 195–234.
- Engerman, Stanley L. and Kenneth L. Sokoloff, *Economic Development in the Americas since 1500. Endowments and Institutions*, Cambridge 2011.
- Englebert, P., "Pre-colonial Institutions, Post-colonial States, and Economic Development in Tropical Africa", in: *Political Research Quarterly* 53, 1 (2000) 7–36.
- Epstein, Stephan R., "Craft Guilds in the Premodern Economy: A Discussion", in: *Economic History Review* 61, 1 (2008) 155–174.
- "Rodney Hilton, Marxism and the Transition from Feudalism to Capitalism", in: *Past and Present* Nr. 195 (2007) Supplement Issue 2, 248–269.
- *Freedom and Growth. The Rise of States and Markets in Europe, 1300–1750*, London 2000.
- Epstein, Stephan R. and Maarten Prak, eds., *Guilds, Innovation and the European Economy*, London 2008.
- Escosura, Leandro Prados de la, "Lost Decades. Economic Performance in Post-Independence Latin America", in: *Journal of Latin American Studies* 41, 2 (2009) 279–307.
- Esteban, Javier Cuenca, "Comparative Patterns of Colonial Trade. Britain and its Rivals", in: Prados de la Escosura, *Exceptionalism and Industrialisation*, 35–68.
- "The British Balance of Payments, 1772–1820. India Transfers and War Finance", in: *Economic History Review* 54, 1 (2001) 58–86.
- Etemad, Bouda, *Possessing the World. Taking the Measurements of Colonisation from the Eighteenth to the Twentieth Century*, New York 2007.
- "Colonial and European Domestic Trade. A Statistical Perspective over Time", in: P.C. Emmer, O. Pétré-Grenouilleau, and J. Roitman, eds., *A Deus ex Machina Revisited. Atlantic Colonial Trade and European Economic Development*, Leiden 2006, 45–62.
- *De l'utilité des empires. Colonisation et prospérité de l'Europe (XVIIe–XXe siècle)*, Paris 2005.
- Evans, Eric J., *The Forging of the Modern State. Early Industrial Britain 1783–1870*, Harlow 1996, originally 1983.
- Evans, Robert, "Some Notes on Coerced Labor", in: *The Journal of Economic History* 30, 4 (1970) 861–866.
- Feinstein, Charles and Sydney Pollard, eds., *Studies in Capital Formation in the United Kingdom, 1750–1820*, Oxford 1988.
- Feldbauer, Peter, Michael Mitterauer and Wolfgang Schwentker, eds., *Die vormoderne Stadt. Asien und Europa im Vergleich*, Vienna/Munich 2002.
- Ferguson, Niall, *The Great Degeneration. How Institutions Decay and Economies Die*, Harmondsworth 2012.
- *Civilization. The West and the Rest*, London 2011.
- Fernández-Armesto, Felipe, *Pathfinders. A Global History of Exploration*, Oxford 2006.
- *Civilizations*, London 2001.
- Feuerwerker, Albert, *Studies in the Economic History of Late Imperial China*, Ann Arbor 1992.

- *China's Early Industrialization. Sheng Hsuan-Huai (1844–1916) and Mandarin Enterprise*, Cambridge Mass. 1958.
- Field, Alexander James, “The Problem with Neoclassical Institutional Economics. A Critique with Special Reference to the North/Thomas Model of Pre-1500 Europe”, in: *Explorations in Economic History* 18 (1981) 174–198.
- Fielding, David, and Sebastián Torres, “Cows and Conquistadors: A Contribution on the Colonial Origins of Comparative Development”, in: *Journal of Development Studies* 44, 8 (2008) 1081–1099.
- Findlay, Ronald and Kevin H. O'Rourke, *Power and Plenty. Trade, War, and the World Economy in the Second Millennium*, Princeton/Oxfordshire 2007.
- Fink, Leon, *Sweatshops at Sea. Merchant Seamen in the World's First Globalized Industry, from 1812 to the Present*, Chapel Hill 2011.
- Finlay, Robert, “China, the West, and World History in Joseph Needham's *Science and Civilisation in China*”, in: *Journal of World History* 11 (2000) 265–304.
- “The Pilgrim Art. The Culture of Porcelain in World History”, in: *Journal of World History* 9, 2 (1998) 141–187.
- Flandreau, Marc a.o., “The Bell Jar. Commercial Interest Rates Between Two Revolutions, 1688–1789”, in: Jeremy Attack and Larry Neal, eds., *The Origins and Development of Financial Markets and Institutions. From the Seventeenth Century to the Present*, Cambridge 2009, 161–208.
- Fletcher, Joseph, “Ch'ing Inner Asia c. 1800”, in: John K. Fairbank, ed., *The Cambridge History of China. 10: Late Ch'ing, 1800–1911, Volume 1*, Cambridge 1978, 35–106.
- Floud, Roderick and Paul Johnson, eds., *The Cambridge Economic History of Modern Britain, Volume 1: Industrialization, 1700–1860*, Cambridge 2004.
- Flynn, Dennis and Arturo Giráldez, “Money and Growth without Development. The Case of Ming China”, in: A.J.H. Latham and Heita Kawakatsu, eds., *Asian-Pacific Dynamism, 1550–2000*, London 2000, 199–215.
- Fogel, Robert William, *The Escape from Hunger and Premature Death, 1700–2100. Europe, America and the Third World*, Cambridge 2004.
- “The Conquest of High Mortality and Hunger in Europe and America: Timing and Mechanisms”, in: Higonnet, Landes and Rosovsky, *Favorites of Fortune*, 35–71.
- Fogleman, Aaron S., “From Slaves, Convicts, and Servants to Free Passengers. The Transformation of Immigration in the Era of the American Revolution”, in: *Journal of American History* 85 (1998) 66–76.
- Foucault, Michel, *Discipline and Punish*, New York 1979, originally, in French, 1975.
- Fourastié, Jean, “De la vie traditionnelle à la vie tertiaire”, in: *Population* 14 (1959) 417–432.
- Francks, Penelope, *The Japanese Consumer. An Alternative Economic History of Modern Japan*, Cambridge 2009.
- Frank, Andre Gunder, *ReOrient. Global Economy in the Asian Age*, Berkeley/Los Angeles/London 1998.
- Freeman, Chris and Francisco Louçã, *As Time goes by. From the Industrial Revolutions to the Information Revolution*, Oxford 2001.
- Friedel, Robert, *A Culture of Improvement. Technology and the Western Millennium*, Cambridge Mass./London 2007.
- Friedman, Milton and Rose Friedman, *Free to Choose*, Harmondsworth 1980.

- Frykman, Niklas, "Seeleute auf den europäischen Kriegsschiffen des späten 18. Jahrhunderts", in: Marcel van der Linden and Karl Heinz Roth, eds., assisted by Max Henninger, *Über Marx Hinaus. Arbeitsgeschichte und Arbeitsbegriff in der Konfrontation mit den globalen Arbeitsverhältnissen des 21. Jahrhunderts*, Berlin and Hamburg 2009, 55 – 84.
- Fukuyama, Francis, *The Origins of Political Order. From Prehuman Times to the French Revolution*, London 2011.
- *State Building. Governance and World Order in the Twenty-First Century*, London 2004.
- *Trust. The Social Virtues and the Creation of Prosperity*, London 1995.
- Furniss, Edgar S., *The Position of the Laborer in a System of Nationalism. A Study of the Labor Theories of the Later English Mercantilists*, Boston 1920.
- Gaastra, Femme, "'Sware continuerende lasten en groten ommeslagh'. Kosten van de oorlogsvoering van de Verenigde Oost-Indische Compagnie", in: Gerrit Knaap and Ger Teitler, eds., *De Verenigde Oost-Indische Compagnie tussen oorlog en diplomatie*, Leiden 2002, 81 – 104.
- Galenson, David, "The Rise and Fall of Indentured Servitude in the Americas. An Economic Analysis", in: *The Journal of Economic History* 44, 1 (1984) 1 – 26.
- Galiani, Sebastian and Itai Sened, eds., *Economic Institutions, Rights, Growth, and Sustainability: the Legacy of Douglass North*, forthcoming Cambridge University Press.
- Galor, Oded, *Unified Growth Theory*, Princeton 2011.
- "Towards a Unified Theory of Economic Growth. An Interview by Brian Snowdon", in: *World Economics* 9, 2 (2008) 97 – 151.
- "From Stagnation to Growth; Unified Growth Theory", in: P. Aghion and S. Durlauf, eds., *Handbook of Economic Growth*, Amsterdam/London 2005, Vol. 1 A, 171 – 293.
- Galor, Oded and Omer Moav, "Natural Selection and the Origin of Economic Growth", in: *Quarterly Journal of Economics* 117 (2002) 1133 – 1191.
- Gardella, Robert, *Harvesting Mountains. Fujian and the China Tea Trade, 1757–1937*, Berkeley/Los Angeles/London 1994.
- Gates, Hill, *China's Motor. A Thousand Years of Petty Capitalism*, Ithaca/London 1996.
- Gauci, Perry, ed., *Regulating the British Economy, 1660 – 1850*, Farnham, UK/Burlington, USA, 2011.
- Gellner, Ernest, *Plough, Sword and Book. The Structure of Human History*, London 1988.
- Genç, Mehmet, "Ottoman Industry in the Eighteenth Century: General Framework, Characteristics and Main Trends", in: Donald Quataert, ed., *Manufacturing in the Ottoman Empire and Turkey, 1500–1950*, New York 1994, 59 – 85.
- Gerschenkron, Alexander, *Economic Backwardness from a Historical Perspective. A Book of Essays*, Cambridge Mass. 1962.
- Getzer, Joshua, "Theories of Property and Economic Development", in: *Journal of Interdisciplinary History* 26, 4 (1996) 639 – 669.
- Gilboy, Elizabeth Waterman, "Demand as a Factor in the Industrial Revolution", in: A.H. Cole, ed., *Facts and Factors in Economic History*, London 1932; also published in R.M. Hartwell, ed., *The Causes of the Industrial Revolution in England*, London 1967, 121 – 138.
- Gladwell, Malcolm, *The Tipping Point. How Little Things Can Make a Big Difference*, New York 2000.

- Glaeser, Edward L., *Triumph of the City. How our Greatest Invention Makes us Richer, Smarter, Greener, Healthier and Happier*, London 2011.
- Glass, David V., *Numbering the People. The Eighteenth-Century Population Controversy and the Development of Census and Vital Statistics in Britain*, Farnborough 1973.
- Golas, Peter J. *Science and Civilisation in China*. Part V, Volume 13, Cambridge 1999.
- Goldstone, Jack A., *A Peculiar Path. The Rise of the West in Global Context, 1500 – 1850*, forthcoming.
- *Why Europe? The Rise of the West in World History, 1500 – 1800*, New York 2008.
  - “A Historical, not Comparative Method. Breakthroughs and Limitations in the Theory and Methodology of Michael Mann’s Analysis of Power”, in: John A. Hall and Ralph Schroeder, eds., *An Anatomy of Power. The Social Theory of Michael Mann*, Cambridge 2006, 263 – 282.
  - “Efflorescences and Economic Growth in World History. Rethinking the ‘Rise of the West’ and the Industrial Revolution”, in: *Journal of World History* 13, 2 (2002) 323 – 389.
  - “The Rise of the West – or not? A Revision to Socio-Economic History”, in: *Sociological Theory* 18 (2000) 157 – 194.
  - “Whose Measure of Reality?”, in: *The American Historical Review* 105, 2 (2000) 501 – 508.
  - “Gender, Work and Culture. Why the Industrial Revolution came Early to England and Late to China”, in: *Sociological Perspectives* 39 (1996) 1 – 21.
  - *Revolution and Rebellion in the Early Modern World*, Berkeley/Los Angeles/Oxford 1991.
  - “Cultural Orthodoxy, Risk, and Innovation. The Divergence of East and West in the Early Modern World”, in: *Sociological Theory* 5 (1987) 119 – 135.
- Goody, Jack, *Renaissances: The One or the Many*, Cambridge 2010.
- *The Eurasian Miracle*, Cambridge 2010.
  - *The Theft of History*, Cambridge 2006.
  - *Capitalism and Modernity. The Great Debate*, Cambridge 2004.
- Gorski, Philip S., “The Little Divergence. The Protestant Ethic and Economic Hegemony in Early Modern Europe”, in: Lutz Kaelber and Richard Swatos, eds., *The Protestant Ethic Turns 100: Essays on the Centenary of the Weber Thesis*, Boulder Colorado 2005, 165 – 189.
- *The Disciplinary Revolution. Calvinism and the Rise of the State in Early Modern Europe*, Chicago/London 2003.
- Gozzini, Giovanni, *Un’idea di giustizia. Globalizzazione e ineguaglianza dalla rivoluzione industriale a oggi*, Turin 2010.
- Graeber, David, *Debt. The first 5,000 Years*, New York 2011.
- Grafe, Regina and Alejandra Irigoin, “A Stakeholder Empire. The Political Economy of Spanish Imperial Rule in America”, in: *Economic History Review* 65, 2 (2012) 609 – 651.
- “The Spanish Empire and its Legacy. Fiscal Redistribution and Political Conflict in Colonial and Post-colonial Spanish America”, in: *Journal of Global History* 1 (2006) 241 – 267.
- Greenfeld, Liah, *The Spirit of Capitalism. Nationalism and Economic Growth*, Cambridge Mass./London 2001.
- *Nationalism. Five Roads to Modernity*, Cambridge Mass./London 1992.

- Greif, Avner, *Institutions and the Path to the Modern Economy. Lessons from Medieval Trade*, Cambridge 2006.
- Griffin, Emma, *A Short History of the British Industrial Revolution*, London 2010.
- Grigg, D.B., *The Transformation of Agriculture in the West*, Oxford/Cambridge Mass. 1992.
- *The Dynamics of Agricultural Change. The Historical Experience*, London 1982.
- *The Agricultural Systems of the World. An Evolutionary Approach*, Cambridge 1974.
- Gruzinski, Serge, *Les quatre parties du monde. Histoire d'une mondialisation*, Paris 2004.
- Guiso, Luigi, Paola Sapienza and Luigi Zingales, “Does Culture Affect Economic Outcomes?”, in: *Journal of Economic Perspectives* 20, 2 (2006) 23–48.
- Guldi, Jo, *Roads to Power. Britain Invents the Infrastructure State*, Cambridge Mass./London 2012.
- Gupta, Bishnupriya and Debin Ma, “Europe in an Asian Mirror: The Great Divergence”, in: Broadberry and O'Rourke, *The Cambridge Economic History of Modern Europe*, Volume 1, 264–285.
- Habakkuk, J.H., *American and British Technology in the Nineteenth Century*, Cambridge 1962.
- Habib, Irfan, “Potentialities of Capitalist Development in the Economy of Mughal India”, in: *The Journal of Economic History* 29 (1969) 32–78.
- Hall, John A., “States and Economic Development. Reflections on Adam Smith”, in: Hall, *States in History*, 154–176.
- *Powers and Liberties. The Causes and Consequences of the Rise of the West*, London 1985.
- Hall, John A, ed., *States in History*, Oxford 1986.
- Hall, Peter, *Cities in Civilization. Culture, Innovation and Urban Order*, London 1999.
- Hall, Peter A. and David Soskice, eds., *Varieties of Capitalism. The Institutional Advantages of Comparative Advantage*, Oxford 2001.
- Hall, Robert E. and Charles I. Jones, “Why do some Countries Produce so Much More Output Per Worker than Others?”, in: *Quarterly Journal of Economics* 114 (1999) 83–116.
- Hanley, Susan B., *Everyday Things in Premodern Japan. The Hidden Legacy of Material Culture*, Berkeley/Los Angeles/London 1997.
- Hanson, Victor Davis, *Why the West Has Won. Carnage and Culture from Salamis to Vietnam*, London 2002.
- Harley, C. Knick, “Trade: Discovery, Mercantilism and Technology”, in: Floud and Johnson, *The Cambridge Economic History of Modern Britain, Volume 1*, 175–203.
- “Reassessing the Industrial Revolution: A Macro View”, in: Mokyr, *British Industrial Revolution*, 171–227.
- Harper, Marjory, “British Migration and the Peopling of the Empire”, in: Andrew Porter, ed., *The Oxford History of the British Empire. Volume 3: The Nineteenth Century*, Oxford/New York 1999, 75–87.
- Harrison, Henrietta, *The Man awakened from Dreams. One Man's Life in a North China Village, 1875–1942*, Stanford 2005.
- Harrison, Lawrence E., *Underdevelopment is a State of Mind*, Cambridge Mass. 1985.
- Harrison, Lawrence E. and Samuel P. Huntington, eds., *Culture matters: How Values Shape Human Progress* (New York 2000).
- Hartog, Joop and Henriëtte Maassen van den Brink, eds., *Human Capital. Advances in Theory and Evidence*, Cambridge 2009.

- Hatton, Tim, Kevin O'Rourke and Alan Taylor, eds., *Comparative Economic History. Essays in Honor of Jeffrey Williamson*, Cambridge Mass. 2007.
- Hayami, Akira, "Industrial Revolution versus Industrious Revolution", in: *Journal of Japanese Trade and Industry* 20, 6 (2001) 48–52.
- "The Industrious Revolution", in: *Look Japan* 18 (1992) 38–43.
- "A Great Transformation: Social and Economic Change in Sixteenth- and Seventeenth-Century Japan", in: *Bonner Zeitschrift für Japanologie* (1986) 3–13.
- Hayami, A. and Y. Tsubouchi, eds., *Economic and Demographic Development in Rice Producing Societies. Some Aspects of East Asian Economic History, 1500–1900*, Leuven 1989.
- Headrick, Daniel R., *Power over Peoples. Technology, Environments and Western Imperialism, 1400 to the Present*, Princeton/Oxford 2010.
- *When Information Came of Age. Technologies of Knowledge in the Age of Reason and Revolution, 1700–1850*, Oxford 2000.
- *The Tools of Empire. Technology and European Imperialism in the Nineteenth Century*, New York/Oxford 1981.
- Heilbroner, Robert L., *The Worldly Philosophers. The Lives, Times, and Ideas of the Great Economic Thinkers*, fourth edition; New York 1972.
- Hellie, R., *Enserfment and Military Change in Muscovy*, Chicago 1971.
- Helpman, Elhanan, *The Mystery of Economic Growth*, Cambridge Mass./London 2004.
- ed., *Institutions and Economic Performance*, Cambridge Mass. 2008.
- Herbst, Jeffrey, *States and Power in Africa. Comparative Lessons in Authority and Control*, Princeton 2000.
- Herlihy, David, *The Black Death and the Transformation of the West*, Cambridge Mass. 1997.
- Hicks, John, *A Theory of Economic History*, Oxford 1969.
- Higonnet, Patrice, David Landes and Henry Rosovsky, eds., *Favorites of Fortune. Technology, Growth and Economic Development*, Cambridge Mass. 1991.
- Higgs, Edward, *The Information State in England*, Houndmills 2004.
- Hilton, Rodney, ed., *The Transition from Feudalism to Capitalism*, London/New York 1992.
- Hirschman, Albert O., *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States*, Cambridge Mass. 1970.
- Hobsbawm, Eric, *The Age of Revolution*, London 1962.
- Hobson, John M., *The Eastern Origins of Western Civilisation*, Cambridge 2004.
- Hobson, John M. and Linda Weiss, *States and Economic Development. A Comparative Historical Analysis*, Cambridge 1995.
- Hodgson, Geoffrey M., "Institutions and Economic Development: Constraining, Enabling and Reconstituting", in: De Paula and Dymksi, *Reimagining Growth*, 85–98.
- Hoffman, Philip T., "Comment on Ken Pomeranz's *The Great Divergence*", in: *Historically Speaking* 12, 4 (2011) 16–17.
- "Why was it Europeans who conquered the World?", in: *Journal of Economic History* 72, 3 (2012) 601–633.
- "Prices, the Military Revolution, and Western Europe's Comparative Advantage in Violence", in: *Economic History Review* 64, 1 (2011) 39–59.
- Hoffman, Philip T. a.o., "Real Inequality in Western Europe since 1500", in: *The Journal of Economic History* 62, 2 (2002) 322–355.

- Hofstede, Geert, *Culture and Organizations. Software of the Mind*, Cambridge Mass. 1991.
- Holton, Robert J., *The Transition from Feudalism to Capitalism*, Basingstoke/London 1980.
- Hont, Istvan, *Jealousy of Trade. International Competition and the Nation State in Historical Perspective*, Cambridge Mass. 2005.
- Hopkins, A.G., "The New Economic History of Africa", in: *The Journal of African History* 50 (2009) 155 – 177.
- Hoppit, Julian, "Bounties, the Economy and the State in Britain, 1689 – 1800", in: Gauci, *Regulating the British Economy*, 139 – 160.
- "Compulsion, Compensation and Property Rights in Britain, 1660 – 1833", in: *Past and Present* Nr. 210 (2011) 93 – 128.
- "Checking the Leviathan, 1688 – 1832", in: Winch and O'Brien, *The Political Economy of British Historical Experience*, 267 – 294.
- "Patterns of Parliamentary Legislation, 1660 – 1800", in: *The History Journal* 39 (1996) 109 – 131.
- "Reforming Britain's Weights and Measures", in: *The English Historical Review* 108 (1993) 82 – 104.
- Hsü, Immanuel C.Y., *The Rise of Modern China*, sixth edition; New York 2000.
- Huang, Philip C.C., "Development or Involution in Eighteenth-Century Britain and China?", in: *The Journal of Asian Studies* 61, 2 (2002) 501 – 538.
- *The Peasant Family and Rural Development in the Yangzi Delta, 1350 – 1988*, Stanford 1990.
- *The Peasant Economy and Social Change in North China*, Stanford 1985.
- Hudson, Pat, "Industrial Organisation and Structure", in: Floud and Johnson, *Cambridge Economic History of Modern Britain, Vol. I.*, 28 – 56.
- Huff, Toby E., *Intellectual Curiosity and the Scientific Revolution. A Global Perspective*, Cambridge 2011.
- *The Rise of Early Modern Science. Islam, China and the West*, Cambridge 1995.
- Hugill, Peter J., *World Trade since 1431. Geography, Technology and Capitalism*, Baltimore/London 1993.
- Humphries, Jane, "Rent Seeking or Skill Creating? Apprenticeship in Early Industrial England", in: Gauci, *Regulating the British Economy*, 235 – 258.
- *Childhood and Child Labour in the British Industrial Revolution*, Cambridge 2010.
- "Household Economy", in: Floud and Johnson, *The Cambridge Economic History of Modern Britain. Vol. I.*, 238 – 267.
- Hung, Ho-fung, "Orientalist Knowledge and Social Theories: China and European Conceptions of East-West Differences from 1600 – 1900", in: *Sociological Theory* 21 (2003) 254 – 280.
- Hunt, E.H., "Wages", Chapter 6 in: John Langton and R.J. Morris, ed., *Atlas of Industrializing Britain 1780 – 1914*, London/New York 1986, 60 – 68.
- "Industrialization and Regional Inequality. Wages in Britain, 1760 – 1914", in: *The Journal of Economic History* XLV, 4 (1986) 935 – 966.
- Inikori, Joseph E., *Africans and the Industrial Revolution in England. A Study in International Trade and Economic Development*, Cambridge 2002.
- Inkster, Ian, *Science and Technology in History. An Approach to Industrial Development*, New Brunswick 1991.

- Irwin, Douglas A., *Against the Tide. An Intellectual History of Free Trade*, Princeton 1997.
- Isett, Christopher Mills, *State, Peasant, and Merchant in Qing Manchuria*, Stanford 2007.
- Jacob, Margaret C., *Scientific Culture and the Making of the Industrial West*, New York/Oxford 1997.
- Jacob Margaret C. and Matthew Kadane, "Missing, now Found in the Eighteenth Century: Weber's Protestant Capitalist", in: *American Historical Review* 108 (2003) 20–49.
- Jacob, Margaret C. and Larry Stewart, *Practical Matter. Newton's Science in the Service of Industry and Empire, 1687–1851*, Cambridge Mass. 2006.
- Jacobs, Jane, *Cities and the Wealth of Nations*, New York 1984
- *The Economy of Cities*, New York 1970.
- James, Lawrence, *Warrior Race. A History of the British at War*, London 2001.
- Jay, Peter, *Road to Riches or the Wealth of Man*, London 2000.
- Jerven, Morten, "An Uneven Playing Field. National Income Estimates and Reciprocal Comparison in Global Economic History", in: *Journal of Global History* 7 (2012) 107–128.
- Jevons, William Stanley, *The Coal Question. An Inquiry concerning the Progress of the Nation, and the Probable Exhaustion of our Coal Mines*, London 1865.
- Johnson, Chalmers, *Japan. Who Governs? The Rise of the Developmental State*, New York/London 1995.
- Jones, Charles I., "Was an Industrial Revolution Inevitable? Economic Growth over the Very Long Run", in: *Advances in Macroeconomics* 1, 2 (2001) 1–44.
- Jones, Eric L., *Locating the Industrial Revolution. Inducement and Response*, Singapore 2010.
- *Cultures Merging. A Historical and Economic Critique of Culture*, Princeton/Oxford 2006.
- "Time and Culture in Old-World Economics", in: *The Journal of Economic History* 60 (2000) 856–859.
- "The Real Question about China: Why was the Song Economic Achievement not Repeated?", in: *Australian Economic History Review* 30, 2 (1990) 5–22.
- *Growth Recurring. Economic Change in World History*, Cambridge 1988.
- *The European Miracle. Environments, Economies and Geopolitics in the History of Europe and Asia*, second edition; Cambridge 1987, originally 1981.
- Jutte, Robert, *Poverty and Deviance in Early Modern Europe*, Cambridge 2006.
- Käsler, Dirk, *Max Weber: An Introduction to his Life and Work*, Chicago 1989, originally 1979.
- Kain, Roger J.P. and Elizabeth Baigent, *The Cadastral Map in the Service of the State. A History of Property Mapping*, Chicago 1992.
- Kalberg, Stephen, *Max Weber's Comparative-Historical Sociology*, Cambridge/Oxford 1994.
- Kealey, Terence, *Sex, Science and Profits*, New York 2008.
- *The Economic Laws of Scientific Research*, London/New York 1996.
- Keefer, Philip and Stephen Knack, "Why don't Poor Countries Catch Up? A Cross-national Test of Institutional Explanation", in: *Economic Inquiry. Oxford University Press* 35, 3 (1997) 590–602.
- Kelly, Morgan, "The Dynamics of Smithian Growth", in: *Quarterly Journal of Economics*, 112, 3 (1997) 939–964.

- Kenwood, A.G. and A.L. Lougheed, *The Growth of the International Economy, 1820 – 1960*, London 1971.
- Keynes, John Maynard, *The General Theory of Employment, Interest, and Money*, New York 1936.
- “Economic Possibilities for our Grandchildren” in: John Maynard Keynes, *Essays in Persuasion*, New York 1963, 358 – 373, originally 1930.
- Kiesewetter, Hubert, *Das einzigartige Europa. Zufällige und notwendige Faktoren der Industrialisierung*, Göttingen 1996.
- King, F. H., *Farmers of Forty Centuries or Permanent Agriculture in China, Korea and Japan*, London 1927.
- Klein, Herbert S., *The Atlantic Slave Trade*, second edition; Cambridge 2010.
- “Economic Aspects of the Eighteenth-Century Atlantic Slave Trade”, in: Tracy, ed., *Rise of Merchant Empires*, 287 – 311.
- Knight, F.H., *Risk, Uncertainty, and Profit*, Boston 1921.
- Kocka, Jürgen, *Geschichte des Kapitalismus*, Munich 2013.
- “Der Kapitalismus und seine Krisen in historischer Perspektive”, in: Jürgen Kocka, *Arbeiten an der Geschichte. Gesellschaftlicher Wandel im 19. und 20. Jahrhundert*, Göttingen 2011, 307 – 322.
- Komlos, John, “Thinking about the Industrial Revolution”, in: *The Journal of European Economic History* 18, 1 (1989) 191 – 206.
- Kremer, Michael, “Population Growth and Technological Change: One Million B.C. to 1990”, in: *Quarterly Journal of Economics* CVIII (1993) 681 – 71.
- Krugman, Paul, *Pop Internationalism*, Cambridge Mass. 1996.
- “The Myth of Asia’s Miracle”, in: *Foreign Affairs* 73 (1994) 62 – 78.
- Kumagai, Yukihisa, *Breaking into the Monopoly. Provincial Merchants and Manufacturers’ Campaigns for Access to the Asian Market, 1790 – 1833*, Leiden/Boston 2012.
- Kuran, Timur, *The Long Divergence. How Islamic Law Held Back the Middle East*, Princeton/Oxford 2001.
- Lains, Pedro and Álvaro Ferreira da Silva, eds., *História Económica de Portugal, 1700 – 2000*, Three Volumes, Lisbon 2005.
- Lal, Deepak, *Unintended Consequences. The Impact of Factor Endowments, Culture and Politics on Long-run Economic Performance*, Cambridge Mass. 1998.
- Lampe, Klaus, a.o., *Das große Buch vom Reis*, Munich 1997.
- Landes, David, “Why Europe and the West? Why not China?”, in: *Journal of Economic Perspectives* 20, 2 (2006) 3 – 22.
- *The Unbound Prometheus. Technological Change and Industrial Development in Western Europe from 1750 to the Present*, second edition; Cambridge 2003, originally 1969.
- “Reply to Peer Vries and Om Prakash”, in: *Itinerario. European Journal of Overseas History* XXIII, 1 (1999) 8 – 15.
- *The Wealth and Poverty of Nations. Why Some are so Rich and Some so Poor*, London 1998.
- “What Room for Accident in History? Explaining Big Changes by Small Events”, in: *Economic History Review*, second series (1994) 637 – 656.
- *Revolution in Time. Clocks and the Making of the Modern World*, Cambridge 1983.
- “Japan and Europe: Contrasts in Industrialization”, in: William W. Lockwood, ed., *State*

- and Economic Enterprise in Japan: Essays in the Political Economy of Growth*, Princeton 1965, 93 – 182.
- Lane, Frederic, *Venice in History*, Baltimore 1966.
- Langford, Paul, *Public Life and the Propertied Englishman, 1689–1798*, Oxford 1991.
- Langlois, Rosaire, “The Closing of the Sociological Mind?”, in: *Canadian Journal of Sociology/Cahiers Canadiens de Sociologie* 33, 1 (2008) 134–147.
- Lee, James Z. and Wang Feng, *One Quarter of Humanity. Malthusian Mythology and Chinese Realities*, Cambridge Mass./London 1999.
- Legarda Jr., Benito J., *After the Galleons. Foreign Trade, Economic Change and Entrepreneurship in the Nineteenth-Century Philippines*, Madison 1999.
- Le Goff, Jacques, *Time, Work and Culture in the Middle Ages*, second edition; Chicago 1982, originally 1977.
- Lehner, Georg, *China in European Encyclopaedias, 1700–1850*, Leiden and Boston 2011.
- Leonard, Jane K, *Controlling from Afar. The Daoguang Emperor’s Management of the Grand Canal Crisis, 1824–1826*, Ann Arbor 1996.
- Leonard, Jane K. and John R. Watt, eds., *To Achieve Security and Wealth. The Qing Imperial State and the Economy, 1644–1911*, Ithaca, New York, 1992.
- Lesger, Clé, *The Rise of the Amsterdam Market and Information Exchange. Merchants, Commercial Expansion and Change in the Spatial Economy of the Low Countries, c.1550–1630*, Aldershot 2006.
- Levi, Margaret, “The Predatory Theory of Rule”, in: *Politics and Society* 10 (1981) 435–461.
- Levy, David M. and Sandra J. Peart, “Soviet Growth and American Textbooks”, in: *Journal of Economic Behavior & Organization* 78, 1 / 2 (2011) 110–125.
- Lewis, W. Arthur, “Economic Development with Unlimited Supplies of Labour”, in: *Manchester School of Economic and Social Studies* 22 (1954) 139–191.
- Li, Bozhong, *The Development of Agriculture and Industry in Jiangnan, 1644–1850. Trends and Prospects*, Hangzhou 1986.
- Li, Bozhong and Jan Luiten van Zanden, “Before the Great Divergence? Comparing the Yangzi Delta and the Netherlands at the Beginning of the Nineteenth Century”, in: *The Journal of Economic History* 72, 4 (2012) 956–989.
- Lieberman, Victor, *Strange Parallels. Southeast Asia in Global Context c. 1800–1830. Volume 2: Mainland Mirrors: Europe, Japan, China, South Asia, and the Islands*, Cambridge Mass. 2009.
- *Strange Parallels. Southeast Asia in Global Context, c. 800–1830. Volume 1: Integration on the Mainland*, Cambridge Mass. 2003.
- Lieberman, Victor, ed., *Beyond Binary Histories. Re-imagining Eurasia to c.1830*, Ann Arbor 1997.
- Lin, Man-houng, *China Upside Down. Currency, Society and Ideologies, 1808–1856*, Cambridge/London 2006.
- Lindert, Peter H., *Growing Public. Social Spending and Economic Growth since the Eighteenth Century* (Cambridge 2004) Two Volumes
- “Poor Relief before the Welfare State: Britain versus the Continent, 1780–1880”, in: *European Review of Economic History* 2 (1998) 101–40.
- Lindert, Peter H. and Jeffrey G. Williamson, “Does Globalization Make the World More

- Unequal?", in: Bordo, Taylor and Williamson, *Globalization in Historical Perspective*, 227 – 276.
- “Revising England’s Social Tables, 1688 – 1812”, in: *Explorations in Economic History* 19 (1982) 385 – 408.
- Lippit, Victor D., *The Economic Development of China*, New York 1987.
- Lipsey, R.G., K.I. Carlaw, and C.T. Bekar, *Economic Transformations. General Purpose Technologies and Long Term Economic Growth*, Oxford 2005.
- Lipton, Michael, *Why Poor People Stay Poor: Urban Bias in World Development*, Cambridge Mass. 1977.
- Lis, Catharina and Hugo Soly, *Worthy Efforts. Attitudes to Work and Workers in Pre-Industrial Europe*, Leiden/Boston 2012.
- *Poverty and Capitalism in Pre-Industrial Europe, 1450 – 1850*, Brighton 1979.
- List, Friedrich, *Das nationale System der politischen Ökonomie* (1841), edited and introduced by Artur Sommer, Basel/Tübingen, 1959.
- Liu, Justin Yifu, “The Needham Puzzle. Why the Industrial Revolution Did Not Originate in China”, in: *Economic Development and Cultural Change* 42, 2 (1995) 137 – 152.
- Livi-Bacci, Massimo *Population of Europe*, Oxford 2000, originally 1998.
- Lloyd, Christopher, Jacob Metzger and Richard Sutch, eds., *Settler Economies in World History*, Leiden/Boston 2013.
- Lorenzetti, Luigi, Michela Barbot and Luca Mocarelli, eds., *Property Rights and their Violations / La propriété violée: Expropriations and Confiscations, 16th-20th Centuries / Expropriations et confiscations, XVIe – XXe siècles*, Bern 2012.
- Lovell, Julia, *The Opium War. Drugs, Dreams and the Making of China*, London/Basingstoke/Oxford 2011.
- Lucas, R.E., *Lectures on Economic Growth*, Cambridge/London 2002.
- Lucassen, Jan and Leo Lucassen, “The Mobility Transition Revisited, 1500 – 1900: What the European Case Can Offer to Global History”, in: *Journal of Global History* 4, 3 (2009) 347 – 378.
- Lynch, K.A., *Individuals, Families and Communities in Western Europe*, Cambridge 2003.
- Lynn, John, *Battle. A History of Combat and Culture*, Boulder 2003.
- Ma, Debin and Jan Luiten van Zanden, eds., *Law and Long-Term Economic Change. A Eurasian Perspective*, Stanford 2011.
- MacAloon, Jim, “The State and Economic Policy in Twentieth-Century Australia and New Zealand. Escaping the Staples Trap?”, in: Lloyd, Metzger and Sutch, *Settler Economies in World History*, 521 – 544.
- Macaulay, M., “A World Made Simple. Law and Property in the Ottoman and Qing Empires”, in: *Journal of Early Modern History* 5 (2001) 331 – 352.
- Macdonald, James, *A Free Nation deep in Debt. The Financial Roots of Democracy*, Princeton and Oxford 2006.
- Macfarlane, Alan, *The Riddle of the Modern World. Of Liberty, Wealth and Equality*, Houndmills/New York 2000.
- “Ernest Gellner and the Escape to Modernity”, in: John A. Hall and I.C. Jarvie, eds., *Transition to Modernity. Essays on Power, Wealth and Belief*, Cambridge 1992, 121 – 136.
- “The Cradle of Capitalism”, in: Baechler, Hall and Mann, *Europe and the Rise of Capitalism*, 185 – 203.

- *The Origins of English Individualism*, Oxford 1978.
- Macfarlane, Alan and Sarah Harrison, “Technological Evolution and Involution. A Preliminary Comparison of Europe and Japan”, in: John Ziman, ed., *Technological Innovation as an Evolutionary Process*, Cambridge 2000, 77–89.
- Macleod, Christine, *Inventing the Industrial Revolution. The English Patent System 1660–1800*, Cambridge 1988.
- Maddison, Angus, *Contours of the World Economy, 1–2030 A.D. Essays in Macro-economic History*, Oxford 2007.
- *The World Economy. A Millennial Perspective*, Paris 2001.
- Magnusson, Lars, *Nation, State and the Industrial Revolution. The Visible Hand*, London/New York 2009.
- *Mercantilism, Critical Concepts in the History of Economics*, Four Volumes, no place indicated 1995.
- *Mercantilism. The Shaping of an Economic Language*, London/New York 1994.
- Malanima, Paulo, “When did England overtake Italy? Medieval and Early Modern Divergence in Prices and Wages”, in: *European Review of Economic History* 17 (2013) 45–70.
- *Pre-modern European Economy. One Thousand Years (10th-19th Centuries)*, Leiden/Boston 2009.
- “Energy Crisis and Growth 1650–1850: the European Deviation in a Comparative Perspective”, in: *Journal of Global History* 1,1 (2006) 101–12.
- *La fine del primato. Crisi e riconversione nell’Italia del Seicento*, Milan 1998.
- *Energia e crescita nell’Europa preindustriale*, Rome 1996.
- Mallory, Walter H., *China: Land of Famine*, New York 1926.
- Mann, Charles C., 1493. *Uncovering the New World Columbus Created*, New York 2011.
- 1491. *New Revelations of the Americas before Columbus*, New York 2005.
- Mann, Michael, *The Sources of Social Power, Volume III. Global Empires and Revolution, 1890–1945*, Cambridge 2012.
- *The Sources of Social Power, Volume II. The Rise of Classes and Nation States, 1760–1914*, Cambridge 1993.
- “The Autonomous Power of the State: its Origins, Mechanisms and Results”, in: Hall, *States in History*, 109–136.
- *The Sources of Social Power, Volume I. A History of Power from the Beginning to A.D 1760*, Cambridge 1986.
- Mann, Susan, *Precious Records. Women in China’s Long Eighteenth Century*, Stanford 1997.
- *Local Merchants and the Chinese Bureaucracy, 1750–1950*, Stanford 1987.
- Manning, J.M. and Ian Morris, eds., *The Ancient Economy: Evidence and Models*, Stanford 2007.
- Marglin, Steven A., “What Do Bosses Do?”, in: *Review of Radical Political Economy* 6 (1974) 60–112.
- Marks, Robert B., *The Origins of the Modern World. A Global and Ecological Narrative*, Lanham 2002.
- “Commercialization without Capitalism. Processes of Environmental Change in South China 1550–1850”, in: *Environmental History* 1 (1996) 56–82.
- Martin, W., “Outgrowing Resource Dependence: Theory and Developments”, in: D. Le-

- derman and W.L. Maloney, eds., *Natural Resources: Neither Curse nor Destiny*, Stanford 2007, 323 – 355.
- “Developing Countries’ Changing Participation in World Trade”, in: *World Bank Research Observer* 18 (2003) 187 – 203.
- Marshall, P.J. ed., *The Oxford History of the British Empire*, Volume 2: *The Eighteenth Century*, Oxford/New York 1998.
- Marx Engels Werke*, Berlin 1956 – 1990. Referred to as MEW.
- Mathias, Peter, “Financing the Industrial Revolution”, in: Peter Mathias and John A. Davis, eds., *The First Industrial Revolutions*, Oxford/Cambridge Mass. 1989, 69 – 85.
- *First Industrial Nation. An Economic History of Britain 1700 – 1914*, London 1969.
- Mathee, Rudy, *The Pursuit of Pleasure. Drugs and Stimulants in Iranian History, 1500 – 1900*, Princeton 2009.
- Mazumdar, Sucheta, *Sugar and Society in China. Peasants, Technology and the World Market*, Cambridge 1998.
- McClellan III, James E. and Harold Dorn, *Science and Technology in World History. An Introduction*, Baltimore 1999.
- McCloskey, Deirdre, *Bourgeois Dignity. Why Economics Can’t Explain the Modern World*, Chicago 2010.
- “Review of Clark, *A Farewell to Alms*”, in: *European Review of Economic History* 12, 2 (2008) 138 – 148.
- *The Bourgeois Virtues. Ethics for an Age of Commerce*, Chicago 2007.
- McCraw, Thomas K., *Prophet of Innovation. Joseph Schumpeter and Creative Destruction*, Cambridge Mass./London 2007.
- McGuire, Robert A. and Philip R.P. Coelho, *Parasites, Pathogens and Progress. Diseases and Economic Development*, Cambridge Mass. 2011.
- McNeill, John R., “The World According to Jared Diamond”, in: *The History Teacher* 34, 2 (2001) 65 – 74.
- “China’s Environmental History in World Perspective”, in: Mark Elvin and Liu Ts’ui-jung, eds., *Sediments of Time. Environment and Society in Chinese History*, Cambridge 1998, 31 – 52.
- McNeill, William H., *The Rise of the West. A History of the Human Community. With a Retrospective Essay*, Chicago 1990.
- *The Pursuit of Power*, Oxford 1983.
- Ménard, Claude and Mary Shirley, “The Contribution of Douglass North to New Institutional Economics”, to be published in: Galiani and Sened, *Economic Institutions, Rights, Growth, and Sustainability*, already in draft available at [http://hal.archives-ouvertes.fr/docs/00/62/42/97/PDF/2011-Menard\\_Shirley\\_North\\_and\\_NIE-CUP.pdf](http://hal.archives-ouvertes.fr/docs/00/62/42/97/PDF/2011-Menard_Shirley_North_and_NIE-CUP.pdf)
- Ménard, Claude and Mary M. Shirley, eds., *Handbook of New Institutional Economics*, Heidelberg 2008.
- Mendels, F.F., “Proto-Industrialization: The First Phase of the Industrialization Process”, in: *The Journal of Economic History* 32 (1972) 241 – 261.
- Meredith, David and Deborah Oxley, “Condemned to the Colonies. Penal Transportation as the Solution to Britain’s Law and Order Problem”, in: *Leidschrift* 22, 1 (2007) 19 – 40.
- Micklethwait, John and Adrian Wooldridge, *The Company. A Short History of a Revolutionary Idea*, New York 2003.

- Milanovic, Branko, *The Haves and the Have-Nots. A Brief and Idiosyncratic History of Global Inequality*, New York 2011.
- Milgate, Murray and Shannon C. Stimson, *After Adam Smith. A Century of Transformation in Politics and Political Economy*, Princeton/Oxford 2009.
- Milionakis, Dimitris and Ben Fine, "Douglass North's Remaking of Economic History: A Critical Appraisal", in: *Review of Radical Political Economics* 39, 1 (2007) 27–57.
- Mills, Greg, *Why Africa is Poor. And what Africans can do about it*, Johannesburg 2011.
- Minami, Ryoshin, *Power Revolution in the Industrialization of Japan: 1885–1940*, Tokyo 1987.
- Mintz, Sidney, *Sweetness and Power*, New York 1985.
- Mitch, David, "Education and Skill of the British Labour Force", in: Floud and Johnson, *Cambridge Economic History of Modern Britain, Volume I*, 332–356.
- *The Rise of Popular Literacy in Victorian England. The Influence of Private Choice and Public Policy*, Pennsylvania 1992.
- Mitchell, B.R. and Phyllis Deane, *Abstract of British Historical Statistics*, Cambridge 1962.
- Mitterauer, Michael, *Why Europe?: The Medieval Origins of its Special Path*, Chicago 2010, originally, in German, Munich 2003.
- Moe, Espen, *Governance, Growth and Leadership. The Role of the State in Technological Progress, 1750–2000*, Ashgate 2007.
- Mokyr, Joel, "Intellectual Property Rights, the Industrial Revolution and the Beginnings of Modern Economic Growth", *American Economic Review Papers and Proceedings*, May 2009, 349–355. This text is available on Mokyr's website.
- *The Enlightened Economy. An Economic History of Britain 1700–1850*, New Haven/London 2009.
  - "The Institutional Origins of the Industrial Revolution", in: Helpman, *Institutions and Economic Performance*, 64–119. Also available at his website <http://faculty.wcas.northwestern.edu/~jmokyr/Institutional-Origins-4.PDF>
  - "The Intellectual Origins of Modern Economic Growth", in: *The Journal of Economic History* 65 (2005) 285–351.
  - "Accounting for the Industrial Revolution", in: Floud and Johnson, *The Cambridge Economic History of Modern Britain, Volume I*, 1–27.
  - "Why was the Industrial Revolution a European Phenomenon?", in: *Supreme Court Economic Review* 10 (2003) 27–63.
  - *The Gifts of Athena. Historical Origins of the Knowledge Economy*, Princeton/Oxford 2002.
  - "Innovation and its Enemies. The Economic and Political Roots of Technological Inertia", in: Olson and Kähkönen, *A not-so-dismal Science*, 61–91.
  - "The Industrial Revolution and the Netherlands: Why did it not happen?", in: *De Economist* 148 (2000) 503–520. The text is also on Mokyr's website.
  - ed., *The British Industrial Revolution. An Economic Perspective*, second edition; Boulder 1999.
  - "Editor's Introduction: The New Economic History and the Industrial Revolution", in: Mokyr, *British Industrial Revolution*, 1–132.
  - "Dear Labor, Cheap Labor and the Industrial Revolution", in: Higonnet, Landes and Rosovsky, *Favorites of Fortune*, 177–200.

- *The Lever of Riches. Technological Creativity and Economic Progress*, New York/Oxford 1990.
- “Demand versus Supply in the Industrial Revolution”, in: *The Journal of Economic History* 37, 4 (1977) 981–1008.
- Moor, Tine de, and J.L. van Zanden, “Girl Power. The European Marriage Pattern (EMP) and Labour Markets in the North Sea Region in the Late Medieval and Early Modern Period”, in: *Economic History Review* 63, 1 (2009) 1–33.
- Moore Jr., Barrington, *Social Origins of Dictatorship and Democracy: Lord and Peasant in the Making of the Modern World*, Boston 1966.
- Morgan, Kenneth, *Slavery, Atlantic Trade and the British Economy, 1660–1800*, Cambridge 2000.
- Morris, Ian, *Why the West Rules – for Now. The Patterns of History and what they reveal about the Future*, London 2010.
- “Latitudes not Attitudes. How Geography Explains History”, in: *History Today* 60, 11 (2010).
- Moulier-Boutang, Yann, *De l’escalavage au salariat. Économie historique du salariat bridé*, Paris 1998.
- Muchembled, Robert, *Popular Culture and Elite Culture in France, 1400–1750*, Baton Rouge 1985, originally 1978.
- Muldrew, Craig, *Food, Energy and the Creation of Industriousness. Work and Material Culture in Agrarian England, 1570–1780*, Cambridge 2011.
- Mumford, Lewis, *Technics and Civilization*, New York 1939.
- Mummy, Gene E., “Town and Country in Adam Smith’s *The Wealth of Nations*”, in: *Science and Society* 42, 1 (1978–1979) 458–477.
- Mun, Thomas, *England’s Treasure by Forraign Trade*, London 1664.
- Murphy, Kevin M., Andre Shleifer and Robert Vishny, “The Allocation of Talent. Implications for Growth”, in: *Quarterly Journal of Economics* 106, 2 (1991) 503–530.
- Murray, Charles, *Human Accomplishment: The Pursuit of Excellence in the Arts and Sciences, 800 B.C. to 1950*, New York 2003.
- Murray, Williamson A. “The Industrialisation of War, 1815–1871”, in: Parker, *Cambridge Illustrated History of Warfare*, 216–241.
- Musson, A.E. and Eric Robinson, *Science and Technology in the Industrial Revolution*, Manchester 1969.
- Nasar, Sylvia, *Grand Pursuit. The Story of Economic Genius*, New York 2011.
- N’Diaye, Tidiane, *Der verschleierte Völkermord*, Reinbek 2010, originally *Le génocide voilé*, Paris 2008.
- Needham, Joseph, *Clerks and Craftsmen in China and the West*, Cambridge 1970.
- *The Grand Titration. Science and Society in East and West*, London 1969.
- Needham, Joseph and Colin A. Ronan, *The Shorter Science and Civilisation in China*, 5 Volumes, Cambridge 1980–1995.
- Needham, Joseph, and others, *Science and Civilisation in China*, Cambridge 1956–2008, 24 volumes to date.
- Nef, John U., *War and Human Progress*, Cambridge Mass. 1950.
- Ni, Shawn and Pham Hoang Van, “High Corruption Income in Ming and Qing China”, in: *Journal of Development Economics* 81, 2 (2006) 316–336.
- Nieboer, H.J., *Slavery as an Industrial System*, New York 1971, originally 1910.

- Nordhaus, “Do Real Wage and Output Series Capture Reality?, The History of Lighting Suggests Not”, in: Timothy Bresnahan and Robert Gordon, eds., *The Economics of New Goods*, Chicago 1997, 29–70.
- Norman, E. Herbert, *Japan’s Emergence as a Modern State. Political and Economic Problems of the Meiji Period*, New York 1946.
- North, Douglass C., *Understanding the Process of Economic Change*, Princeton/Oxford 2005.
- “Prologue”, in: J.N. Drobak and J.V.C. Nye, eds., *The Frontiers of the New Institutional Economics*, San Diego/London 1997, 3–12.
  - “Institutions”, in: *Journal of Economic Perspectives* 5, 1 (1991) 97–112.
  - *Institutions, Institutional Change and Economic Performance*, Cambridge 1990.
  - *Structure and Change in Economic History*, New York/London 1981.
- North, Douglass C., William Summerhill and Barry R. Weingast, “Order, Disorder and Economic Change: Latin America versus North America”, in: Bruce B. de Mesquita and Hilton L. Root, eds., *Governing for Prosperity*, New Haven 2000, 17–58.
- North, Douglass C. and Robert P. Thomas, *The Rise of the Western World. A New Economic History*, Cambridge 1973.
- “An Economic Theory of the Growth of the Western World”, in: *Economic History Review* 23 (1970) 1–17.
- North, Douglass, John Joseph Wallis and Barry R. Weingast, *Violence and Social Orders. A conceptual Framework for Interpreting Recorded Human History*, Cambridge 2009.
- Northrup, David, *Indentured Labor in the Age of Imperialism, 1834–1922*, Cambridge 1995.
- ed., *The Atlantic Slave Trade*, third edition; Florence Kentucky, 2010.
- Nunn, Nathan, “Culture and the Historical Process”, in: *Economic History of Developing Regions* 27 (2012) 108–126.
- “Slavery, Inequality and Economic Development in the Americas. An Examination of the Engerman-Sokoloff Hypothesis”, in: Helpman, *Institutions and Economic Performance*, 148–180.
  - “The Importance of History for Economic Development”, in: *Annual Review of Economics, Annual Reviews* 1 (2009) 65–92.
- “The Long-term Effects of Africa’s Slave Trades”, in: *The Quarterly Journal of Economics* 123, 1 (2008) 139–176.
- Nunn, Nathan and Diego Puga, “Ruggedness: The Blessing of Bad Geography in Africa”, in: *Review of Economics and Statistics* 94, 1 (2012) 20–36.
- Nunn, Nathan and Nancy Qian, “The Potato’s Contribution to Population and Urbanization. Evidence from a Historical Experiment”, in: *The Quarterly Journal of Economics* 126, 2 (2011) 593–650.
- “The Columbian Exchange: A History of Disease, Food, and Ideas”, in: *Journal of Economic Perspectives*, 24, 2 (2010) 163–188.
- Nunn, Nathan and Leonard Wantchekon, “The Slave Trade and the Origins of Mistrust in Africa”, in: *American Economic Review* 101, 7 (2011) 3221–3252.
- Nye, John V.C., *War, Wine, and Taxes. The Political Economy of Anglo-French Trade, 1689–1900*, Princeton/Oxford 2007.
- O’Brien, Patrick, “The Contributions of Warfare with Revolutionary and Napoleonic France to the Consolidation and Progress of the British Industrial Revolution”, in:

- Larry Neal and Jeffrey Williamson eds., *History of Capitalism*, Cambridge 2013, forthcoming. A version of it has been published on the Internet as a Working Paper of the Department of Economic History of LSE: <http://www2.lse.ac.uk/economicHistory/workingPapers/2011/WP150.pdf>.
- “Historical Foundations for a Global Perspective on the Emergence of a Western European Regime for the Discovery, Development, and Diffusion of Useful and Reliable Knowledge”, in: *Journal of Global History* 8, 1 (2013) 1–24.
  - “The Triumph and Denouement of the British Fiscal State. Taxation for Wars against Revolutionary and Napoleonic France, 1793–1815”, in: Storrs, *Fiscal-Military State*, 147–200.
  - “Taxation for British Mercantilism from the Treaty of Utrecht (1713) to the Peace of Paris (1783)”, in: Torres Sánchez, *War, State and Development*, 295–356.
  - “Inseparable Connections. Trade, Economy, Fiscal State, and the Expansion of Empire, 1688–1815”, in: Marshall, *The Oxford History of the British Empire*, 53–77.
  - “Political Preconditions for the Industrial Revolution”, in: Patrick O’Brien and Ronald Quinault, eds., *The Industrial Revolution and British Society*, Cambridge 1993, 124–156.
  - “The Foundations of European Industrialization: From the Perspective of the World”, in: José Casas Pardo, ed., *Economic Effects of the European Expansion, 1492–1824*, Stuttgart 1992, 462–502.
  - “The Costs and Benefits of British Imperialism, 1846–1914”, in: *Past and Present* Nr. 120 (1988) 163–200.
  - “Do we have a Typology for the Study of European Industrialization in the XIXth Century?”, in: *The Journal of European Economic History* 15 (1986) 291–333.
  - “European Economic Development: The Contribution of the Periphery”, in: *Economic History Review*, second series 35 (1982) 1–18.
- O’Brien, Patrick and Stanley L. Engerman, “Exports and the Growth of the British Economy from the Glorious Revolution to the Peace of Amiens”, in: Solow and Engerman, *British Capitalism and Caribbean Slavery*, 177–208.
- O’Brien, Patrick and Leandro Prados de la Escosura, eds., *The Costs and Benefits of European Imperialism from the Conquest of Ceuta, 1415, to the Treaty of Lusaka, 1974*. Twelfth International Economic History Congress Madrid 1998. Special Issue of *Revista de Historia Económica* XVI (1998).
- O’Brien, Patrick and Bartolomé Yun-Casalilla, with Francisco Comín Comín, eds., *The Rise of Fiscal States. A Global History, 1500–1914*, Cambridge 2012.
- Ogilvie, Sheilagh, *Institutions and European Trade. Merchant Guilds, 1000–1800*, Cambridge 2011.
- Ogilvie, Sheilagh and Markus Cerman, eds., *European Proto-Industrialization. An Introductory Handbook*, second edition; Cambridge 1996.
- Olson, Mancur, “Big Bills Left on the Sidewalk: Why Some Nations Are Rich and Others Poor”, in: Olson and Kähkönen, *A not-so-dismal Science*, 37–60.
- “Dictatorship, Democracy, and Development”, in: Olson and Kähkönen, *A not-so-dismal Science*, 119–137.
  - *Power and Prosperity. Outgrowing Communist and Capitalist Dictatorships*, New York 2000.

- *The Rise and Decline of Nations. Economic Growth, Stagflation, and Social Rigidities*, New Haven 1982.
- Olson, Mancur and Satu Kähkönen, *A not-so-dismal Science. A Broader View of Economies and Societies*, Oxford 2000.
- Olsson, O., and D.A. Hibbs, Jr., “Biogeography and Long-run Economic Development”, in: *European Economic Review* 49 (2005) 909–938.
- Ormrod, David, *The Rise of Commercial Empires*, Cambridge 2003.
- O’Rourke, Kevin H. and Jeffrey G. Williamson, *Globalization and History. The Evolution of a Nineteenth-Century Atlantic Economy*, Cambridge Mass./London 1999.
- Osborn, Anne, “Property, Taxes and State Protection of Rights”, in: Zelin, Ocko and Gardella, *Contract and Property in Early Modern China*, 120–159.
- Oshima, H.T., *Economic Growth in Monsoon Asia. A Comparative Survey*, Tokyo 1987.
- Osterhammel, Jürgen, “Gesellschaftliche Parameter chinesischer Modernität”, in: *Geschichte und Gesellschaft* 28 (2002) 71–108.
- *China und die Weltgesellschaft. Vom 18. Jahrhundert bis in unsere Zeit*, München 1989.
- Overton, Mark, *Agricultural Revolution in England. The Transformation of the Agrarian Economy 1500–1850*, Cambridge 1996.
- Mark Overton, a.o., *Production and Consumption in English Households, 1600–1750*, London 2012.
- Pacey, Arnold, *Technology in World Civilization. A Thousand-Year History*, Oxford 1990.
- Palmer, S.H., *Economic Arithmetic. A Guide to the Statistical Sources of English Commerce, Industry and Finance 1700–1850*, New York 1977.
- Pamuk, Sevket, “The Black Death and the Origins of the Great Divergence Across Europe, 1300–1600”, in: *European Review of Economic History* 11 (2007) 289–317.
- Pamuk, Sevket and Suleyman Ozmucur, “Real Wages and Standards of Living in the Ottoman Empire, 1489–1914”, in: *The Journal of Economic History* 62 (2002) 292–321.
- Park, Nancy E., “Corruption in Eighteenth-Century China”, in: *The Journal of Asian Studies* 56 (1997) 967–1005.
- Parker, Geoffrey, ed., *Cambridge Illustrated History of Warfare*, Cambridge 1995.
- Parthasarathi, Prasanna, *Why Europe Grew Rich and Asia Did Not. Global Economic Divergence, 1600–1850*, Cambridge 2011.
- “Agriculture, Labour, and the Standard of Living in Eighteenth-Century India”, in: Allen, Bengtsson and Dribe, *Living Standards in the Past*, 99–109.
- “Review Article: *The Great Divergence*”, in: *Past and Present* Nr. 177 (2002) 275–293.
- “Rethinking Wages and Competitiveness in the Eighteenth Century: Britain and South India”, in: *Past & Present* Nr. 158 (1998) 79–109.
- Passin, Herbert, *Society and Education in Japan*, New York 1965.
- Patriquin, Larry, *Agrarian Capitalism and Poor Relief in England 1500–1860: Rethinking the Origins of the Welfare State*, Basingstoke 2007.
- Paula, Silvana de, and Gary A. Dymksi, eds., *Reimagining Growth. Towards a Renewal of Development Theory*, New York 2005.
- Pearson, Michael N., “Merchants and States”, in: Tracy, *Political Economy of Merchant Empires*, 41–116.
- Perdue, Peter C., *China Marches West. The Qing Conquest of Central Eurasia*, Cambridge Mass./London 2005.
- Perkins, Dwight, *Agricultural Development in China, 1368–1968*, Chicago 1969.

- Pétre-Grenouilleau, Olivier, *Les traites négrières. Essai d'histoire globale*, Paris 2004.
- Peyrefitte, Alain, *Du "miracle" en économie. Leçons au Collège de France*, Paris 1995.
- *La société de confiance*, Paris 1995.
  - *L'empire immobile ou le choc des mondes: récit historique*, Paris 1989.
- Pinto, Isaac de, *An Essay on Circulation and Credit in Four Parts and a Letter on the Jealousy of Commerce* translated by S. Baggs, Farnborough 1969, originally 1774.
- Polèse, Mario, *The Wealth & Poverty of Regions. Why Cities Matter*, Chicago/London 2009.
- Pollard, Sidney, *Peaceful Conquest. The Industrialization of Europe 1760–1970*, Oxford 1981.
- *The Genesis of Modern Management. A Study of the Industrial Revolution in Great Britain*, London 1965.
- Pomeranz, Kenneth, "Ten Years After: Responses and Reconsiderations", in: *Historically Speaking* 12, 4 (2011) 20–25.
- "Women's Work, Family and Economic Development in Europe and East Asia: Long-Term Trajectories and Contemporary Comparisons", in: Arrighi, Hamashita and Selden, *The Resurgence of East Asia*, 124–172.
  - "Beyond the East-West Binary. Resituating Development Paths in the Eighteenth-Century World", in: *Journal of Asian Studies* 61, 2 (2002) 539–590.
  - "Is There an East Asian Development Path? Long-Term Comparisons, Constraints, and Continuities", in: *Journal of the Economic and Social History of the Orient* 44 (2001) 322–362.
  - *The Great Divergence. China, Europe, and the Making of the Modern World Economy*, Princeton 2000.
  - *The Making of a Hinterland. State, Society, and Economy in Inland North China, 1853–1937*, Berkeley/Los Angeles/London 1993.
- Poovey, Mary, *A History of the Modern Fact. Problems of Knowledge in the Sciences of Wealth and Society*, Chicago/London 1998.
- Porter, Bruce D., *War and the Rise of the State. The Military Foundations of Modern Politics*, New York 1994.
- Porter, Michael, *The Competitive Advantage of Nations*, New York 1990. I used the re-published version of 1998 with a new introduction.
- Porter, Roy, *Enlightenment. Britain and the Creation of the Modern World*, London 2000.
- Postma, Johannes, *The Dutch in the Atlantic Slave Trade 1600–1815*, Cambridge 1990.
- Potter, J., "The British Timber Duties, 1815–60", in: *Economica* 22, New Series Nr. 86 (1955) 122–136.
- Powelson, John P., *Centuries of Economic Endeavor. Parallel Paths in Japan and Europe and their Contrast with the Third World*, Ann Arbor 1994.
- Prados de la Escosura, Leandro, "Lost Decades. Economic Performance in Post-Independence Latin America", in: *Journal of Latin American Studies* 41 (2009) 2, 279–307.
- Prados de la Escosura, Leandro, ed., *Exceptionalism and Industrialisation. Britain and its European Rivals, 1688–1815*, Cambridge/New York 2004.
- Prak, Maarten, and Jan Luiten van Zanden, eds., *Technology, Skills and the Pre-modern Economy in the West and the East*, Leiden/Boston 2013.
- Putnam, Robert D., together with Robert Leonardi and Raffaella Y. Nanetti, *Making Democracy Work. Civic Traditions in Modern Italy*, Princeton 1993.

- Quataert, Donald, ed., *Consumption Studies and the History of the Ottoman Empire, 1550–1922. An Introduction*, New York 2000.
- Quinn, S., “The Glorious Revolution’s Effect on English Private Finance. A Micro-History”, in: *The Journal of Economic History* 61 (2001) 593–615.
- Rapp, Richard T., “The Unmaking of the Mediterranean Trade Hegemony”, in: *Journal of Economic History* 35 (1975) 499–525.
- Rawski, Evelyn S., *Education and Popular Literacy in Ch’ing China*, Ann Arbor 1979.
- Reardon-Anderson, James, *Reluctant Pioneers. China’s Expansion Northward, 1644–1937*, Stanford 2005.
- Reinert, Erik S., “Review: *Power and Plenty*”, in: *Journal of Global History* 4 (2009) 512–514.
- *How Rich Countries Got Rich... and why Poor Countries Stay Poor*, New York 2007.
- “The Other Canon and Uneven Growth. The Activity-Specific Element of Economic Development”, in: De Paula and Dimsky, *Reimagining Growth*, 52–82.
- ‘The role of the state in economic growth’
- Reinert, Sophus A., *Translating Empire. Emulation and the Origins of Political Economy*, Cambridge 2011.
- Reis, C.A., “Economic Growth, Human Capital Formation and Consumption in Western Europe Before 1800”, in Allen, Bengtsson and Dribe, *Living Standards in the Past*, 195–227.
- Ricardo, David, *On the Principles of Political Economy, and Taxation*, London 1817, reprinted by Penguin Harmondsworth 1971, edited by R.M. Hartwell.
- Ridley, Matt, *The Rational Optimist. How Prosperity Evolves*, paperback edition, London 2011.
- Riello, Giorgio, *Cotton. The Fabric that Made the Modern World*, Cambridge 2013.
- Ringmar, Eric, *Why Europe Was First. Social change and Economic Growth in Europe and East Asia 1500–2050*, London/New York 2007.
- Ringrose, David A., *Spain, Europe and the Spanish Miracle, 1700–1900*, Cambridge 1998.
- Robertson, D.H., “The Future of International Trade”, in: *Economic Journal* 48 (1938) 1–14.
- Rodger, N.A.M., *The Command of the Ocean. A Naval History of Britain, 1649–1815*, London 2004.
- Rodrik, Dani, *The Globalization Paradox. Why Global Markets, States, and Democracy can’t Coexist*, Oxford 2011.
- *One Economics, Many Recipes. Globalization, Institutions and Economic Growth*, Princeton/Oxford 2007.
- Rodrik, Dani, Arvid Subramanian and Francesco Trebbi, “Institutions Rule. The Primacy of Institutions over Geography and Integration in Economic Development”, in: *Journal of Economic Growth* 9 (2004) 131–65.
- Rogers, Nicolas, “Vagrancy, Impressment and the Regulation of Labour in Eighteenth-Century Britain”, in: *Slavery and Abolition* 15, 2 (1994) 102–113.
- Romer, *Advanced Macroeconomics*, Boston 2006.
- Rosen, William, *The Most Powerful Idea in the World. A Story of Steam, Industry, and Invention*, New York 2010.
- Rosenberg, Nathan and Luther E. Birdzell, *How the West Grew Rich. The Economic Transformation of the Industrial World*, New York 1986.

- Rosenthal, Jean-Laurent, "The Development of Irrigation in Provence", in: *The Journal of Economic History* 50 (1990) 615 – 638.
- Rosenthal, Jean-Laurent and Roy Bin Wong, *Before and beyond Divergence. The Politics of Economic Change in China and Europe*, Cambridge Mass./London 2011.
- Ross, E.A., *The Changing Chinese. The Conflict of Western & Oriental Cultures in China*, New York 1911.
- Rossum, Matthias van, and Karwan Fatah-Black, "Wat is winst? De economische impact van de Nederlandse trans-Atlantische slavenhandel", in: *Tijdschrift voor Sociale en Economische Geschiedenis* 9 (2012) 3 – 30.
- Rostow, Walt W., *The Stages of Economic Growth. A Non-Communist Manifesto*, London 1960.
- Rothschild, Emma, "The English Kopf, 1832", in: Winch and O'Brien, *Political Economy of British Historical Experience*, 31 – 60.
- Rowe, William, *China's Last Empire. The Great Qing*, Cambridge Mass./London 2009.
- Roy, Tirthankar, "Knowledge and Divergence from the Perspective of Early Modern India", in: *Journal of Global History* 3, 3 (2008) 361 – 388.
- Rule, John, *The Labouring Classes in Early Industrial England 1750 – 1850*, London/New York 1986.
- Sabel, Charles and Jonathan Zeitlin, eds., *World of Possibilities. Flexibility and Mass Production in Western Industrialization*, Cambridge 2002.
- Sachs, Jeffrey D., *The End of Poverty. Economic Possibilities of our Time*, New York 2005.
- Sachs, Jeffrey D., Andrew D. Mellinger and John L. Gallup, "The Geography of Poverty", in: *Scientific American*, March 2001, 70 – 75.
- Sachs, Jeffrey D. and Andrew Warner, "The Curse of Natural Resources", in: *European Economic Review* 45 (2002) 827 – 838.
- Sachs, Jeffrey D. and A.M. Warner, "Sources of Slow Growth in African Economies", in: *Journal of African Economies* 6, 3 (1997) 335 – 376.
- Saito, Osamu, "An Industrious Revolution in an East Asian Market Economy? Tokugawa Japan and Implications for the Great Divergence", in: *Australian Economic History Review* 50, 2 (2010) 240 – 261.
- Sassen, Saskia, *The Global City. New York, London, Tokyo*, Princeton 1991.
- Schlefer, Jonathan, *The Assumptions Economists Make*, Cambridge Mass./London 2012.
- Schlüter, Andre, *Institutions and Small Settler Economies: A Comparative Study of New Zealand and Uruguay, 1870 – 2008*, Vienna 2013.
- Schumpeter, Joseph A., *Capitalism, Socialism and Democracy* (New York 1942). I quote from the fifth edition, published in London in 1976.
- *Business Cycles: A Theoretical, Historical, and Statistical Analysis of the Capitalist Process*, New York 1939.
  - *Theory of Economic Development. An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle*, Cambridge. Mass. 1936.
- Schurman, Franz H., "Traditional Property Concepts in China", in: *Far Eastern Quarterly* 15 (1956), 507 – 516
- Schurz, L. William, *The Manila Galleon*, New York 1939.
- Schwarz, D. Leonard, *London in the Age of Industrialisation. Entrepreneurs, Labour Force and Living Conditions, 1700 – 1850*, Cambridge 1999.

- Sen, Gautam, *The Military Origins of Industrialisation and International Trade Rivalry*, London 1984.
- Shammas, Carole, "The Revolutionary Impact of European Demand for Tropical Goods", in: John J. McCusker and Kenneth Morgan, eds., *The Early Modern Atlantic Economy*, Cambridge 2000, 163–185.
- Sharma, Ruchir, "Broken BRICs. Why the Rest stopped Rising", in: *Foreign Affairs* 91, 6 (2012) 2–8.
- Shaw, William H., *Marx's Theory of History*, London 1978.
- Sheridan, R.B., "Wealth of Jamaica: A Rejoinder", in *Economic History Review* 21 (1969) 46–61.
- Shiue, Carol H. and Wolfgang Keller, "Markets in China and Europe on the Eve of the Industrial Revolution", in: *American Economic Review*, 97, 4 (2007) 1189–1216.
- Sieferle, Rolf Peter, *The Subterranean Forrest. Energy Systems and the Industrial Revolution*, Cambridge 2010, originally in German Munich 1982.
- Sieferle, Rolf Peter and others, *Transportgeschichte. Der Europäische Sonderweg. Volume I*, Münster/ Hamburg/Berlin/London 2008.
- Sigaut, F., "La Chine, L'Europe et les techniques agricoles (Note critique)", in: *Annales ESC* 44 (1989) 207–216.
- Simon, Julian L., *The Great Breakthrough and its Cause*, Ann Arbor 2000.
- *The Economics of Growth*, Princeton 1977.
- Sivramkrishna, Sashi, "Ascertaining Living Standards in erstwhile Mysore, Southern India, from Francis Buchanan's Journey of 1800–01. An Empirical Contribution to the Great Divergence Debate", in: *Journal of the Economic and Social History of the Orient* 52 (2009) 695–733.
- Skidelsky, Robert, *Keynes. The Return of the Master*, London 2009.
- Skinner, G. William, "Marketing and Social Structure in Rural China", in: *Journal of Asian Studies* 24, 1 (1964) 3–43; 24, 2 (1965) 195–228; 24, 3 (1965) 363–399.
- Smil, Vaclav, *Energy in World History*, Boulder/San Francisco/Oxford 1994.
- Smith, Adam, *An Inquiry into the Nature and Causes of the Wealth of Nations*, originally 1776. I quote from the Liberty Fund Edition; Indianapolis 1981.
- Smith, Richard J., *China's Cultural Heritage, The Qing Dynasty 1644–1912*, second edition; Boulder 1994.
- Solow, Barbara L., "Caribbean Slavery and British Growth. The Eric Williams Hypothesis", in: *Journal of Development Economics* 17 (1985) 99–115.
- ed., *Slavery and the Rise of the Atlantic System*, Cambridge 1991.
- Solow, Barbara and Stanley Engerman, eds., *British Capitalism and Caribbean Slavery. The Legacy of Eric Williams*, Cambridge 2004.
- Sombart, Werner, *Krieg und Kapitalismus*, Munich 1913.
- Soto, Hernando de, *The Mystery of Capital: Why Capitalism Triumphs in the West and Why it Fails Everywhere Else*, New York 2000.
- Sowell, Thomas, *Conquests and Cultures. An International History*, New York 1999.
- Spadafora, David, *The Idea of Progress in Eighteenth-Century Britain*, New Haven/London 1990.
- Spierenburg, Pieter, *The Broken Spell. A Cultural and Anthropological History of Pre-Industrial Europe*, New Brunswick 1991.
- Spufford, Francis, *Red Plenty. Inside the Fifties' Soviet Dream*, London 2010.

- Stangeland, Charles Emil, *Pre-Malthusian Doctrines of Population. A Study in the History of Economic Theory* New York 1966, originally 1904.
- Stark, Rodney, *The Victory of Reason. How Christianity Led to Freedom, Capitalism, and Western Success*, London 2005.
- Stasavage, David, *States of Credit. Size, Power and the Development of European Polities*, Princeton/Oxford 2011.
- Steedman, Carolyn, *Labours lost. Domestic Service and the Making of Modern England*, Cambridge 2009.
- Steensgaard, Niels, "Commodities, Bullion and Services in Intercontinental Transactions before 1750", in: Hans Pohl, ed., *The European Discovery of the World and its Economic Effects on Pre-Industrial Society, 1500–1800. Papers of the Tenth International Economic History Congress. Edited on Behalf of the International Economic History Association*, Stuttgart 1990, 9–23.
- Stein, Burton, *A History of India*, Oxford/Malden 1998.
- Steinfeld, Robert J., *Coercion, Contract and Free Labour in the Nineteenth Century*, Cambridge 2001.
- *The Invention of Free Labour. The Employment Relation in English and American Law*, Chapel Hill 1991.
- Stiglitz, Joseph, *The Price of Inequality. How Today's Divided Society Endangers our Future*, London 2012.
- Storrs, Christopher, ed., *The Fiscal-Military State in Eighteenth-Century Europe. Essays in Honour of P.G.M. Dickson*, Farnham, UK/Burlington, USA, 2009.
- Studer, Roman, "India and the Great Divergence. Assessing the Efficiency of Grain Markets in Eighteenth- and Nineteenth-Century India", in: *The Journal of Economic History*, 68, 2 (2008) 393–437.
- Studwell, Joe, *How Asia Works. Success and Failure in the World's Most Dynamic Region*, London 2013.
- Sugihara, Kaoru, "Labour-Intensive Industrialization in Global History", in: Austin and Sugihara, *Labour-Intensive Industrialization in Global History*, 20–64.
- "Labour-Intensive Industrialization in Global History. The Second Noel Butlin Lecture", in: *Australian Economic History Review* 47 (2007) 121–54.
- "The East Asian Path of Economic Development. A Long-Term Perspective", in: Arrighi, Hamashita and Selden, *The Resurgence of East Asia*, 78–123.
- Sun, E-Tu Zen, "Ch'ing government and the mineral industries before 1800", in: *The Journal of Asian Studies* 27, 4 (1968) 835–845.
- "Mining labor in the Ch'ing period", in: A. Feuerwerker, R. Murphey and M.C. Wright, eds., *Approaches to Modern Chinese History*, Berkeley 1967, 45–67.
- Tagliacozzo, Eric and When-chin Chang, eds., *Chinese Circulations. Capital, Commodities, and Networks in Southeast Asia*, Chapel Hill 2011.
- Taleb, Nassim Nicholas, *The Black Swan: The Impact of the Highly Improbable*, New York 2007.
- Teich, Mikuláš, and Roy Porter, eds., *The Industrial Revolution in National Context. Europe and the USA* Cambridge 1996.
- Teltscher, Kate, *The High Road to China. George Bogle, the Panchen Lama and the First British Expedition to Tibet*, London 2006.

- Temin, Peter, "The Economy of the Early Roman Empire", in: *Journal of Economic Perspectives* 20, 1 (2006) 133 – 151.
- "Is it Kosher to Talk about Culture?", in: *The Journal of Economic History* 57 (1997) 267 – 287.
- Temin, Peter and Hans-Joachim Voth, "Private Borrowing During the Financial Revolution, Hoare's Bank, 1702 – 1742 and its Customers", in: *Financial History Review* 13, 2 (2006), 149 – 178.
- Temple, Robert, *The Genius of China. 3000 Years of Science, Discovery and Invention*, London 1986.
- Thomas, Brinley, "Escaping from Constraints. The Industrial Revolution in a Malthusian Context", in: I.R. Rotberg and Th.K. Rabb, ed., *Population and History. From the Traditional to the Modern World*, Cambridge 1986, 169 – 194.
- "Food Supply in the United Kingdom During the Industrial Revolution", in: Joel Mokyr, ed., *The Economics of the Industrial Revolution*, Totowa 1985, 137 – 150.
- Thomas, R.P. and D.N. McCloskey, "Overseas Trade and Empire, 1700 – 1860", in: R. Floud and D. McCloskey eds., *An Economic History of Britain since 1700. Volume 1: 1700 – 1860*, Cambridge 1981, 87 – 102.
- Thompson, Edward P., "Time, Work-Discipline and Industrial Capitalism", in: *Past and Present* Nr. 38 (1967) 56 – 97.
- *The Making of the English Working Class*, London 1963.
- Thompson, William R., "The Military Superiority Thesis and the Ascendancy of Western Eurasia in the World System", in: *Journal of World History* 10 (1999) 143 – 178.
- Tilly, Charles, *Coercion, Capital and European States*, Oxford/Cambridge Mass. 1990.
- "Demographic Origins of the European Proletariat", in: David Levine, ed, *Proletarianization and Family History*, London 1984, 26 – 52.
- Toledano, E.R., *The Ottoman Slave Trade and its Suppression*, Princeton 1982.
- *As if Silent and Absent. Bonds of Enslavement in the Islamic Middle East*, New Haven 2007.
- Torres Sánchez, Rafael ed., *War, State and Development. Fiscal-Military States in the Eighteenth Century*, Pamplona 2007.
- Tracy, James D. ed., *The Political Economy of Merchant Empires. State Power and World Trade 1350 – 1750*, Cambridge 1991.
- *The Rise of Merchant Empires. Long-Distance Trade in the Early Modern World 1350 – 1750*, Cambridge 1990.
- Trentmann, Frank, ed., *The Oxford Handbook of the History of Consumption*, Oxford/New York 2012.
- Tuma Elias H., *European Economic History. Tenth Century to the Present. Theory and History of Economic Change*, New York 1971.
- Tvedt, Terje, "Why England and not China and India? Water Systems and the History of the Industrial Revolution", in: *Journal of Global History* 5, 1 (2010) 29 – 50.
- United Nations University International Human Dimensions Programme/United Nations Environment Programme, *Inclusive Wealth Report 2012. Measuring Progress Toward Sustainability*, Cambridge 2012.
- Van Dyke, Paul A., *Merchants of Canton and Macao. Politics and Strategies in Eighteenth-Century Chinese Trade*, Hong Kong 2011.

- Veen, Roeland van der, *What Went Wrong with Africa? A Contemporary History*, Amsterdam 2004.
- Velkar, Aashish, *Markets and Measurements in Nineteenth-Century Britain*, Cambridge 2012.
- Verley, Patrick, *L'échelle du monde. Essai sur l'industrialisation de l'Occident*, Paris 1997.
- Vink, Markus, "The World's Oldest Trade": Dutch Slavery and Slave Trade in the Indian Ocean in the Seventeenth Century", in: *Journal of World History* 14, 2 (2003) 131–177.
- Vittorio, Antonio Di, ed., *Historia económica de Europa. Siglos XV–XXX*, Barcelona 2003.
- Voth, Hans-Joachim, "Living Standards and the Urban Environment", in: Floud and Johnson, *Cambridge Economic History of Modern Britain, Volume I*, 268–294.
- *Time and Work in England, 1750–1830*, Oxford 2000.
- Vries, Jan de, "Review of Rosenthal and Wong, *Before and Beyond Divergence*", in: *American Historical Review* 117, 1 (2012) 165–166.
- "The Great Divergence after Ten Years: Justly Celebrated yet Hard to Believe", in: *Historically Speaking* 12, 4 (2011) 13–15.
- "Industrious Peasants in East and West. Markets, Technology, and Family Structure in Japanese and Western European Agriculture", in: *Australian Economic History Review* 51, 2 (2011) 107–119.
- "Limits of Globalization in the Early Modern World", in: *Economic History Review* 63 (2010) 710–33.
- *The Industrious Revolution. Consumer Behaviour and the Household Economy, 1650 to the Present*, Cambridge 2008.
- "The Industrious Revolution and Economic Growth, 1650–1830", in: Paul A. David and Mark Thomas, eds., *The Economic Future in Historical Perspective*, Oxford/New York 2006, 43–72.
- "Connecting Europe and Asia. A Quantitative Analysis of the Cape-Route Trade 1497–1795", in: Dennis O. Flynn, Arturo Giráldez and Richard von Glahn eds., *Connecting Europe and Asia. Global Connections and Monetary History*, Aldershot 2003, 35–106.
- "Economic Growth before and after the Industrial Revolution: A Modest Proposal", in: Maarten Prak, ed., *Early Modern Capitalism*, London 2000, 177–94.
- "The Industrial Revolution and the Industrious Revolution", in: *The Journal of Economic History* 54 (1994) 249–270.
- *The Economy of Europe in an Age of Crisis, 1600–1750*, Cambridge 1976.
- Vries, Jan de, and Ad van der Woude, *The First Modern Economy. Success, Failure, and Perseverance of the Dutch Economy from 1500 to 1815*, Cambridge 1997.
- Vries, Peer, *A World of Surprising Differences. State and Economy in Early Modern Western Europe and China*, ready as a manuscript.
- "Challenges, (Non) Responses and Politics. A Review-Article of Prasannan Parthasarathi, *Why Europe grew Rich and Asia did not: Global Economic Divergence, 1600–1850* (Cambridge 2011)", in: *Journal of World History* 23, 3 (2012) 639–664.
- "Does Wealth Entirely Depend on Inclusive Institutions and Pluralist Politics? A Review of Daron Acemoglu and James A. Robinson, *Why Nations Fail. The Origins of Power, Prosperity and Poverty*", in: *Tijdschrift voor Sociale en Economische Geschiedenis* 9, 3 (2012) 74–93. The text has also been published on the Internet [http://technologygovernance.eu/eng/the\\_core\\_faculty/working\\_papers/](http://technologygovernance.eu/eng/the_core_faculty/working_papers/)
- "Un monde de ressemblances surprenantes?", in: Jean-Claude Daumas, ed., *L'histoire*

- économique en mouvement: entre héritage et renouvellement*, Villeneuve d'Ascq 2012, 311 – 339.
- “Europe and the Rest. Braudel on Capitalism”, in: Guillaume Garner and Matthias Middell, eds., *Aufbruch in die Weltwirtschaft. Braudel wiedergelesen*, Leipzig 2012, 81 – 144.
  - “Review Article: Ian Morris, *Why the West Rules*”, in: *Journal of Global History* 7, 1 (2012) 143 – 147.
  - “Die Staatsfinanzen Chinas und Großbritanniens im langen 18. Jahrhundert. Ein Vergleich”, in: Peter Rauscher, Andrea Serles and Thomas Winkelbauer, eds., *Das Blut des Staatskörpers. Forschungen zur Finanzgeschichte der Frühen Neuzeit*, *Historische Zeitschrift, Beiheft* (2012), 209 – 257. The article is also published, in English, as working paper no 167/12 on the website of the Department of Economic History at the London School of Economics and Political Science <http://www2.lse.ac.uk/economicHistory/workingPapers/economicHistory/home.aspx>.
  - “Europa und die Welt”, in: Markus Cerman, a.o. eds., *Wirtschaft und Gesellschaft. Europa 1000 – 2000*, Innsbruck/Vienna/Bozen, 2011, 411 – 438.
  - “The California School and beyond: how to study the Great Divergence?”, in: *History Compass* 8 (2010) 730 – 751.
  - “Global Economic History: a Survey”, in: *Österreichische Zeitschrift für Geschichtswissenschaften / Austrian Journal of History* 20, 2 (2009) 133 – 170.
  - *Zur politischen Ökonomie des Tees. Was uns Tee über die englische und chinesische Wirtschaft der Frühen Neuzeit sagen kann*, Vienna/Cologne/Weimar 2009.
  - *Via Peking back to Manchester. Britain, the Industrial Revolution, and China*, Leiden 2003.
  - “Governing Growth. A Comparative Analysis of the Role of the State in the Rise of the West”, in: *Journal of World History* 13, 1 (2002) 67 – 138.
  - “The Role of Culture and Institutions in Economic History: Can Economics Be of Any Help?”, *NEHA Jaarboek* 64 (2001) 28 – 60. The text is also published on the net <http://www.lse.ac.uk/collections/economicHistory/GEHN/GEHNWorkshops.htm>.
  - “Are Coal and Colonies really Crucial? Kenneth Pomeranz and the Great Divergence”, in: *Journal of World History* 12 (2001) 407 – 446.
- Wade, Robert, *Governing the Market. Economic Theory and the Role of Government in East Asian Industrialisation. With a New Introduction by the Author*, Princeton/Oxford 2004, originally 1990.
- Wagenbreth, Otfried, Helmuth Düntzsch and Albert Gieseler, *Die Geschichte der Dampfmaschine. Historische Entwicklung – Industriegeschichte – Technische Denkmale*, Münster 2002.
- Wakefield, D., *Fenjia. Household Division and Inheritance in Qing and Republican China*, Honolulu 1998.
- Wallerstein, Immanuel, *The Modern World-System IV. Centrist Liberalism Triumphant, 1789 – 1914*, Berkeley, Los Angeles, London 2011. This volume is referred to as *Modern World-System IV*.
- “World System versus World-Systems. A Critique”, in: Andre Gunder Frank and Barry K. Gills, eds., *The World System. Five Hundred Years or Five Thousand?*, London/New York 1993, 292 – 296.
  - “The West, Capitalism, and the Modern World-System”, in: *Review* 15 (1992) 561 – 619.

- *The Modern World-System III. The Second Era of Great Expansion of the Capitalist World-Economy, 1730–1840s*, San Diego 1989. This volume is referred to as *Modern World-System III*.
  - *The Modern World-System II. Mercantilism and the Consolidation of the European World-Economy, 1600–1750*, New York 1980. This volume is referred to as *Modern World-System II*.
  - *The Modern World-System. Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century*, New York 1974. This volume is referred to as *Modern World-System I*.
- Waley-Cohen, Joanna, *The Sextants of Beijing. Global Currents in Chinese History*, New York 1999.
- Walvin, James, “Freedom and Slavery and the Shaping of Victorian Britain”, in: *Slavery and Abolition* 15, 2 (1994) 246–259.
- Warde, Paul, *Energy Consumption in England and Wales, 1560–2000*, Naples 2007.
- Warsh, David, *Knowledge and the Wealth of Nations. A Story of Economic Discovery*, New York/London 2006.
- Washbrook, David, “India in the Early Modern World Economy. Modes of Production, Reproduction and Exchange”, in: *Journal of Global History* 2, 1 (2007) 87–112.
- Way, Peter “Klassenkrieg: Die ursprüngliche Akkumulation, die militärische Revolution und der britische Kriegsarbeiter” in: Marcel van der Linden and Karl Heinz Roth, eds., with help of Max Henniger, *Über Marx hinaus. Arbeitsgeschichte und Arbeitsbegriff in der Konfrontation mit den globalen Arbeitsverhältnissen des 21. Jahrhunderts*, Berlin/Hamburg 2009, 85–114.
- Webb, Walter Prescott, *The Great Frontier*, Boston 1952.
- Weber, Max, *Wirtschaftsgeschichte. Abriss der universalen Sozial- und Wirtschaftsgeschichte*, Berlin 1991 originally 1923. There are English translations under the title *General Economic History*.
- *Wirtschaft und Gesellschaft: Grundriss der verstehende Soziologie*, edited by Johannes Winckelmann. 5. revised edition, Tübingen 1980. [1922] There are English translations under the title *Economy and Society*.
  - Vorbemerkung zu den Gesammelten Aufsätze zur Religionssoziologie Tübingen, 1920–1921. There are many English versions of the text, also on the web, under the title “Introduction to the Sociology of World Religions”.
- “Die protestantische Ethik und der Geist des Kapitalismus”, in: *Archiv für Sozialwissenschaft und Sozialpolitik* 20, 1 (1905) 1–54; 21, 1 (1905) 1–110. *Österreichische Zeitschrift für Geschichtswissenschaften* 23, 3 (2012) is entirely dedicated to new interpretations and critiques of Max Weber’s ideas on Protestantism and capitalism.
- *The Religion of China*, translated and edited by Hans H. Gerth and with an introduction by C.K. Yang, New York 1968.
- Wei, Betty Peh-T’i, *Ruan Yuan, 1764–1849. The Life and Work of a Major Scholar-Official in Nineteenth-Century China before the Opium War*, Hong Kong 2006.
- Weightman, Gavin, *The Industrial Revolutionaries. The Creation of the Modern World, 1776–1914*, London 2007.
- *What the Industrial Revolution Did For Us*, London 2003.
- Weir, Robert, “Shaftesbury’s Darling”. British Settlement in the Carolinas at the Close of

- the Seventeenth Century”, in: Nicolas Canny, ed., *The Origins of Empire. British Overseas Enterprises to the Close of the Seventeenth Century*, Oxford 1998.
- Weisser, Michael, *Crime and Punishment in Early Modern Europe*, New York 1979.
- Wells, John and Douglas Wills, “Revolution, Restoration and Debt Repudiation. The Jacobite Threat to England’s Institutions and Economic Growth”, in: *The Journal of Economic History* 60 (2002) 418–441.
- White, Colin, *Understanding Economic Development. A Global Transition from Poverty to Prosperity?*, Cheltenham UK/Northampton Mass. 2009.
- White, Eugene N., “Making the French Pay”, in: *European Review of Economic History* 5, 3 (2001) 337–365.
- Whitehead, Alfred North, *Science and the Modern World*, New York 1925. I quote from the paperback edition, New York 1967.
- Wick, Katharina and Erwin Bulte, “The Curse of Natural Resources”, in: *Annual Review of Resource Economics* 1 (2009) 139–156.
- Wiles, R.C., “The Theory of Wages in Later English Mercantilism”, in: *Economic History Review* 21 (1968) 113–126.
- Will, Pierre-Étienne, “Développement quantitatif et développement qualitatif en Chine à la fin de l’époque impériale”, in: *Annales. Histoire, Sciences Sociales* 49 (1994) 863–902.
- “Chine moderne et sinologie”, in: *Annales. Histoire, Sciences Sociales* 49 (1994) 7–26.
- Williams, Eric, *Capitalism & Slavery. With a New introduction by Colin A. Palmer*, Chapel Hill/London 1994, originally 1944.
- Williamson, Claudia R., “Dignity and Development”, in: *The Journal of Socio-Economics* 41 (2012) 763–771.
- Williamson, Jeffrey, *Trade and Poverty. When the Third World fell behind*, Cambridge Mass./London 2011.
- Winch, Donald and Patrick K. O’Brien, eds., *The Political Economy of British Historical Experience, 1688–1914*, Oxford 2002.
- Winter, A., “Population and Migration: European and Chinese Experiences Compared”, in: Peter Clark, ed., *The Oxford Handbook of Cities in World History*, Oxford 2013, 403–420.
- Wittfogel, Karl August, *Oriental Despotism. A Comparative Study of Total Power*, New Haven/London 1957.
- Woodruff, William, *The Impact of Western Man. A Study of Europe’s Role in the World Economy, 1750–1960*, New York 1967.
- Wolf, Arthur P., “Europe and China: Two Kinds of Patriarchy”, in: Engelen and Wolf, *Marriage and the Family in Eurasia*, 215–240.
- Wong, Roy Bin, “Economic History in the Decade after *The Great Divergence*”, in: *Historically Speaking* 12, 4 (2011) 17–19.
- “The Political Economy of Agrarian Empires and its Modern Legacies”, in: Brook and Blue, *China and Historical Capitalism*, 210–245.
- *China Transformed. Historical Change and the Limits of European Experience*, Ithaca/London 1997.
- Woo-Cumings, Meredith, ed., *The Developmental State*, Ithaca/London 1999.
- Wood, Ellen Meiksins, *The Origin of Capitalism. A Longer View*, London/New York 2002.
- Woodman, Harold D., *Slavery and the Southern Economy. Sources and Readings*, New York 1966.

- Woods, Thomas E., *How the Catholic Church Built Western Civilization*, Washington 2005.
- Wright, Gavin, "The Origins of American Industrial Success", in: *American Economic Review* 80 (1990) 651–668.
- Wright, John, *The Trans-Saharan Slave trade*, New York 2007.
- Wright, Robert, *Nonzero. History, Evolution and Human Cooperation*, London 2001.
- Wrigley, E.A., *Energy and the English Industrial Revolution*, Cambridge 2010.
- *Poverty, Progress, and Population*, Cambridge 2004.
  - "The Divergence of England. The Growth of the English Economy in the Seventeenth and Eighteenth Centuries", in: Wrigley, *Poverty, Progress, and Population*, 44–67.
  - *Continuity, Chance and Change. The Character of the Industrial Revolution in England*, Cambridge 1988.
  - "The Classical Economists and the Industrial Revolution", in: E.A. Wrigley, *People, Cities and Wealth*, Oxford/New York 1987, 21–45.
- Xiantang, Li, "The Paradoxical Effect of Silver in the Economies of Ming and Qing China. On the New Myth Created by the 'Global Economic View' of Andre Gunder Frank and Kenneth Pomeranz", in: *Chinese Studies in History* 45, 1 (2011) 84–99.
- Xiaotong, Fei, *From the Soil. The Foundations of Chinese Society. With an Introduction and Epilogue by Gary G. Hamilton and Wang Zheng*, Berkeley/Los Angeles/London 1992. The book contains a set of essays, written by the author in Chinese shortly after World War Two.
- Xue, Yong, "A 'Fertiliser Revolution'? A Critical Response to Pomeranz's Theory of 'Geographic Luck'", in: *Modern China* 33 (2007) 195–229.
- Yang, Anand A., "Indian Convict Workers in Southeast Asia in the Late-Eighteenth and Early-Nineteenth Centuries", in: *Journal of World History* 14, 2 (2003) 179–208.
- Yanikkaya, Halit, "Trade Openness and Economic Growth: A Cross-Country Empirical Investigation", in: *Journal of Development Economics* 72 (2003) 57–89.
- Young, Arthur, *Political Essays Concerning the Present State of the British Empire*, London 1772.
- Zamagni, Vera, *Introduzione alla storia economica d'Italia*, Bologna 2005.
- Zanden, Jan Luiten van, "The Skill Premium and the Great Divergence", in: *European Review of Economic History* 13, 1 (2009) 121–153.
- *The Long Road to the Industrial Revolution. The European Economy in a Global Perspective 1000–1800*, Leiden/Boston 2009.
  - "The Road to the Industrial Revolution. Hypotheses and Conjectures about the Medieval Origins of the European Miracle", in: *Journal of Global History* 3, 3 (2008) 337–360.
- "Tracing the Beginning of the Kuznets Curve. Western Europe during the Early Modern Period", in: *The Economic History Review* 48, 4 (1995) 643–664.
- Zelin, Madeleine, Jonathan Ocko and Robert Gardella, eds., *Contract and Property in Early Modern China*, Stanford 2004.
- Zeuske, Michael, "Historiography and Research Problems of Slavery and the Slave Trade in a Global-Historical Perspective", in: *International Review of Social History* 57, 1 (2012) 87–112.
- Zheng, Yangwen, *The Social Life of Opium in China*, Cambridge 2005.
- Zhuang, Guotu, *Tea, Silver, Opium and War: the International Tea Trade and Western Commercial Expansion into China in 1740–1840*, Xiamen 1993.

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## Epilogue: A rise of the East?\*

Peer Vries, University Vienna

During the last twenty years of my career I have been studying the ‘rise of the West’. That of course is somewhat ironic as these years witnessed its sharp decline and a steep ‘rise of the Rest’. In this text I will use my historical knowledge to interpret that rise. The ‘Rest’ of course is a vague category. Even the so-called BRIC countries, that as a rule hold centre stage in reflections on current global economic change, are a variegated lot. Brazil seems a case of its own. At the moment it still primarily is a supplier of raw materials (agricultural products, fuel and minerals) but it clearly has a much broader potential. Russia’s wealth largely is resource-based. Some two-thirds of its exports consist of fuels, some ten per cent of metals. One may doubt whether its rise actually is a good example of economic development. I will confine myself to the two Asian BRIC-countries, India but first and foremost China, that economically overshadows all other BRICs. They both have a huge population and relatively few resources and they are the countries where the most consequential structural changes are occurring. That does not mean they are similar: in real terms India’s GDP per capita is only about half that of China and the total value of its exports only about one sixth.

I gladly leave it to others to discuss the “patterns of history and what they reveal about the future.”<sup>1309</sup> As late as the 1960s, experts as different as Soviet premier Nikita Khrushchev and American Nobel-Prize winning economist Paul Samuelson ‘knew’ that the economic future belonged to the Soviet Union. In the 1970s, Harvard Professor Ezra Vogel wrote about ‘Japan as number one’ and mused about the lessons America could learn from that country.<sup>1310</sup> At the end of the 1990s, many experts claimed the Asian miracle was over. It was only some ten years ago that Jeremy Rifkin published *The European dream*, arguing that the European Union was an economic superpower rivaling the U.S., with the po-

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\* Der Epilogue meines Buches ‘A rise of the East?’ 479 – 493 ist bereits publiziert worden als ‘Decline of the West – Rise of the East?’, *Journal of Modern European History* 11, 3 (2013) 315 – 328.

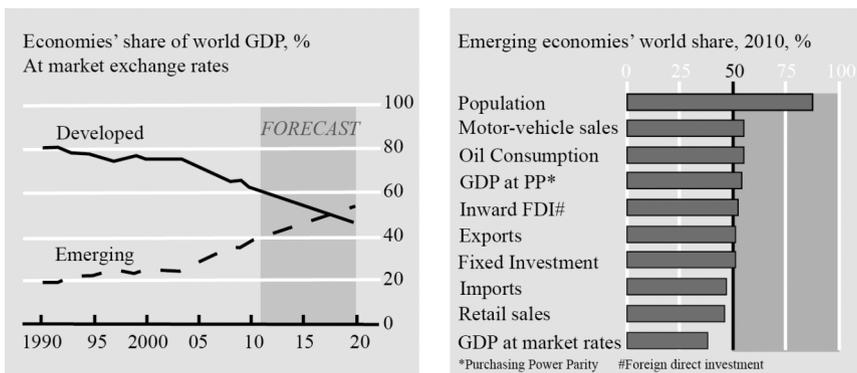
1309 Ian Morris, *Why the West rules – for now. The patterns of history and what they reveal about the future* (New York 2010).

1310 Ezra Vogel, *Japan as number one. Lessons for America* (Cambridge Mass 1979).

tential to become a full world superpower.<sup>1311</sup> At about the same time there were endless debates about *Standort Deutschland* because people were insecure if not downright pessimist about the economic prospects of the country that now is the strongest economy of the West. I am not going to predict a future that by definition is unpredictable. I will confine myself to interpreting the current ‘rise of the East’ on the basis of what I know about the ‘rise of the West’. The focus will be on structural developments in the ‘real’ economy, *not* on finance. That is discussed extensively in other contributions.

We do not need to speculate about a possible decline of ‘the West’, here defined as Western Europe plus the so-called Western offshoots: it is an unmistakable fact. ‘The Rest’, or at least big parts of it, is quickly catching up. Already now over half of global GDP is produced in countries that are *not* member of the OECD. Especially the position of Western Europe is deteriorating fast. In 1870, at its ‘height’, it earned one third of global GDP. In 2003, that had become less than one fifth. The situation did not improve over the last decade.<sup>1312</sup>

Figures 1 and 2. Source: *The Economist*, August 6–12, 2011, Economic Focus



An increasing amount of trade no longer involves the West at all.<sup>1313</sup> Its relevance is also quickly shrinking in terms of population. (See Table 2.) The West now is just one of the players on the global economic stage. Unsurprisingly it no longer is much of a role model. The idea, that with its mountains of debt, millions of unemployed and total lack of orientation, it could teach ‘the Rest’ about ‘good governance’ and ‘development’, has become preposterous. The future looks

1311 Jeremy Rifkin, *The European dream: How Europe's vision of the future is quietly eclipsing the American dream* (Cambridge 2004).

1312 I base myself on figures taken from: Angus Maddison, *Contours of the world economy, 1–2030 AD. Essays in macro-economic history* (Oxford 2007) 381 and *The Economist. Pocket World in Figures 2013* (London 2012).

1313 *The Economist*, January 19–25, 2013, ‘Developing country trade’, page 64.

brighter for the Beijing Consensus, ‘Asian’ values and state capitalism than for the Washington Consensus, ‘Western’ values and free market-capitalism.<sup>1314</sup> The sense of confusion this has generated is striking: people in the new emerging countries overall are more optimistic about their economic situation than people in the old West and the idea that one is better off with a market economy is more popular in China than in Western countries.<sup>1315</sup> Niall Ferguson, fierce defender of Western *civilization*, has begun to worry about Western *degeneration*.<sup>1316</sup>

But let us focus on ‘hard’ economic data. What really counts for most people when they discuss the wealth and poverty of nations is their real income. In *that* respect – on which I will focus in this text – we have to qualify the idea of Western ‘decline’. There still is a lot of catching up to do for ‘the Rest’, even for BRIC countries.

Real per capita income for the year 2010, United States = 100

Table 1. Figures taken from The Economist. Pocket World in figures 2013 Edition (London 2012).

India	7.3
China	16.1
Brazil	23.8
Russia	42.2
France	72.4
United Kingdom	75.5
Germany	79.3
United States	100.0

Not by accident, the number of people wanting to migrate *to* the West is still huge. There, moreover, is an increasing number of Western firms that ‘repatriate’ activities as global wage gaps that made it profitable to leave the West have become smaller and *disadvantages* of outsourcing and offshoring have also become evident.<sup>1317</sup>

But the tide clearly is turning. Can and will it turn so much that China or India might fully catch up with the West or even surpass it? In answering that question

1314 Stefan Halper, *The Beijing consensus. How China’s model will dominate the twenty-first century* (New York 2010); Ian Bremmer, *The end of the free market. Who wins the war between states and corporations?* (New York 2010) and *The Economist*, January 21, 2012, ‘Special Report: State capitalism. The visible hand.’

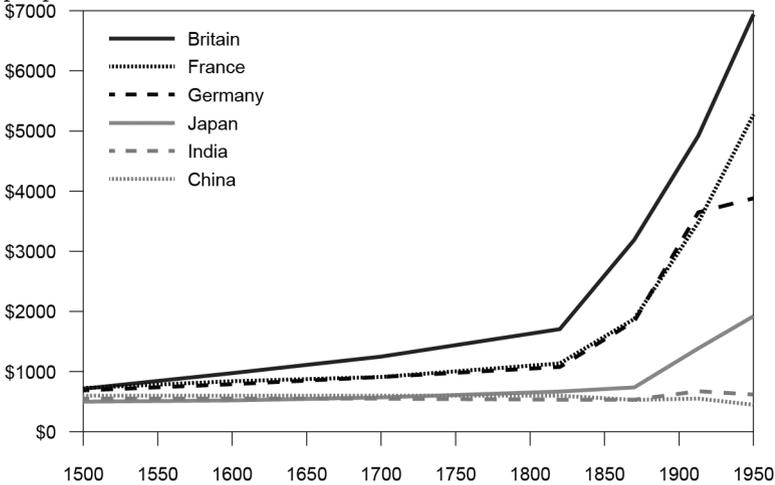
1315 <http://www.pewglobal.org/2012/07/12/pervasive-gloom-about-the-world-economy/>

1316 Niall Ferguson, *Civilization. The West and the rest* (London 2011) and idem, *The Great Degeneration. How institutions decay and economies die* (Harmondsworth 2012).

1317 *The Economist*, January 19 – 25, 2013: *Special Report. Outsourcing and offshoring*.

we have to realize that, as economic historians emphasize the economic gap between the West and the Rest that characterised the global economy since the Industrial Revolution was very ‘abnormal’. Never before had global differences in income been so enormous. The gap between the wealthiest parts of the world and the poorest ones before industrialisation had never been more than five to one. At the moment, GDP per capita in real terms in several African states is less than one-fiftieth that in the United States.<sup>1318</sup>

Figure 3. Based on information in: Angus Maddison, *The world economy. A millennial perspective* (Paris 2001).



Most mainstream economists too have always considered this huge gap ‘abnormal’. In their view it could not last because it actually ‘should’ not have emerged to begin with. In their view the increase of intercontinental economic exchanges since the beginning of the nineteenth century should have led to global *convergence* as, with increasing wealth, countries get bigger stocks of capital and become more vulnerable to decreasing returns to extra investment. Poorer countries, in contrast, that have smaller capital stocks and can import up-to-date capital goods, would profit from higher returns to investment and are thus supposed to catch up. In reality, however, for many decades very few actually did.

1318 See e.g. *The Economist. Pocket World in Figures 2013 Edition*, 27.

## 1. How did the West rise?

Discussion whether ‘the Rest’ will catch up is likely to profit from an analysis of how ‘the West’ rose to begin with. What caused its substantial and sustained growth that emerged with industrialization and gave it an unprecedented global lead?<sup>1319</sup> Many scholars still emphasize capital and capital accumulation. Those of course were important. Empirical analysis, however, has shown that, by far, most of the growth in the West since the Industrial Revolution was not a matter of extra inputs but of innovation. This innovation in turn thrived on human capital. Its role in Western economic growth and development too was pivotal. Raising productivity and increasing production only makes sense when demand changes and increases too. It did: The Western world became known as a consumer society. Rising population also played its role. It had a positive effect on the supply of human capital as well as on consumption. Western growth, to conclude, also got substantial impulses from further integration and extension of markets: nationally, internationally and between continents. Global trade grew faster than global production.

All these motors of growth would have been to no avail without cheap energy and resources. Western economies ‘rose’ at a time when global supplies of energy and resources were large and growing. As a whole, the West till World War II, *exported* energy.<sup>1320</sup> Great Britain’s rise to global economic primacy has even been explained by simple reference to its ‘ghost acreages’ provided by coal and colonies.<sup>1321</sup> Countries like the USA or Germany in this respect were less dependent on imports but *all* growing economies needed and found ample and cheap supplies of energy and raw materials.<sup>1322</sup> The great divide between rich and poor nations tended to coincide with that between wealthy (Western) countries specializing in producing and exporting manufactured goods and poor countries (in the Rest) specialising in producing and exporting raw materials. Industrialising countries for a long, decisive period of time had a comparative advantage in manufacturing and services that often led to a ‘de-industrialization’ of ‘the Rest’.<sup>1323</sup>

In terms of ultimate causes the rise of the West is based on the presence of

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1319 The debate on the origins of the Great Divergence is immense and complicated. I can only refer to my forthcoming book *Escaping poverty. Origins of modern economic growth* (Göttingen 2013).

1320 Paul Bairoch, *Economics and world history. Myths and paradoxes* (Chicago 1993) Part II.

1321 Kenneth Pomeranz, *The Great Divergence. China, Europe and the making of the modern world economy* (Princeton 2000).

1322 Edward B. Barbier, *Scarcity and frontiers. How economies have developed through natural resource exploitation* (Cambridge 2011).

1323 Jeffrey G. Williamson, *Trade and poverty. When the Third World fell behind* (Cambridge Mass. and London 2011).

certain institutions. Most economists agree that for long-run economic growth institutions are decisive. Opinions differ widely when it comes to *what* institutions matter and *how* exactly they matter. Debates focus on the role of the state and the market. Amongst economic historians, in contrast to economists and other social scientists who continue to be under the spell of classical and neoclassical traditions, the view is gaining the upper hand that rising Western economies almost without exception had strong governments, which were able and willing to mobilise lots of resources and people and backed up their economies with their power.<sup>1324</sup>

## 2. Will Western growth persist?

If the factors just referred to have been at the basis of Western economic primacy, what are the odds that it might persist? It is not reassuring that several economists think the Western world faces decreasing returns to innovation. In their view the costs of research and development increase whereas its effects diminish.<sup>1325</sup> I personally would not go as far as to claim that innovation indeed is no longer driving growth. But the fact that it fuelled Western growth over the last centuries is no guarantee it will do so in future. There are some reasons for pessimism.<sup>1326</sup> One of them is the fact that the potential to increase productivity differs between economic sectors. In advanced economies it tends to be lower in the service sector – that in turn tends to be larger the wealthier a country is – than in other sectors. Many activities in the service sector suffer from ‘Baumol’s disease’. They are very labour-intensive and provide little opportunity for technological innovation. Their productivity hardly grows if at all as but they must pay competitive salaries. This can have a dampening effect on overall growth.<sup>1327</sup> Advanced economies face the challenge to permanently upgrade their economies. How can they continue to do so and still generate overall

1324 For views that I in this respect endorse, see Ha-joon Chang, *Kicking away the ladder. Development strategy in historical perspective* (London 2002); Ronald Findlay and Kevin H. O'Rourke, *Power and plenty. Trade, war, and the world economy in the second millennium* (Princeton and Oxford 2007); Erik Reinert, *How rich countries got rich...and why poor countries stay poor* (New York 2007) and, for the concept of a strong, ‘infrastructural’ state Michael Mann, *The sources of social power*, four volumes, passim.

1325 Tyler Cowen, *The Great Stagnation. How America ate all the low-hanging fruit, got sick and will (eventually) feel better* (New York 2011) and *The Economist*, January 12 – 18, 2013: The great innovation debate, pages 9 and 19 – 22.

1326 See for staunch optimism, Matt Ridley, *The rational optimist: how prosperity evolves* (New York 2007).

1327 For Baumol’s cost disease, named after economist William Baumol, see [http://en.wikipedia.org/wiki/Baumol%27\\_s\\_cost\\_disease](http://en.wikipedia.org/wiki/Baumol%27_s_cost_disease)

growth? Not everyone can become a well-paid internationally competitive specialist.

Some scholars also refer to decreasing returns for education. It is no longer evident that more education will lead to more productivity.<sup>1328</sup> There might not be much unused talent left in the West anyhow and many Westerners focus on studying 'the wrong subjects'. This applies to higher education. Levels and standards of general education often deteriorate. The fact, that in most Western countries population hardly grows if at all, whereas it certainly grows old, does not help either.<sup>1329</sup> When it comes to consuming no one can beat the Westerners. They have indulged in enormous overspending, private as well as public, and incurred staggering debts. Over the last thirty years, from 1980 to 2010, in eighteen advanced economies, the ratio of their added debts of households, non-financial corporations and government to their added GDP is estimated to have increased from 167 per cent to 306 per cent. Total household debt in those countries in 2010 amounted to 90 per cent, their total non-financial corporate debt to 113 per cent, and their government debt to 104 per cent of GDP.<sup>1330</sup> Trying to cure the current financial crisis in the West with yet more spending is like giving a bottle of whisky to an alcoholic.

Over the last centuries, Western economies clearly profited from the extension of their markets. At the moment though, they seem to be more at the losing end of globalisation and the advantages of European economic integration have turned out to be very doubtful. A new global economic order is in the making. Whatever the outcome: the West will no longer be able to like in its heydays *force* other parts of the world into a peripheral position. It, first and foremost Europe, lacks the military, political or financial power. As a former imperialist region that is bankrupt, the West definitely need not count on much sympathy. Other global players like China have more money and a less burdened past. When the West rose, it profited from relatively cheap energy and resources. Now Europe, apart from Russia, has become a major importer of energy and of many resources. For Europe's Western offshoots the situation is quite different.

Institutionally the West also looks to be in deep trouble. Many critics of the prevailing capitalist order attribute its predicaments mainly to neo-liberalism, which they associate with casino capitalism, deregulation and a withdrawing state. In some sectors state regulation and intervention have indeed diminished.

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1328 See e.g. the classic text by Lance Pritchett, Where has all the education gone? There are several versions on the Internet.

1329 See e.g. 'Going grey', <http://www.oecd.org/insights/37966982.pdf>. Consulted on 14-06, 2013.

1330 Stephen G. Cecchetti, M.S. Mohanty and Fabrizio Zampolli, 'The Real Effects of Debt', Bank for International Settlements Working Papers No 352, September 2011, <http://www.bis.org/publ/work352.pdf> page 7. Consulted on 28-05, 2013.

But to lay all the blame with 'neoliberalism' is very one-sided. Neither before, let alone during the current financial crisis, have we witnessed an overall withdrawal by the state. Western states are as present as ever during the last decades if not even more, whether one looks at taxation, government debt, the number of state-employees or legislation.<sup>1331</sup> To contrast state capitalism in a rising 'Rest' with neoliberal free-market capitalism in a declining West is an indefensible caricature. In Germany in 2009 government spending accounted for 48 percent of GDP and in the United States for 42. Austria, Belgium, Denmark, France, Italy, the Netherlands, and Sweden all had even higher government spending relative to GDP than Germany. In China government only spent 23 percent of GDP. The results are similar if one focuses on the share of GDP accounted for by government purchases of goods and services. In Germany it amounted to 18 percent, in the United States to 17 percent and in China to only 13 percent. When it comes to state investment China indeed looks a clear example of state capitalism. In 2008 gross fixed capital formation accounted for by the public sector amounted to 21 percent of its GDP. The equivalent figures for developed Western countries are vanishingly small. In the West the state is a spendthrift, borrowing money to pay for goods and services, not an investor.<sup>1332</sup> Western governments and firms will no longer be able to compete with emerging economies in terms of foreign direct investment. Western states at the moment definitely are part of the problem rather than the solution. But the current shift in relative economic strength of West and Rest would also take place if the Western governments would behave differently.

### 3. Will Eastern growth persist?

What about the other side of the equation? Ruchir Sharma sees signs that the rest already "stopped rising".<sup>1333</sup> Whether that indeed is the case, is an empirical question that we cannot decide here. But what does the situation in China and India look like when it comes to their motors of growth? The fact, that innovation was the main motor of growth in the West should in any case tone down optimism about a smooth further rise of 'the Rest'. Up until now, innovation only played a fairly minor role in it. In 1994 Paul Krugman claimed that the growth of

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1331 *The Economist*, March 19–25, 2011, *Taming Leviathan. A special report on the future of the state*.

1332 For these figures see Niall Ferguson, [http://www.foreignpolicy.com/articles/2012/02/09/we\\_re\\_all\\_state\\_capitalists\\_now](http://www.foreignpolicy.com/articles/2012/02/09/we_re_all_state_capitalists_now) and *The Economist* article referred to in the previous note, page 4.

1333 Ruchir Sharma, 'Broken BRICs. Why the Rest stopped rising', *Foreign Affairs* 91, 6 (2012) 2–8.

Asia's new industrialising countries to a very large extent was a matter of increasing inputs, of "perspiration, not inspiration", and would therefore *ceteris paribus* peter out.<sup>1334</sup> Now 20 years later, that looks somewhat hasty. But China's real GDP per capita is still 'only' at the level of Western Europe some 50 years ago. India in this respect lags behind 100 year. The real gap still has to be closed. An influential group of Japanese economic historians has repeatedly – somewhat like Krugman but with a more positive twist – claimed that East Asia's take-off and growth were primarily a consequence of the input of large amounts of industrious and skilled labour.<sup>1335</sup> The Japanese case, however, shows that 'industriousness' can only get an economy to a certain level of wealth. When the country after World War II began to attain Western income levels, its growth was based on the massive input of advanced capital and energy. Its economy had already been set on a pad of up-grading earlier on.<sup>1336</sup> Labour-intensive production can easily become a dead-end street. Besides, the relative labour surplus on which it is based can disappear. There are signs that this is happening in China and that its labour is becoming scarcer and more expensive.<sup>1337</sup> In this case that apparently provides a stimulus to focus more on human capital and upgrade production as shows in increasing investment in education and research and development. There are no reasons whatsoever why China, or India, would *in principle* have to be less innovative than the West and there is still a lot of catching up possible with existing technology. But upgrading is never a smooth, automatic process.<sup>1338</sup>

There also still is a lot of room to catch up for emerging economies when it comes to consumption. In China public investment is enormous. The same goes for Chinese investments, public or private, abroad. Between 2005 and July 2012, Chinese companies invested 460 billion US dollars across the globe, 340 billion of which in the developing world.<sup>1339</sup> Private Chinese consumption, however, is still quite low. A shift from investment to consumption clearly would have

1334 Paul Krugman, 'The myth of Asia's miracle', *Foreign Affairs* 73 (1994) 62–78, page 66.

1335 For a recent discussion see Gareth Austin and Kaoru Sugihara, eds., *Labour-intensive industrialization in global history* (London 2013).

1336 As is described in Kaname Akamatsu's famous flying-geese model. For a brief synthesis see Karl Bachinger and Herbert Matis, *Entwicklungsdimensionen des Kapitalismus. Klassische sozioökonomische Konzeptionen und Analysen* (Vienna, Cologne and Weimar 2009) chapter 3.2.

1337 *The Economist* January 26 – February 1, 2013: 'China's labour force starts to shrink', 48–49.

1338 Several economists are convinced that emerging economies might get caught in a middle-income trap. Others don't. See *The Economist* February 16 - 22, 2013: 'Middle-income claptrap', page 64.

1339 Juan Pablo Cardenal and Heriberto Araújo, *China's silent army. The pioneers, traders, fixers and workers who are remaking the world in Beijing's image* (London 2013) 5. Originally *La silenciosa conquista china* (Barcelona 2011)

consequences but as compared to the West neither government nor consumers are short of money. The same goes for many firms. Whether consumers abroad will continue to buy so many products from China or other emerging economies of course is hard to predict but up until now the emerging economies are clearly profiting from globalization.

Western industrialization that was at the basis of rising Western wealth required revolutionary changes and increases in the use of energy and resources. Even if China and India manage to revolutionize their production, can they also manage to acquire the energy and resources they need? The rise of the West was the rise of a relatively small part of the world's population and it happened in a relatively 'empty' and quite poor world.

Tables 2. Source: Angus Maddison, *Contours of the world economy, 1 – 2030 AD. Essays in macro-economic history* (Oxford 2007) 376 and 378. The figures are rounded. Western population as a percentage of world population will be even lower now.

Population of the West in millions		Population of the world in billions	
1820	145	1820	1
1913	370	1913	1.8
1950	480	1950	2.5
2003	740	2003	6.3

Population of the West as percentage of world population	
1820	14
1913	21
1950	16
2003	12

The world's population has now passed 7 billion. China and India *alone* have some 2.5 billion inhabitants.

Global GDP in real terms increased about *sixty-fold* between 1820 and 2003. That required a huge amount of extra energy and resources and makes one wonder about 'limits to growth'. If China and India would become as rich as the USA, they alone would produce a real GDP about twice as big as that of the entire globe at the moment.<sup>1340</sup> Their immediate energy- and resource-requirements already are and will be even more immense. Their growth rates have been and will in any case for the near future continue to be very high. These are the figures for Western Europe's growth of real income per capita.

<sup>1340</sup> The data for these comments are from Maddison, *Contours of the world economy*, 376 and 379, and *The Economist Pocket World in Figures 2013*, pages 132 and 158.

1820 – 1870	1.68 %
1870 – 1913	2.11 %
1930 – 1950	1.19 %
1950 – 1973	4.79 %

For China over the period 1973–2003, the rate was 7.34 %. Since then it on average was even higher. For India over the period 1973–2003 it was 5.20 %.<sup>1341</sup>

The emerging economies exert a growing demand for energy and resources in a world that is far more crowded and that consumes far more than at the time when the West rose. That means that *ceteris paribus* – always the fundamental clause as no one can predict what innovations might take place in creating, finding, and using sources of energy and other resources – they simply, by growing, will drive up primary product prices. Wealthy countries in the modern world almost without exception have been countries that acquired most of their income by adding value in manufacturing and services, using lots of primary products and energy in the process. They behaved, in ‘Wallersteinian’ terms, as core economies in a global economy in which peripheral economies specialized in producing primary goods.<sup>1342</sup> China’s strategy at the moment is strikingly similar to that of the West in the colonial era and its relations with Africa, Latin America and parts of Asia remind strongly of core-periphery relations.<sup>1343</sup> It exchanges its cheap manufactures against raw materials, often wiping out the industries in the countries it trades with. To be able to do so it needs and imports enormous amounts of energy and other resources. But can one really have a global economy where more than half if not two-thirds of the population acts like inhabitants of the global ‘core’? Who then will provide the cheap inputs?

At the beginning of the twenty-first century in a globalised economy large countries with a huge population cannot simply copy what relatively small countries or regions with a relatively small population did in the nineteenth century. Halfway the nineteenth century, industrialising Britain with some 20 million inhabitants imported about half of its food and raw materials whereas it exported about half the cotton cloth it produced. It was the workshop and even more the service centre of the world. Such a strategy simply would not have been a realistic option for China at the time. It had some 400 million inhabitants in a world with some 1.3 billion inhabitants. It would in the end have made its import

1341 All these growth rates are taken from Maddison, *Contours of the world economy*, 380. GDP in China and India of course was much lower than in Western Europe.

1342 For Wallerstein’s ideas see his *World-systems analysis. An introduction* (Duke University Press 2004).

1343 See e.g. Cardenal and Araújo, *China’s silent army*, passim, in particular 68–72 and the Epilogue. For a rebuttal of the idea that the world is becoming ‘Chinese’ see David Shambaugh, *China goes global: the partial power* (Oxford 2013).

prices skyrocket and its export prices plummet. Will it really be different now that the country has 1.4 billion inhabitants and the world 7 billion?

Can emerging economies reach Western income levels when that means consuming energy and resources at Western levels? Will they not, especially when they have huge populations, sap their own growth, as they will be confronted with high and rising prices of energy and raw materials? Let me briefly comment on the energy situation. According to a recent report by British Petroleum, an additional 1.3 billion people will need energy by 2030.<sup>1344</sup> World income in that year is expected to be roughly double the 2011 level in real terms. Global energy consumption is assumed to increase with 36 per cent between 2010 and 2030. This estimate, based on historical extrapolation and parallels, assumes that energy intensity in terms of energy input per unit of production will converge on the lowest level over the globe (Because worldwide competition and exchange of technology will push it down) and further decrease (As historical data show that extra growth will cost relatively less energy) and that with further development more economies will become service economies. (Whose energy consumption is relatively lower than in industrial economies). It also assumes that with rising prices increased demand can be met as long as competition is present to drive innovation, unlock resources and encourage efficiency. It, however, says nothing about *how high* prices might become and what the impact of those prices and of the new energy imbalances might be on different parts of the world, the question that interests us here. Energy production will grow in all regions but Europe, i. e. except Russia. Over the period to 2030, the US will presumably become nearly self-sufficient in energy, thanks to the revolution in shale gas and tight oil production there. China and India will become increasingly import-dependent with China heading to match Europe as the world's leading energy importer by 2030. It will replace the US as the world's largest oil importing nation already in 2017. Is it too farfetched to assume that energy prices will substantially increase and that this will hit importing countries harder so that the future of China, India (*and* Europe!) will in that respect look bleaker than that of regions with an energy surplus? Would not similar comments apply when it comes to all kinds of resources?

A study by Goldman Sachs on the basis of qualified extrapolations came up

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1344 BP, *Energy outlook 2030* (London 2012) <http://www.bp.com/extendedsectiongenericarticle.do?categoryId=9048887&contentId=7082549>. A historical perspective is provided by Christof Rühl and others, 'Economic development and the demand for energy: a historical perspective on the next 20 years', *Energy Policy* 50, November 2012, 109–116.

with the following predictions of the growth of real GDP per capita between 2006 and 2050.<sup>1345</sup>

#### Growth of real GDP per capita between 2006 and 2050

Table 3. Source: BRICS and beyond, Goldman Sachs study of BRIC and NII nations November 23, 2007.

Brazil	879 %	United States	206 %
Russia	1,137 %	United Kingdom	207 %
India	2,550 %	France	208 %
China	2,432 %	Germany	197 %

It also comes up with figures for many other countries showing huge growth rates. One simply cannot help asking how our world is supposed to find the affordable energy and resources to sustain such growth. But even if we would simply accept these extrapolations most Westerners would still be wealthier per capita than inhabitants of the BRIC countries.

#### Real income per capita in 2050, United States = 100

Table 4. Source: BRICS and beyond, Goldman Sachs study of BRIC and NII nations November 23, 2007.

Brazil	54	United States	100
Russia	85	United Kingdom	86
India	23	France	82
China	54	Germany	74

Let us finally make some comments on the institutional preconditions of growth in the Rest. The Western world institutionally is in an extremely serious crisis. But is the situation better in China, to again focus on the most important BRIC? What are its prospects? Daron Acemoglu and James Robinson emphatically claim that growth in countries with extractive institutions – and many of the countries that currently rise including China would have such institutions – simply *cannot* persist.<sup>1346</sup> The historical support for the thesis of an incompatibility of growth and extractive institutions is not exactly overwhelming

1345 I took these figures from BRICS and beyond, Goldman Sachs study of BRIC and NII nations November 23, 2007.

1346 Daron Acemoglu and James A. Robinson, *Why nations fail. The origins of power, prosperity and poverty* (London 2012).

and the mechanisms it assumes are far from obvious.<sup>1347</sup> When it comes to future developments their work contains a fair amount of wishful thinking. They deny the possibility of long run growth in exclusive situations. Suppose they are right: how long is the long run? Serious economic historians know that no major economy ever rose to hegemony with *laissez-faire* strategies and staunchly defending free and fair trade. Power and profit have always been strongly interconnected in economies heading for primacy. Capitalism to a surprisingly large extent has always been state capitalism, combining visible and invisible hands, in the end trusting the former more than the latter. Whatever the links between growth and economic or political inclusion: there are no reasons to soon expect a democratic China. The country's elites are not at all interested<sup>1348</sup> and China's government in terms of resources is in a much better position than its Western counterparts. The global financial crisis only hit it marginally. That crisis actually only made it stronger as it now can profit even more from its enormous financial reserves.

#### 4. Some educated guesses

The engines of Western wealth are faltering. Looking at the current state of its economy and comparing that with that of emerging economies like those of China or India it is very hard to not be quite pessimist about Europe's future, in particular if substantial and broadly accepted structural reforms are not forthcoming. Its growth looks hard to sustain with faltering innovation, a huge service sector, a stagnating population that is aging very fast, a very unbalanced labour market, an enormous public and private overconsumption, a negative energy and resource balance, many institutional problems and a quickly decreasing international political, military and financial leverage.<sup>1349</sup> In the rest of the West at least the situation with regard to resources and energy and the demographic situation looks better. For China, to again focus on that emerging country, there still is room for catching up technologically. The country still has some cheap labour reserves and ample possibilities to develop human capital. Private consumption can increase very substantially when people are no longer

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1347 For an extensive critique I refer to my 'Does wealth entirely depend on inclusive institutions and pluralist politics?' [http://technologygovernance.eu/eng/the\\_core\\_faculty/working\\_papers/](http://technologygovernance.eu/eng/the_core_faculty/working_papers/)

1348 See. e.g. James Mann, *The China fantasy. Why capitalism will not bring democracy to China* (New York 2007) and Cardenal and Araújo, *China's silent army*, 40 and 263–265.

1349 For an assessment of the Western predicament that is not exactly optimist see Stephen D. King, *When the money runs out. The end of Western affluence* (New Haven and London 2013).

forced to save by the state and by lack of welfare arrangements. The state still disposes of enormous reserves. The major and very real threat to its sustained growth – apart of course from all sorts of more or less (un)predictable domestic or international ‘accidents’ or ‘crises’ that tend to accompany unequal growth and sharply rising inequality – in my view will be scarcity and rising prices of energy and resources.

My hunch would be that we enter a kind of neo-Malthusian world where the limited availability of resources will constrain growth and make it more problematic. That world will also be neo-mercantilist in the sense that just like during the heydays of European mercantilism economic rivalry between countries over scarce resources and policies of beggaring one’s neighbour will become rife. I am not exactly happy about it but I would not be surprised if the global economy of the twenty-first century would in these respects be more like that of the eighteenth century before industrialization than that of the nineteenth and twentieth centuries.



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