

Unconditional Convergence: The Spread of Manufacturing to the Periphery 1870-2007

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March 25 2012 draft
(not for citation)

The research leading to these results has received funding from the European Research Council under the *European Union's Seventh Framework Programme (FP7/2007-2013)* / ERC grant agreement no. 249546. In collecting the data, we are grateful to Alberto Baffigi, Ivan Berend, Luis Bértola, Steve Broadberry, Albert Carreras, Myung So Cha, Roberto Cortés Conde, Alan de Bromhead, Niamh Devitt, Rafa Dobado, Giovanni Federico, David Greasley, Ola Grytten, Gregg Huff, Elise Huillery, Martin Ivanov, Isao Kamata, Duol Kim, John Komlos, Toru Kubo, Pedro Lains, John Lampe, Sibylle Lehmann, Carol Leonard, Debin Ma, Graciela Marquéz, Matthias Morys, Aldo Musacchio, Noel Maurer, Ian McLean, Branko Milanovic, Steve Morgan, José Antonio Ocampo, Roger Owen, Les Oxley, Şevket Pamuk, Dwight Perkins, Guido Porto, Leandro Prados de la Escosura, Tom Rawski, Jim Robinson, Max Schulze, Martin Shanahan, Alan Taylor, Pierre van der Eng, Ulrich Woitek, and Vera Zamagni. We are also grateful for the comments from Michael Clemens, the Montevideo December 2010 graduate economic history class, and participants at the APEBH conference at Berkeley, CA (February 18-20, 2010). The usual disclaimer applies.

Abstract

This paper documents industrial output growth around the poor periphery 1870-2007 (Latin America, the European periphery, the Middle East, South Asia, Southeast Asia, East Asia, and sub-Saharan Africa). Intensive and extensive industrial growth accelerated, especially during the interwar and ISI 1950-1972 periods when the precocious poor periphery leaders underwent a surge and more poor countries joined their modern industrial growth club. Furthermore, by the interwar years the majority were even catching up on the core leaders Germany, the US and the UK, a process that accelerated during 1950-1972. In short, there was unconditional industrial convergence long before the modern BRICS and even before the Asian Tigers, a half century before or more. What explains the spread of the industrial revolution world-wide and this catching up that was shared by so many in the backward poor periphery? How did distance from the core, policy, terms of trade, cheap labor, labor quality, fuel costs, and other forces influence the timing and pace of the convergence? The answers will appear in subsequent papers, but this one makes it clear that the convergence of aggregates like GDP per capita over the past century have been much more modest and “conditioned” compared with tradeable manufactures in which technological transfer is much more extensive.

JEL No. F1, N7, O2

Key words: Third World industrialization, unconditional convergence, history.

1. Introduction

To a large extent, world economic history since 1800 has been the history of how the international economic system adjusted to the dramatic asymmetric shock that was the Industrial Revolution. The transition to modern economic growth, based on new energy-intensive manufacturing technologies, created an international economic system that was lop-sided in the extreme. The new technologies originated in Britain, and spread with a short lag to western continental Europe and North America. The result was that the modest pre-industrial economic divergence between the Western European leaders and the rest gave way to the Great Divergence of the nineteenth and twentieth centuries. The richest region in the world -- Western Europe -- had a per capita GDP 81 per cent higher than the world average in 1820, while the poorest -- Africa -- had per capita incomes about two thirds of the world average. Western European incomes were about 2.7 times those in Africa. By 1913, they were more than five times higher than African incomes, while "British offshoots" in North America and Oceania had incomes more than eight times higher (Maddison 2010).

The Industrial Revolution also gave rise to a "Great Specialization", with stark North-South patterns of specialization characterizing international trade flows (Robertson 1938; Lewis 1978). The new technologies gave Britain, France, Germany, the United States (US) and eventually other countries in Western Europe and North America a powerful potential comparative advantage in manufacturing relative to the economies of the European periphery, Africa, Latin America, the Middle East, and even Asia, which in the middle of the eighteenth century accounted for the lion's share of world industrial output (Bairoch 1982). This potential comparative advantage was increasingly realized across the nineteenth century, as ocean freight rates declined, as railroads linked port to interior, and as trade boomed. The result was large volumes of manufactured goods exported from what we will call the industrial core and, in exchange, large volumes of primary commodities imported from what we will call the poor periphery. This exchange posed both challenges and opportunities for countries in the periphery. On the one hand, falling transportation costs and rising core incomes allowed them to expand greatly their primary exports, and to enjoy the

benefits of improving terms of trade. On the other hand, the same forces led to deindustrialization, at least in those countries which had the industry to lose in the first place. If modern industry provided the route to modern growth, then the static benefits of trade were potentially offset, or even outweighed, by the dynamic consequences of deindustrialization (Williamson 2011a).

Although some countries such as Argentina and Uruguay became rich from primary commodity exports, the key question for periphery countries would eventually be how to join the faster-growing industrial club. Falling transport costs cut both ways. On the one hand, their domestic industries were increasingly exposed to European competition. On the other hand, transport costs eventually fell to the point where the gravitational attraction of thick coal seams, large iron ore deposits, extensive oil fields, and land suitable for producing fibers weakened: increasingly, poorly-endowed industrial laggards could purchase these inputs on world markets at competitive prices, and well-endowed leaders lost that edge (Wright 1990). Trade policy also mattered. In the years following 1870, poor industrial followers interacted with a world economic system that went through several radically different phases: the globalization of the late nineteenth century; its disintegration during the interwar period; the reintegration of the Atlantic economy following World War 2, which coincided with the spread of state-led communism, decolonization, and import substitution (ISI) policies in much of the developing world; and the second wave of globalization which embraced more and more of the world from the 1980s onwards.

Which international trade regimes favored the spread of modern industry to the developing world – the liberal epochs of the late nineteenth and twentieth centuries, or the intervening periods of disintegration? Theory is ambiguous: trade facilitated the spread of technologies, as did the rise of modern multinational enterprise, and trade allowed developing countries to import cheap energy and other raw materials, and to find export markets for their labor-intensive manufactures. But trade may also have made it difficult for those industries to get off the ground in the first place, faced as they were with the competition of the industrial core.

This paper explores these successive phases of the world economy, and asks: when did modern industry begin to develop in the poor regions of the world? Which were the leading industrial nations in the poor European periphery, the Middle East, Asia, Africa and Latin America, and when did they begin the transition to rapid industrial growth? How typical were these leading countries of their regions more generally? Did some regions industrialize earlier than others, or did they have enough in common to share the same industrial experience? Which periods were those of most rapid convergence of the periphery on the industrial core?

2. The Industrial Output Data

We have collected manufacturing and industrial output data for as many countries between 1870 and 2007 as the historical records permit. We have preferred manufacturing to industrial output whenever possible. We have also preferred value added to gross output whenever possible. The latter choice was driven entirely by the need for consistency: in recent years, many scholars across the world have been building historical national accounts that have pushed back our quantitative knowledge of periphery-country GDP into the interwar or even pre-1914 period. Where these national accounts have been reconstructed using the output approach, the result has yielded data on value added in constant prices for the manufacturing (or industrial) sector. For this reason, we start with the manufacturing value added data provided by the World Bank's World Development Indicators, supplemented with information taken from the United Nation's Industrial Statistics Database.¹ Other frequently used sources include Smits, Woltjer and Ma (2009), the Montevideo-Oxford Latin American Economic History Database, and the United Nation's historical trade statistics database.² As we went further back in time, we relied increasingly on individual country

¹ Available on CD from the United Nations.

² Available at <http://www.rug.nl/feb/onderzoek/onderzoekscentra/ggdc/data/hna>, <http://oxlad.geh.ox.ac.uk/> and http://unstats.un.org/unsd/trade/imts/historical_data.htm respectively.

sources, and on recent and ongoing work by many generous colleagues.³ A data appendix details the sources used for each country and time period.

We focus on six periods. The years before World War I are divided into two sub-periods, before and after 1890. There is then the interwar period from 1920 to 1938; the post-war reconstruction years from 1950 to 1972; the period following the oil crises from 1973 to 1989; and the years of rapid globalization between 1990 and 2007. There are 175 countries in the 1990-2007 sample. Naturally, the farther back into the past we go, the fewer are the countries whose manufacturing growth we can document, and the smaller are the samples. Thus, our sample falls to 141 countries in 1973-1989, and to 93 in 1950-1972.⁴ We have information for 55 countries in the interwar period, 41 in 1890-1913, and 31 in 1870-1889. The empirical analysis that follows will make an effort to deal with the issues of changing sample sizes over time, by using both constant and variable samples.

Appendix Table A.1 lists those countries for which we have the data for each of the three periods prior to World War 2. As can be seen, the countries are largely European for the earliest period (including many poor countries in the European periphery), but even here we also have data for Japan, British India (including present-day Pakistan and Bangladesh), Dutch Indonesia, Siam (Thailand), Argentina, Brazil, Chile, Uruguay and Ottoman Turkey. After 1890, we can add China, Korea, Burma, the Philippines, Taiwan, Colombia, Mexico and Peru to this list. And by the interwar period, we have information for six additional Latin American countries, as well as for Egypt, what was then known as the Belgian Congo, and South Africa. By and large, it seems reasonable to surmise that the data tend to become available only when countries start to industrialize. At least in the days before uniform statistical reporting standards, it is hard to see why a poor country would have computed industrial output indices prior to the onset of modern industrialization. The data allow us to track

³ These are listed in the acknowledgments. Earlier working papers on this topic by one of the present authors (Williamson 2010, 2011b) collected a lot of the data used here for 1870-1938. Appendices to those working papers supply details on the sources for those years, but the data appendix here is self-contained.

⁴ We exclude countries with only two or three data points in a period, since we could not meaningfully estimate growth rates for these. In an earlier draft, we used all available observations, which increased the sample sizes somewhat, but the results were the same.

the spread of industrialization across the periphery in a fairly robust manner. But to the extent that countries were experiencing modern industrialization shortly before they started to collect industrial statistics, what we are documenting here probably understates the early spread of modern manufacturing.

These countries are divided into nine groups in the tables and figures that follow. First, there are the three traditional industrial leaders: the United Kingdom (UK), Germany and the US. Next, there are other rich industrial countries in the European core: Belgium, France, Luxembourg, the Netherlands and Switzerland. A third, intermediate group lying between the European core and periphery contains the three Scandinavian countries, while the fourth, the European periphery, includes all other European countries in the south and east. The settler economies of Australia, Canada and New Zealand form a fifth group (hereafter Newly Settled). The remaining four groups are the Middle East and North Africa, Asia, sub-Saharan Africa, and Latin America and the Caribbean (hereafter simply Latin America).

3. Manufacturing Output Growth

When did individual countries and entire regions start recording rapid industrial output growth? When did lagging regions begin to experience higher growth than the rich industrial nations, thus catching up? Were there any periods when the catching up stopped? When industrially backward countries converged on the industrial core, was this due to more rapid periphery growth, or to slower core growth?

Tables 1 through 4 provide some answers to these questions. The growth rates reported there are computed by regressing the log of real manufacturing output during the period in question on a time trend. Appendix Table A.2 supplies the details for each country, but Tables 1-4 summarize this information in a more digestible fashion. Table 1 reports average annual growth rates of industrial output in our nine regions and six time periods between 1870 and 2007. In each case, the regional growth rate is a simple unweighted average of individual country growth rates. Table 2 presents the growth rates in each

region relative to the growth rate in the three industrial leaders, where the core growth is a GDP-weighted average of the three.

Since the country samples change over time, use of Tables 1 and 2 should be limited to growth rate comparisons between regions in any given period. Of course, we can only compute growth rates where output data are available, and, as noted earlier, one can surmise that where output data are missing for the earlier periods, there was probably not much modern manufacturing to measure. For example, according to Table 1, there was an unweighted average manufacturing growth rate of 4.2 per cent per annum in Asia between 1890 and 1913. This figure represents an average of Japan, China, British India, Indonesia, Korea, Burma, the Philippines, Taiwan and Thailand. These nine countries account for a very large share of the late nineteenth century Asian economy, but it might be reasonable to assume that the average Asian industrial growth rate was in fact a little lower than 4.2 per cent during this period, reflecting lower rates in those countries for which we do not have data. Perhaps, but the same could be said of all periphery regions, thus minimizing inference errors when comparing across regions. Tables 1 and 2 tell us for each region and each period that there were clusters of countries growing at the stated rate: in other words, that industrialization was taking place somewhere in that region at this rate during this particular time period. How typical these experiences might have been of the region as a whole is an issue that we will return to below.

For now, we merely note that industrialization is something that has historically tended to take place in geographic clusters, just as it did in Europe at the start of the industrial revolution (Pollard 1982, Allen 2009). It is therefore informative to know where these clusters were located, whether the regional leaders of the clusters remained the same between periods, and exactly when others in the region joined them. Table 3, and Appendix Table A.2, provide some answers. Table 3 provides the growth rates for the five leaders in each peripheral region, by period. For each region, the leaders are ordered according to how early they first achieved a 10 year average growth rate of 5 per cent or higher.⁵

⁵ Details are given in Table A.8.

Ignoring the Newly Settled and Scandinavian countries, and thus focusing on the truly poor periphery, the two fastest growing regions up to 1913 were the European periphery and Latin America (Table 1). Latin America was led by Chile, Brazil, Argentina, Uruguay and Mexico, exactly the same countries that led in the ISI 1950-1972 period, although many others had joined them by then. Up to 1913, the European periphery was led by Finland, Russia, Austria, Hungary, and Spain. Several of these also led in the centrally-planned era 1950-1972, although many others had joined them by then. Asia was led by Japan and China, with the Philippines, Taiwan and Korea following. Thus, there is strong historical persistence in the data.

Table 4 focuses instead on comparisons between periods. For each region and pairs of contiguous periods, we take the largest sample of countries for which we have data for both periods, and then compute the change in average growth rates between them. For example, we have data for four Asian countries in both 1870-89 and 1890-1913 (Japan, India, Indonesia and Thailand). The average growth rate for those four countries was 1.2 percentage points higher after 1890 than before. These comparisons are based on constant samples between contiguous periods. Since we have data for more countries in later periods, the sample size of the constant-sample pairs used in these comparisons increases over time. Appendix Table A.3 reports comparisons based on sample sizes which remain constant over time. Broadly speaking, the same stylized facts emerge from the appendix table as do from Table 4, which uses as much information as possible.

Finally, Tables 1, 2 and 4 are based on growth rates for all countries barring those with fewer than four observations in a period, a liberal inclusion criterion. Tables A.4-A.7 present results based on a sample which includes only countries with observations for more than half the years in the given period, a more conservative inclusion criterion. These appendix tables also yield results very similar to those presented in the text. In short, our results seem robust to the historical samples used.

Tables 1, 2 and 4 provide two versions of these exercises. Panel A uses the same industrial leaders throughout -- the UK, Germany, and the United States. Panel B, on the other hand, recognizes that the UK was no longer an industrial

leader in the post-World War 2 era, while Japan was. The three industrial leaders from 1950 onwards are thus taken to be the US, Germany, and Japan. Of course this means that the composition of various country groups in Panel B changes after 1950. Thus, now Japan is removed from the Asian group after 1950, while the UK is added to the core European group.

Table 1. Industrial growth rates

Panel A: Leaders always US, Germany and UK

Groups	1870- 1889	1890- 1913	1920- 1938	1950- 1972	1973- 1989	1990- 2007
Leaders	3.0	3.4	1.9	5.2	1.0	2.1
European Core	2.5	2.8	2.9	4.0	1.4	2.0
Scandinavia	2.8	4.8	3.9	4.9	1.1	3.1
European Periphery	4.7	5.0	4.7	8.6	3.5	2.8
Newly Settled	4.9	4.6	2.3	5.2	2.0	2.3
Asia	1.5	4.2	4.2	8.1	5.5	4.2
Latin America	6.3	4.4	2.8	5.2	2.9	2.2
Middle East and North Africa	1.2	1.2	4.9	7.6	6.4	4.5
Sub-Saharan Africa			4.6	5.0	3.5	3.8
Countries	31	41	54	93	141	175

Panel B: Leaders are US and Germany, plus UK before 1939, Japan after

Groups	1870- 1889	1890- 1913	1920- 1938	1950- 1972	1973- 1989	1990- 2007
Leaders	3.0	3.4	1.9	7.9	2.3	2.2
European Core	2.5	2.8	2.9	4.0	1.1	1.8
Scandinavia	2.8	4.8	3.9	4.9	1.1	3.1
European Periphery	4.7	5.0	4.7	8.6	3.5	2.8
Newly Settled	4.9	4.6	2.3	5.2	2.0	2.3
Asia	1.5	4.2	4.2	7.8	5.5	4.3
Latin America	6.3	4.4	2.8	5.2	2.9	2.2
Middle East and North Africa	1.2	1.2	4.9	7.6	6.4	4.5
Sub-Saharan Africa			4.6	5.0	3.5	3.8
	31	41	54	93	141	175

Note: The table reports the unweighted average industrial growth rates by region. Individual country growth rates are computed as the β coefficient of the following regression: $Y=\alpha+\beta t$ where Y is the natural logarithm of industrial production and t is a linear time trend. Regressions are performed only where at least four observations are present.

Table 2. Catching Up: Industrial growth rates relative to the leaders**Panel A: Leaders are always US, Germany and UK**

Groups	1870- 1889	1890- 1913	1920- 1938	1950- 1972	1973- 1989	1990- 2007
European Core	-0.4	-0.6	1.1	-1.0	0.0	-1.1
Scandinavia	-0.1	1.3	2.1	0.0	-0.2	0.0
European Periphery	1.8	1.5	3.0	3.6	2.1	-0.3
Newly Settled	2.0	1.1	0.6	0.2	0.7	-0.8
Asia	-1.4	0.8	2.5	3.1	4.1	1.1
Latin America	3.4	0.9	1.1	0.2	1.5	-0.9
Middle East and North Africa	-1.7	-2.3	3.1	2.7	5.0	1.3
Sub-Saharan Africa			2.8	0.0	2.1	0.7

Panel B: Leaders are US and Germany, plus UK before 1939, Japan after

Groups	1870- 1889	1890- 1913	1920- 1938	1950- 1972	1973- 1989	1990- 2007
European Core	-0.4	-0.6	1.1	-2.4	-1.1	-1.0
Scandinavia	-0.1	1.3	2.1	-1.5	-1.1	0.3
European Periphery	1.8	1.5	3.0	2.1	1.2	0.0
Newly Settled	2.0	1.1	0.6	-1.3	-0.2	-0.5
Asia	-1.4	0.8	2.5	1.3	3.3	1.5
Latin America	3.4	0.9	1.1	-1.3	0.7	-0.6
Middle East and North Africa	-1.7	-2.3	3.1	1.2	4.1	1.6
Sub-Saharan Africa			2.8	-1.5	1.2	1.0

Note: Average industrial growth rates by region relative to the leaders are computed in two steps. First, we compute the average growth rates for each region as in Table 1. Second, we subtract the GDP-weighted average of the period-average growth rates for the three leaders. Note that the leader averages in Table 1 are unweighted, while these are GDP-Weighted.

Table 3

Group	Country	In	1870- 1889	1890- 1913	1920- 1938	1950- 1972	1973- 1989	1990- 2007
European Periphery	Finland	1880	3.7	5.0	6.7	5.9	3.5	6.4
	Russia	1880	5.3	4.6	15.3	8.3	4.2	-0.5
	Austria	1883	4.9	3.3	2.3	5.8	2.5	2.8
	Hungary	1883	4.9	3.3	4.0	7.3	2.3	5.9
	Spain	1884	3.4	1.3	-0.5	8.8	1.2	2.9
Asia	Japan	1899	3.0	5.3	6.7	12.4	3.9	1.0
	China	1900		7.8	5.3	9.2	8.4	9.8
	Philippines	1913		6.3	3.4	7.0	1.7	3.3
	Taiwan	1914		5.1	4.4	11.5	9.0	4.9
	Korea	1912		8.0	7.1	13.2	11.8	7.4
Latin America and Caribbean	Chile	1881	7.5	3.9	2.6	5.2	2.0	3.5
	Brazil	1884	7.2	0.0	3.2	7.8	2.9	2.1
	Argentina	1886	6.4	8.8	4.2	4.9	-0.9	1.7
	Uruguay	1886	4.2	3.9	3.2	1.4	1.5	0.1
	Mexico	1902		6.0	3.7	7.1	3.1	3.2
Middle east and North Africa	Turkey	1931	1.2	1.2	8.1	7.6	5.0	4.1
	Morocco	1949				4.8	4.2	2.9
	Tunisia	1950				3.5	7.7	4.6
	Algeria	1959				9.7	7.9	0.1
	Egypt	1962			1.6	6.9	7.9	5.6
Sub-Saharan Africa	South Africa	1924			6.7	6.9	2.8	2.6
	Congo, Dem. Rep. of	1940			2.4	-4.2	-0.4	-3.9
	Zimbabwe	1951				-0.3	2.7	-3.7
	Kenya	1964				8.5	5.4	1.7
	Zambia	1966				8.3	2.1	2.8

Note: "In" indicates the first year that a country experienced a 10-year average backward looking growth rate greater than 5 per cent. Sources: Tables A.2 and A.8.

Table 4. Industrial growth accelerations and decelerations

Panel A: Leaders are always US, Germany and UK

Groups	(1890/1913)- (1870/1889)	(1920/1938)- (1890/1913)	(1950/1972)- (1920/1938)	(1973/1989)- (1950/1972)	(1990/2007)- (1973/1989)
Leaders	0.3	-1.5	3.3	-4.3	1.1
European Core	0.3	0.0	2.5	-2.6	0.6
Scandinavia	2.0	-0.9	1.1	-3.8	1.9
European Periphery	-0.4	0.8	3.9	-4.7	-0.6
Newly Settled	-0.3	-2.2	2.9	-3.2	0.3
Asia	1.2	0.0	3.5	-1.7	-1.2
Latin America	-2.2	-0.7	3.2	-3.3	-0.6
Middle East and North Africa	0.0	6.9	2.4	-1.7	-1.7
Sub-Saharan Africa			-3.2	-0.5	-1.0

Panel B: Leaders are US and Germany, plus UK before 1939, Japan after

Groups	(1890/1913)- (1870/1889)	(1920/1938)- (1890/1913)	(1950/1972)- (1920/1938)	(1973/1989)- (1950/1972)	(1990/2007)- (1973/1989)
Leaders	0.3	-1.5	4.3	-5.6	-0.2
European Core	0.3	0.0	2.5	-2.9	0.7
Scandinavia	2.0	-0.9	1.1	-3.8	1.9
European Periphery	-0.4	0.8	3.9	-4.7	-0.6
Newly Settled	-0.3	-2.2	2.9	-3.2	0.3
Asia	1.2	0.0	3.2	-1.3	-1.1
Latin America	-2.2	-0.7	3.2	-3.3	-0.6
Middle East and North Africa	0.0	6.9	2.4	-1.7	-1.7
Sub-Saharan Africa			-3.2	-0.5	-1.0

Note: These tables report the average difference in groups' growth rates between successive sub-periods. Since the countries included in each group change over time, the row entries of this table are not comparable. However, the column entries are comparable.

Growth among the leaders was fairly steady between 1870 and 1913, averaging 3-3.4 per cent per annum, followed by a decline to 1.9 per cent during the interwar period (Table 1). The table confirms the impressive boom during 1950-72, a period often called Europe's Golden Age. If we maintain the same three leaders into the postwar era, their growth reached 5.2 per cent per annum during the growth miracle (Panel A); if instead the UK is replaced by Japan, leader growth rates reached 7.9 per cent per annum (Panel B). These were, of course, the years of the German *Wirtschaftswunder* and the Japanese postwar growth miracle, and this postwar recovery set the bar very high for any other region to surpass it, although Asia, the European periphery and the Middle East and North Africa all did (Table 2, Panel B)). Since 1972, however, growth in the three post-war leaders has only averaged slightly more than 2 per cent per annum. This leaders' slow down must have been due in part to the fact that war reconstruction forces were exhausted and to the poor macroeconomic conditions following the oil crises. But long-term deindustrialization forces were probably playing the bigger role, as suggested by the continued slow industrial growth between 1990 and 2007 (Table 1).

The most striking finding to emerge from these tables is perhaps the strong performance of Latin America since 1870. Latin America was one of the earliest converging regions, with growth rates of 6.3 per cent from 1870 to 1889, and 4.4 per cent from 1890 to World War I. Indeed, Latin America grew faster than the three leading industrial economies during each and every period, with only two exceptions: 1950-1972, when it still clocked an impressive 5.2 per cent per annum growth rate; and the period after 1990, when its manufacturing growth rate was equal to that in the leaders.⁶ During this most recent episode, Latin American manufacturing growth of 2.2 per cent resembled that of a rich country that had completed its industrialization phase (among the richer regions, only Scandinavia saw a noticeably higher growth rate, of 3.1 per cent per annum), a surprising finding given the common pessimistic assessments of Latin America's performance after the liberal reforms of the 1980s. In contrast, Asia,

⁶ These statements are based on the data in Table 1, Panel B. If we include the UK with the leaders throughout, then Latin America did as well as or better than the leaders during every period (Table 1, Panel A), except if we take a GDP-weighted average of leader growth (Table 2), which places greater weight on the strong US performance during the final period.

the Middle East and North Africa, and sub-Saharan Africa all saw much higher growth rates after 1990 – around 4 per cent per annum – an impressive performance, but also one consistent with their being late-comers.

The European periphery was the second-ranked early converger, with per annum growth rates of 4.7-5 per cent before World War I, 4.7 per cent during the interwar period, and as high as 8.6 percent during the European Golden Age. Indeed, the European periphery growth rate has exceeded that of the leaders, and of the European core, during every period in our sample.⁷

The three English-speaking newly settled economies also recorded very rapid manufacturing growth rates from the 1870s onwards. These rates exceeded those of the leaders until World War 2, although they slowed down significantly during the interwar period (Table 4). Since then, however, their growth rates have been similar to those of other rich countries.

While the regions of recent settlement, Latin America, and the European periphery were all converging on the leaders from 1870 onwards, other regions started converging only after 1890. The quarter-century before World War 1 saw the beginning of very rapid industrialization in Asia, whose growth rates exceeded those of the industrial leaders in all subsequent periods (Table 2).⁸ Scandinavia is another region that started to converge after 1890, and continued to do so through the interwar period. The years between 1890 and 1913 emerge as ones of impressive industrialization in the periphery: with the exception of the Middle East and North Africa (represented here by Turkey alone), and sub-Saharan Africa (for which we have no data), average growth rates were higher in all periphery regions than in the industrial core. Furthermore, this was not caused by slowdown among the leaders, since their growth rates rose from 3 to 3.4 percent per annum, but rather by acceleration in much of the periphery.

We need to stress again that these growth rates are only computed for those countries for which we have the data, and one can presume that growth

⁷ Again, the only exception to this statement is the last period, and only if we take a GDP-weighted average of the leaders' growth.

⁸ To repeat, Table 2 is based on a GDP-weighted average of leader growth rates. This obviously gives a higher weight to the US than the unweighted averages in Table 1. If we compare unweighted averages, then the statement in the text continues to hold if we maintain the UK as part of the leader group. If Japan is substituted for the UK, and is thus excluded from the Asian group, then Asia posted a 7.8 per cent per annum growth rate during 1950-72, as opposed to a 7.9 per cent per annum growth rate in the leader group.

rates were probably lower in countries for which data are lacking. What the data show clearly, however, is that there were countries in all continents bar Africa where industrialization was proceeding rapidly before 1914.

Convergence on the industrial leaders became universal during the interwar period: all regions posted higher manufacturing growth rates than the UK, US and Germany. This is hardly surprising given that the Great Depression affected German and US manufacturing so severely. Nonetheless, the growth rates experienced in the periphery were quite impressive during the interwar period: 4.2 per cent in Asia, 4.6 per cent in sub-Saharan Africa (where the data refer to South Africa and the Belgian Congo), 4.7 per cent in the European periphery, and 4.9 per cent in the Middle East and North Africa. Indeed, Table 4 shows that growth rates in the Middle East and the European periphery bucked the interwar downward trend in that they were even higher between the wars than before 1914.⁹ While we have found no pre-war data for sub-Saharan Africa, one can presume that the same was true there as well. Only in Latin America did industrial growth rates decline significantly between the wars, to 2.8 per cent per annum. The interwar years were difficult everywhere, but they were most difficult for the leaders. While the periphery was hit by a falling terms of trade, declining exports, and thus declining incomes, the very fact that commodity export prices fell relative to manufacturing import prices implied a stimulus to domestic manufacturing. The net effect was an overall acceleration of industrial growth across the periphery, Asia and Latin America excepted.

Industrial growth was uniformly high in the periphery between 1950 and 1972, and substantially higher than during the interwar period.¹⁰ It was over 8 per cent in the European periphery and Asia (7.8 per cent in the latter if Japan is included with the leaders), 7.6 per cent in the Middle East and North Africa, 5.2 per cent in Latin America, and 5 per cent in sub-Saharan Africa. These impressive performances were generally not sufficient to match postwar growth in the US, Germany and Japan (7.9 per cent), but were equivalent to or higher than the average growth rate in the US, UK and Germany (5.2 per cent), and *much* higher

⁹ Of course, the Middle East and North Africa sample is represented by Turkey alone.

¹⁰ The exception is sub-Saharan Africa, but the comparison is based on just two countries. While growth in South Africa increased very slightly, interwar growth in the then Belgian Congo was replaced with rapid contraction after 1950.

than their collective performance between 1870 and 1913 (3-3.4 percent per annum). Table 2 reports that Asia, the Middle East and North Africa and the European periphery posted higher growth rates than the three industrial leaders between 1950 and 1972, if we consider a GDP-weighted average growth rate for the latter group. After the oil shock, there was universal convergence of the periphery on the leaders, although this was more due to falling core growth than to anything else (Table 4). The rate of periphery catch up slowed down after 1990, due to slowdown in much of the periphery.

This analysis of regional growth performance has found that the earliest convergers in the periphery were Latin American and countries in the European periphery, whether the regimes were centrally-planned or free market oriented, and whether the policies were anti-global ISI or pro-global liberal. Countries in Asia and Scandinavia joined the convergence club from 1890 onwards, and periphery convergence became ubiquitous by the interwar years, a period understandably regarded as an economic disaster for the advanced economies. Very rapid growth was maintained across the periphery between 1950 and 1972, but slowed subsequently.

However, these regional averages present limitations: they are masking differing country performances within each region, and they are also based on country samples which increase in size over time. Figure 1 attempts to address these issues. It is based on Appendix Table A.8, which shows for each country the first year in which it posted a cumulative ten-year growth rate superior to 5 per cent per annum. That is, Table A.8 gives the first year for which we can document when each country joined the “modern industrial growth club”, where membership is defined in this manner.

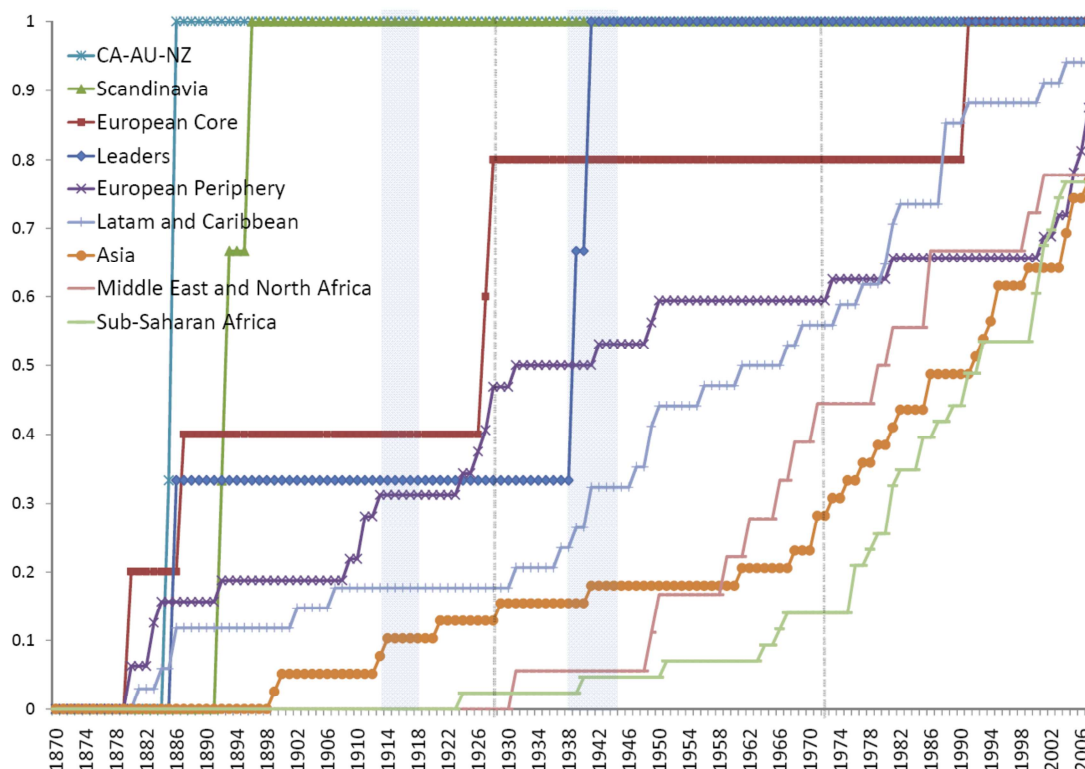
The share of the countries in each region which had joined the “modern industrial growth club” is calculated for each year and then plotted in Figure 1. The shares are monotonically increasing, since we are not concerned with the industrially-mature as they permanently exit from the club late in the postwar period. After all, every successful economy eventually starts to deindustrialize as it moves on to high-tech services: most of the European core and the leaders leave the club in the 1960s and 1970s as Table A.8 documents.

There are two reasons why the regional “modern industrial growth club” shares might increase over time. The first is that data become available for a country already in the growth club. The second is that countries for which data are already available undergo an acceleration in their industrial performance. As suggested earlier, growth accelerations may closely coincide with data becoming available. Table A.8 allows us to gauge how prevalent this was, since it reports not only when countries first joined or finally exited the growth club, but also the year for which data on manufacturing output first become available for the country in question. Since our criterion for club membership is that the country post a cumulative 10-year growth performance superior to 5 per cent per annum, countries can only join the growth club ten years after we have data documenting their performance. In 43.3 per cent of cases, countries join the club precisely ten years after the data begin; in 56.1 per cent of cases they join the club within 15 years of data becoming available; and in 67.8 per cent of cases they join the club within 20 years of data becoming available. In over two-fifths of the cases, therefore, data became available when growth had already attained the required level, while in an additional quarter of the cases, club membership was attained soon after data became available. The estimates in Figure 1 are therefore conservative, in that it is likely that several countries attained the threshold growth level before their industrial output data became available.

Figure 1 shows the successive waves of diffusion of rapid manufacturing growth in various regions of the periphery: first in Scandinavia, then the European periphery, then Latin America, then Asia, then the Middle East and North Africa, and finally sub-Saharan Africa. All three Scandinavian countries had joined the modern industrial growth club by 1896. By 1913, the same was true of 31 per cent of the European periphery, 10 per cent of Asia, and 18 per cent of Latin America. Since club membership is based on a retrospective criterion, this implies that these countries had been growing rapidly since well before World War 1. By 1938, club membership had been attained by half of the European periphery, 15 per cent of Asia, and 24 per cent of Latin America, but still only 6 per cent of the Middle East and North Africa and 2 per cent of sub-Saharan Africa. By 1973 and the end of the ISI period, the threshold had been attained by 63 per cent of the European periphery, 31 per cent of Asia, 56 per cent of Latin

America, 44 per cent of Middle East and North Africa, and 14 per cent of sub-Saharan Africa.

Figure 1. Regional diffusion curves: reaching the 5 per cent threshold

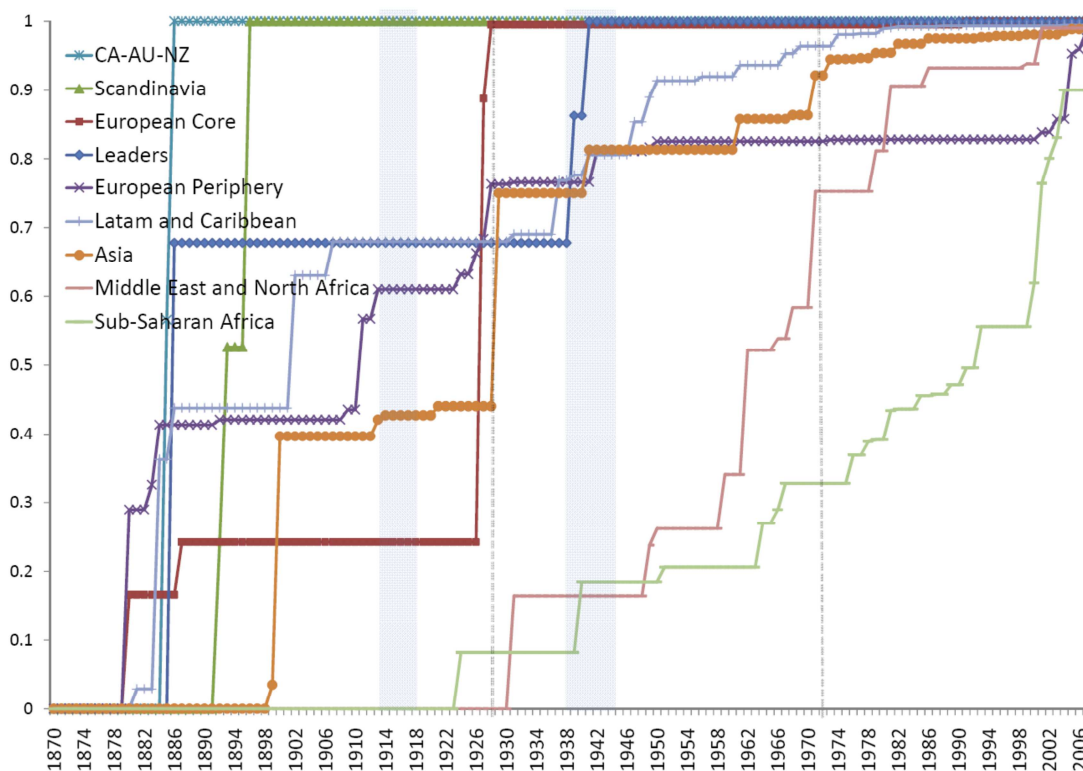


Note: These diffusion curves show the proportion of countries for which the 10-year backward looking average industrial growth rate exceeded a 5 per cent threshold. Countries for which data are missing are assumed not to have exceeded this threshold.

The percentages plotted in Figure 1 are conservative for two reasons. The first, which we have already noted, is that where we cannot document industrial performance, we are forced to exclude the country in question from the club. The second is that these percentages are based on a denominator which includes a large number of modern-day countries, several of which are very small, some of which did not exist in previous periods, and many of which do not have data for these earlier periods. Figure 2 provides an alternative perspective which deals at least to some extent with the second of these problems, since it weights the different country experiences by their populations in 2007. More precisely, it

asks: what proportion of a region's population in 2007 was living in countries which had attained the 5 per cent growth threshold by any given year?

Figure 2. Regional population-weighted diffusion curves: reaching the 5 per cent threshold



Note: These diffusion curves show the proportion of the region's population in 2007 living in countries for which the 10-year backward looking average industrial growth rate exceeded a 5 per cent threshold in a given year. Countries for which data are missing are assumed not to have exceeded this threshold.

By giving more weight to Brazil than to Saint Lucia, or to China than to Bhutan, we increase dramatically the measured diffusion rates in the periphery. By World War 1, the 5 per cent threshold had been attained in countries accounting for 61 per cent of the European periphery's (2007) population, 42 per cent of Asia's population, and 68 per cent of Latin America's population, already very large numbers. By 1938, the "modern industrial growth club" had been attained by countries accounting for three-quarters of the population in these three poor periphery regions. By 1973, the club had been attained in countries accounting for 83 per cent of the population of the European periphery, 94 per cent of the Asian population, 96 per cent of the Latin American population, 75 per cent of the Middle Eastern and North African population, and

even 33 per cent of the population of sub-Saharan Africa. Industrial diffusion was virtually complete, according to this population-weighted criterion. In Asia, Latin America and the European periphery, the 1890-1938 years were the ones that saw the greatest diffusion; in the Middle East and North Africa, diffusion occurred largely between World War 2 and the first oil crisis; in sub-Saharan Africa, diffusion proceeded steadily between the interwar years and the 1990s, when it dramatically accelerated. Overall, the decades between 1890 and 1938 were ones of the most rapid diffusion of industrialization to the periphery, at least as measured by output growth.

4. Unconditional Industrial Convergence

There is a vast economic literature which asks whether poor countries grow more rapidly than rich ones, thus causing convergence, from Moses Abramovitz (1986) to Robert Barro (1997) to François Bourguignon and Christian Morrisson (2002), and beyond. The answer has been no: there has been no unconditional convergence between countries since the Industrial Revolution began in Britain two centuries ago, or even in pre-industrial times (Allen 2001). This finding was reported by Bourguignon and Morrisson ten years ago for a world sample since 1820. Economists *can* find convergence, but only if the analysis is conditioned by many other control variables, like policies and institutions (Durlauf, Johnson, and Temple 2005; Acemoglu 2009). Is this also true of manufacturing, or has convergence been unconditional there? For very recent times, apparently that is so. Dani Rodrik (2011) has found – apparently for the first time – that there has been unconditional convergence in industrial labor productivity world-wide for individual manufacturing sectors since 1990.

The discussion thus far cannot engage with the convergence debate, since it has been based entirely on manufacturing output growth rates, not levels. These may be easy to compare across countries and over time, but what ultimately matters for industrial competitiveness, workers' living standards and convergence is labor productivity and output per capita. Since our industrial growth rates are typically based on output indices, they do not speak to issues involving comparative productivity. But the World Bank's World Development

Indicators do report comparable manufacturing output levels for 2001, expressed in US dollars. We extrapolate these 2001 output levels back in time using our output indices, and then divide these by population taken from the World Development Indicators and Maddison (2010). This procedure yields comparable estimates of manufacturing output per capita back to 1870. Thus, we have comparable output level data for 179 countries during the most recent 1990-2007 period, 145 for 1973-1989, 101 for 1950-1972, 54 for 1920-1938, 42 for 1890-1913, and 29 for 1870-1889.¹¹

There are dangers in extrapolating relative output levels backwards over such long periods. Furthermore, Maddison's data assume constant boundaries, whereas our growth rates are typically for period-specific boundaries. Therefore, we also adopted an alternative approach, which was to take Paul Bairoch's (1982) data on cross-country industrial output per capita for two benchmark years (1913, 1928), and then, where we have the annual output indices, to use these (and population data) to generate comparable absolute levels of per capita output for each year within the periods 1870-1913 and 1920-1938. Similarly, we used UN data for 1967 to generate comparable absolute levels of per capita output for 1950-72, and World Bank data to generate comparable absolute levels for 1973-89 and 1990-2007. While safer, the disadvantage of this procedure is that it involves fewer country observations.

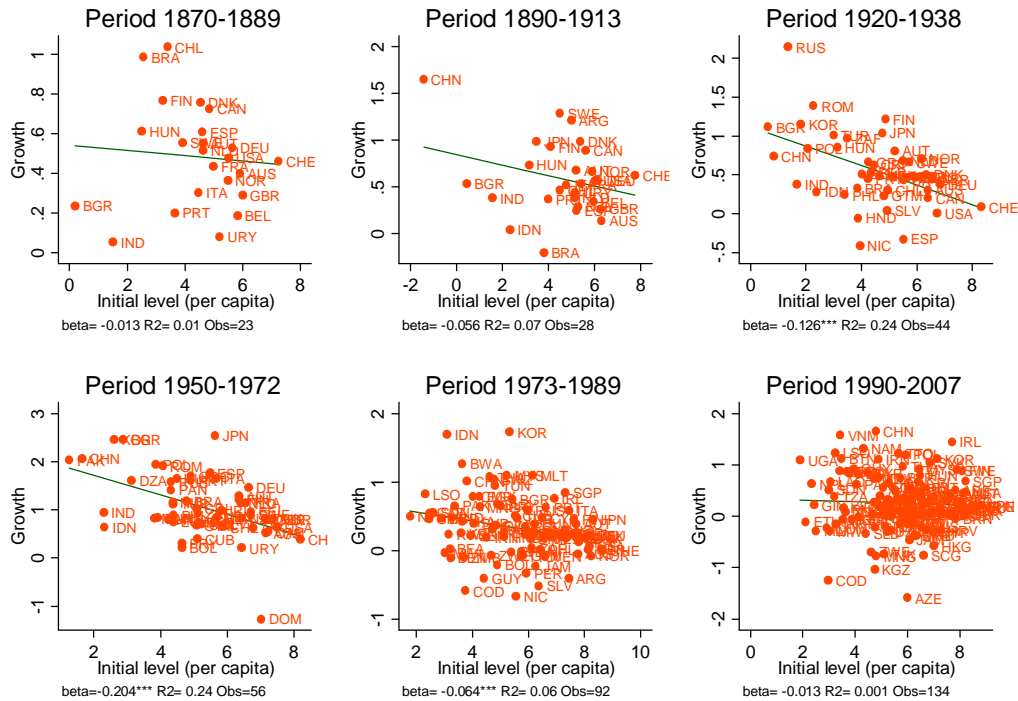
Armed with these data, we can now ask: was there an unconditional convergence in manufacturing? More precisely, was per capita manufacturing growth faster in less industrialized countries, where the level of industrialization is measured by manufacturing output per capita (Bairoch 1982)? If this were true, then we would have convergence either in economic structures (i.e. less industrialized countries seeing a shift of labour out of agriculture and into manufacturing), or in manufacturing labour productivity, or both.¹² If so, was

¹¹ We can only do this if the country's output indices have no breaks in them. Some do, especially for belligerents during the world wars, and so we lose them from the sample.

¹² Assuming constant labour participation rates. Manufacturing output per capita, Q_m/P , is equal to $(Q_m/L_m)(L_m/L)(L/P)$, where Q_m is manufacturing output, P is population, L_m is employment in manufacturing, and L is total employment. Poor periphery manufacturing typically meant low productivity, small scale and labour-intensive manufacturing compared with the leaders. The onset of modern industrialization should have led to convergence in (Q_m/L_m) , therefore. Compared with the leaders, the followers are likely to undergo a demographic transition during their industrial take off, thus raising (with a lag) L/P , and thus raising the growth of Q_m/P . See

this a universal feature of the data, or was unconditional convergence limited to particular periods and regions?

Figure 3. Unconditional industrial convergence



Note: The horizontal axis measures the log level of per capita manufacturing added value in 2000 US dollars at the beginning of each period. The vertical axis measures the log difference between per capita manufacturing added value at the beginning and end of each period. *** indicates a bivariate regression coefficient which is statistically significant at the 1 per cent level.

Bloom and Williamson 1998; Bloom and Canning 2001; Lee and Mason 2010. Finally, Lm/L rises over time during industrial revolutions.

Table 5. Unconditional industrial convergence

Period	Using period-specific benchmarks	Country sample					
		1870-1889	1890-1913	1920-1938	1950-1972	1973-1989	1990-2007
1870-1889	-0.384 (0.493)	-0.106 (0.275)					
1890-1913	-0.589 (0.388)	-0.049 (0.118)	-0.271 (0.225)				
1920-1938	-0.766** (0.329)	-0.464* (0.256)	-0.380* (0.189)	-0.646*** (0.207)			
1950-1972	-3.095*** (0.387)	-1.066* (0.516)	-1.067** (0.395)	-1.091*** (0.287)	-1.004*** (0.222)		
1973-1989	-0.523*** (0.168)	-0.584** (0.233)	-1.178*** (0.397)	-0.937** (0.386)	-0.804*** (0.282)	-0.540*** (0.169)	
1990-2007	-0.175 (0.166)	-0.363 (0.346)	-0.908** (0.382)	-0.471 (0.293)	-0.115 (0.262)	-0.106 (0.227)	-0.175 (0.166)
Countries		23	28	44	56	87	134

Note: These coefficients are obtained by regressing the average growth rates per annum on the log level at the beginning of the period. The first column reports coefficients using period specific benchmarks. Periods 1870-1889, 1890-1913 and 1920-1938 use data from Bairoch (1982). In that column, the first two periods use 1913 as the benchmark year while the third uses 1928. The coefficients of these three periods are estimated with 20, 23 and 29 observations respectively. Still in that column, period 1950-1972 uses manufacturing data from the United Nations for 40 countries and 1967 as the benchmark year. Periods 1973-1989 and 1990-2007 in the first column, use manufacturing data from the World Bank, World Development Indicators. Here, the benchmark years are 1989 and 2001 and the number of countries included in each regression is 70 and 134, respectively. Robust standard errors are reported in parenthesis. *, **, *** is statistical significance at 10%, 5% and 1% respectively.

Figure 3 provides scatter plots of per capita manufacturing growth rates against initial levels of manufacturing output per capita for the six periods. These two variables are clearly negatively correlated over the century between 1890 and 1989, indicating that unconditional convergence was at work, although the relationship is not statistically significant before 1914. These scatter plots use all available data for each time period, and hence the number of data points

increases over time. This suggests caution in comparing slope coefficients across periods when derived from complete samples (as in Figure 3). To deal with this problem, Table 5 provides the slope coefficients from regressions of growth rates against initial levels of output per capita, where the sample sizes are kept constant over time. For example, the estimated coefficient for the interwar period, using the sample of countries for which we have data between 1870 and 1889, is -0.464, with a robust standard error of 0.256. In this manner, the coefficients in any given column are comparable with each other, being based as they are on the same country samples.¹³ The left hand column of Table 5 provides the estimated slope coefficient from a regression of growth rates on initial output per capita, using the data on output per capita generated from period-specific benchmarks (i.e. the Bairoch data for 1913 and 1928, and the UN data for 1967). It is thus based on fewer data points, but allows us to check whether the negative correlations uncovered in the scatter plot are driven by our backward extrapolations, or whether they survive when contemporary benchmarks are used to derive the data on initial levels of output per capita.

Table 5 tells a consistent story. While there is evidence of unconditional convergence between 1870 and 1913, it only became statistically significant at conventional levels after World War 1, and the β coefficients are very big. Clearly, the highpoint of unconditional industrial convergence in the periphery was the ISI period between 1950 and 1972: while strong unconditional convergence persisted after the first oil shock, it was less pronounced than before (compare the coefficients obtained using the 1950-72 country sample). According to Table 5, unconditional convergence in per capita manufacturing output fizzled out after 1990, a somewhat surprising result, especially given Rodrik's (2011) finding using manufacturing labour productivity data at the 4 digit industry level for the same period. True, the β coefficients are all the right sign and big, but they are significant only once in the 1990-2007 row, when we restrict our attention to the smaller country sample for which we have data prior to World War 1. Since this sample includes China, this is not an

¹³ The diagonal entries are the slope coefficients associated with the scatter plots in Figure 3, with the exception of the coefficient for 1973-89. 92 countries are used in that scatter plot, but since various countries ceased to exist shortly thereafter, there are only 87 countries used for that period in Table 4.

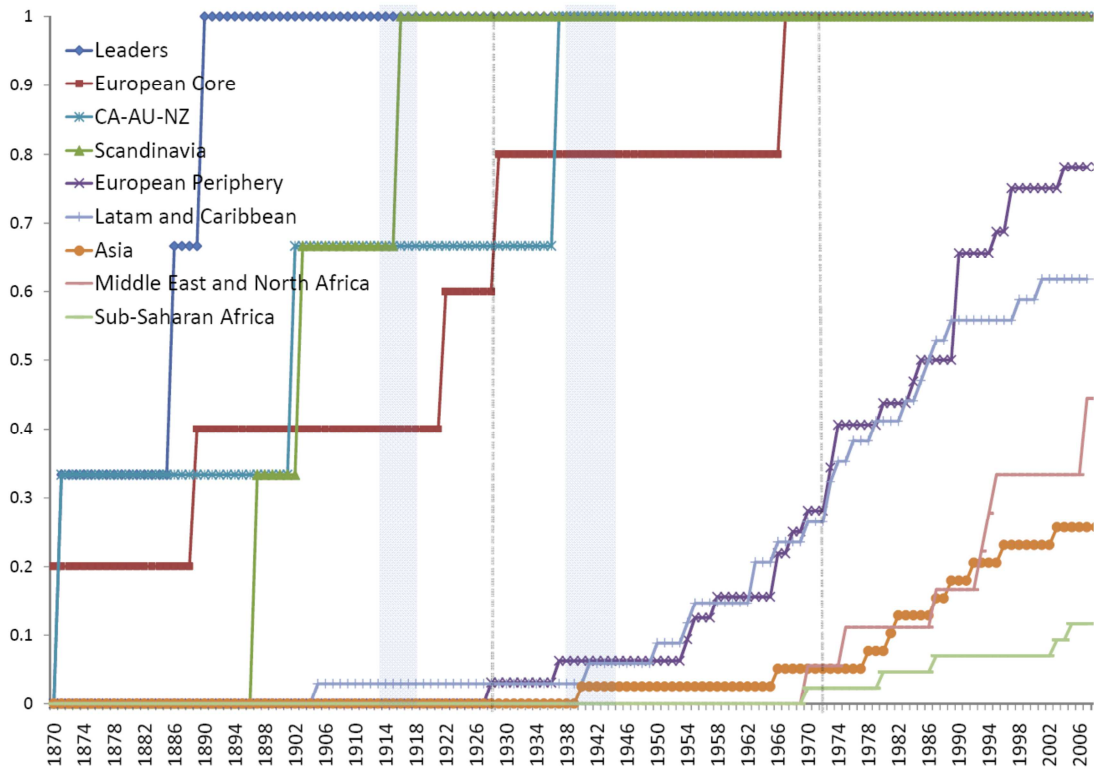
irrelevant qualification, especially if one is interested in the convergence experiences of individual human beings as opposed to countries.

5. Reaching Industrial Output Per Capita Thresholds

Our output per capita data allow us to ask when countries attained various industrial output per capita thresholds. Table A.9 documents when individual countries leaped over three such thresholds (all expressed in 2001 US dollars per capita). The first is \$403, which is the level of manufacturing output per capita attained by the UK in 1870. The second is \$702, the level attained by the UK in 1913. The third is \$1007, the level attained by the US in 1928 on the eve of the Great Depression. Figures 3, 4 and 5 correspond to each of these three thresholds: they show the proportion of countries in various regions which had attained the relevant threshold by any given year. Consider the UK 1870 threshold in Figure 3. The figure shows that both Germany and the US had matched (or exceeded) the UK 1870 threshold by 1890, and much has been written about that fact (e.g. Allen 1979) as well as about the rest of the European core (e.g. Pollard 1982). Still, while the poor periphery starts its leap over the threshold much later, its diffusion is very steep from the 1920s to the 1980s, especially the European periphery and Latin America. The higher the threshold, the later do these periphery regions make the leap over them. However, as Figures 4 and 5 show, once in motion, their diffusion is very steep.

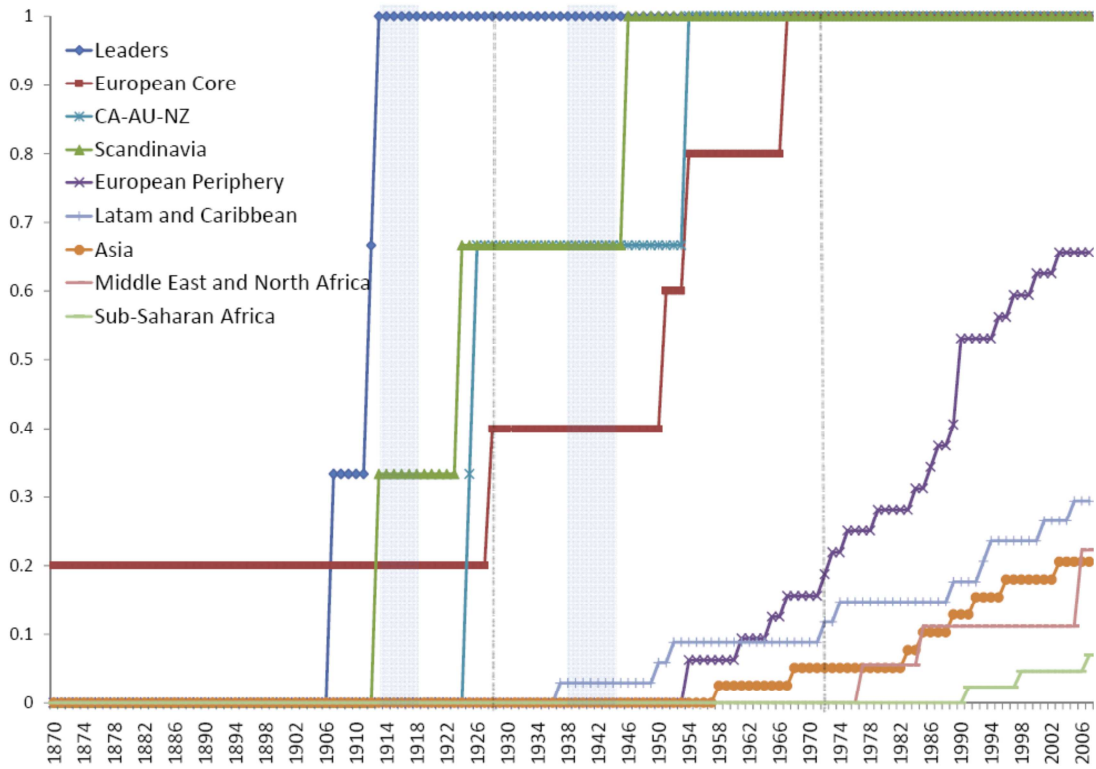
These figures confirm the growth and convergence experience documented above with other measures. However, they also show that while manufacturing output has been growing rapidly in much of the periphery for almost a century, when, expressed in per capita terms, many regions still contain a large share of countries well below any of these thresholds.

Figure 3. Regional diffusion curves: UK 1870 threshold



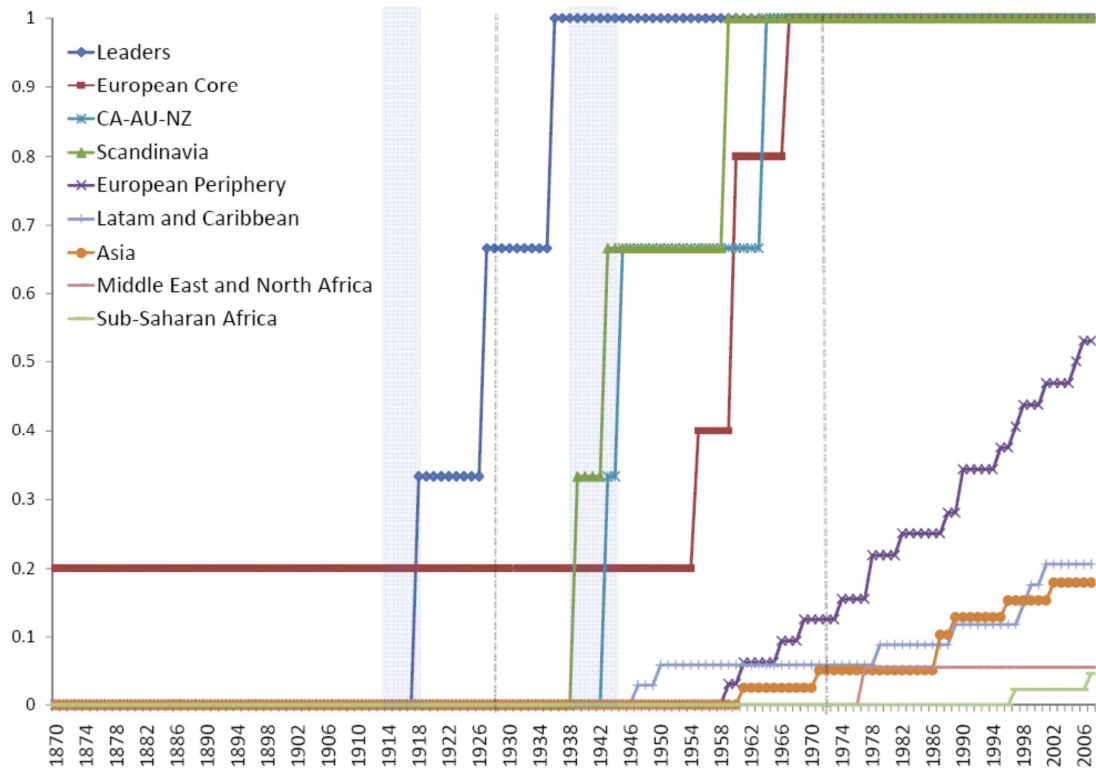
Note: These diffusion curves show the proportion of countries in a region exhibiting per capita manufacturing production greater than 403 US dollars. This threshold is equivalent to the British per capita manufacturing value added in 1870. Shaded areas are the two World Wars. Dotted lines correspond to 1929 and 1973.

Figure 4. Regional diffusion curves: UK 1913 threshold



Note: These diffusion curves show the proportion of countries in a region exhibiting per capita manufacturing production greater than 702 US dollars. This threshold is equivalent to the UK per capita manufacturing value added in 1913. Shaded areas are the two World Wars. Dotted lines correspond to 1929 and 1973.

Figure 5. Regional diffusion curves: US 1928 threshold



Note: These diffusion curves show the proportion of countries in a region exhibiting per capita manufacturing production greater than 1007 US dollars. This threshold is equivalent to the US per capita manufacturing value added in 1928. Shaded areas are the two World Wars. Dotted lines correspond to years 1929 and 1973.

6. Implications and Agenda

To repeat a comment made in the text, economists searching for unconditional convergence in GDP per capita the world round have found none: there has been no unconditional convergence of poor on rich countries since the British Industrial Revolution, or even earlier.¹⁴ Economists can only find convergence if the analysis is conditioned by a host of other control variables. Like Dani Rodrik's (2011) recent finding for manufacturing productivity over the last two decades, this paper documents unconditional convergence in per capita manufacturing output since 1870. While modest at first, convergence was very strong starting with 1920s: increasingly, more and more industrially backward countries in the poor periphery saw their industrial sectors grow faster than those in the leaders. Why do Rodrik and ourselves find results for manufacturing that are so different to the results for GDP per capita? We think the answer is obvious, although what appears obvious to us is not tested here. Manufactures are tradable commodities, while very little of traditional services and agriculture are. Technological transfers are facilitated by multinational firms, and these have always been more prevalent in manufacturing, mining, transportation and communications. They are also facilitated by trade in capital goods, and by reverse engineering. Our guess is that the biggest sectors in the periphery – agriculture and services – would exhibit even less convergence than total GDP, and perhaps even divergence. Future empirical research should go beyond analysis using GDP per capita aggregates and their proxies, and start looking at sectors. After all, aggregate convergence and divergence merely reflects the behaviour of these individual sectors.

Future papers of ours intend to pursue these and related themes. How much of the measured unconditional industrial convergence can be explained by ever cheaper labor in countries ready for manufacturing catch up? As periphery GDP per capita, living standards and wages fell behind in their big traditional sectors, their smaller, wage-taking manufacturing sectors must have been given a competitive advantage. Do cheaper wages help explain unconditional convergence? Except for those rich in oil, countries in the periphery are not very

¹⁴ They have found unconditional convergence for the Atlantic economy (O'Rourke and Williamson 1999), but not for the world as a whole.

well-endowed with energy. Insofar as coal and other fuels were expensive to transport to the periphery in 1870, the pre-industrial latecomers were disadvantaged. By 1913, and certainly by 1972, the world was sufficiently global that any country eager for industrial development could buy coal and oil on the world market with ease. Did this fact help account for the rise in peripheral convergence rates in the two decades before World War 1, during the interwar years, and especially between 1950 and 1990? What about the role of the terms of trade? As Raúl Prebisch (1950) and Hans Singer (1950) told us more than a half century ago, the terms of trade in the periphery fell dramatically after the late nineteenth century and up to 1938. But that implied a fall in commodity export prices relative to manufactured goods import prices, a strong stimulus to domestic manufacturing in the industrial-backward periphery. Did this fact contribute to industrial convergence? While the industrial world went global from 1870 to 1913, the independent periphery did not: rather, it adopted high tariff walls to keep out foreign manufactures (Coatsworth and Williamson 2004; Williamson 2006). The interwar years were, of course, ones of hugely rising trade barriers, reinforcing what was already in place in the periphery. The ISI pro-industrial policies of the periphery 1950-1972 are also well known. Is it by chance that the periphery underwent such a dramatic surge in convergence during these three periods? And what about distance? Gravity models have been applied to many questions involving global forces, so what about industrial convergence?

To the extent that all of these factors were common to almost all the countries in the periphery, they may have created common convergence-friendly forces throughout the periphery for manufacturing. We shall see whether the evidence supports these priors.

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Appendix

Table A.1 1870-1938 Data Availability (at least 4 observations)

Group	Country	1870- 1889	1890- 1913	1920- 1938
Leaders	Germany	X	X	X
	United Kingdom	X	X	X
	United States	X	X	X
European Core	Belgium	X	X	X
	France	X	X	X
	Netherlands	X	X	X
	Switzerland	X	X	X
Scandinavia	Denmark	X	X	X
	Norway	X	X	X
	Sweden	X	X	X
European Periphery	Austria	X	X	X
	Bosnia and Herzegovina	X	X	
	Bulgaria	X	X	X
	Czechoslovakia			X
	Estonia			X
	Finland	X	X	X
	Greece			X
	Hungary	X	X	X
	Ireland			X
	Italy	X	X	X
	Latvia			X
	Poland			X
	Portugal	X	X	X
	Romania		X	X
	Russia	X	X	X
	Serbia and Montenegro		X	
	Spain	X	X	X
Yugoslavia			X	
Newly Settled	Australia	X	X	X
	Canada	X	X	X
	New Zealand	X	X	X
Asia	China		X	X
	India	X	X	X
	Indonesia	X	X	X
	Japan	X	X	X
	Korea		X	X
	Myanmar		X	X
	Philippines		X	X
	Taiwan		X	X

	Thailand	X	X	X
Latin America	Argentina	X	X	X
	Brazil	X	X	X
	Chile	X	X	X
	Colombia		X	X
	Costa Rica			X
	Cuba			X
	El Salvador			X
	Guatemala			X
	Honduras			X
	Mexico		X	X
	Nicaragua			X
	Peru		X	X
	Uruguay	X	X	X
Middle east and north Africa	Egypt			X
	Turkey	X	X	X
Sub-Saharan Africa	Congo, Dem. Rep. of			X
	South Africa			X

Table A.2 Individual country growth experiences

Group	Country	1870- 1889	1890- 1913	1920- 1938	1950- 1972	1973- 1989	1990- 2007
Leaders	Germany	2.6	3.7	1.6	7.0	1.2	1.2
	United Kingdom	1.8	1.9	3.0	4.3	-0.1	0.8
	United States	4.8	4.5	1.2	4.4	1.8	4.2
European Core	Belgium	1.6	2.3	2.6	4.8	1.5	2.1
	France	2.6	2.0	2.4	6.3	0.7	1.8
	Luxembourg				-1.6	2.0	2.4
	Netherlands	3.3	2.9	4.2	7.1	1.9	2.3
	Switzerland	2.5	4.2	2.2	3.1	0.7	1.5
Scandinavia	Denmark	4.3	5.3	3.5	4.9	1.9	1.3
	Norway	0.7	3.0	3.8	4.6	0.2	1.6
	Sweden	3.3	6.1	4.4	5.4	1.4	6.4
European Periphery	Albania				16.8		1.2
	Austria	4.9	3.3	2.3	5.8	2.5	2.8
	Belarus						5.0
	Bosnia and Herzegovina	12.7	10.0				5.8
	Bulgaria	2.6	4.4	4.8	12.0	4.9	0.1
	Croatia						0.7
	Cyprus				9.2	5.8	0.2
	Czech Republic						5.7
	Czechoslovakia			2.3	5.2	2.2	
	Estonia			4.1		2.9	4.8
	Finland	3.7	5.0	6.7	5.9	3.5	6.4
	Greece			3.9	8.0	2.0	1.4
	Hungary	4.9	3.3	4.0	7.3	2.3	5.9
	Iceland						1.8
	Ireland				5.0	5.4	10.7
	Italy	2.4	3.5	2.5	8.4	3.5	0.9
	Latvia			11.0		4.1	0.3
	Lithuania						8.4
	Macedonia, FYR						-0.9
	Malta					5.5	1.1
	Moldova						2.5
	Montenegro						-1.1
	Poland			2.9	9.3	2.0	7.3
	Portugal	2.1	2.7	2.9	7.5	4.8	1.9
	Romania		9.8	7.3	10.1	1.7	0.9
	Russia	5.3	4.6	15.3	8.3	4.2	-0.5
	Serbia and Montenegro		7.0				-2.6
Slovak Republic						7.5	
Slovenia						3.8	
Spain	3.4	1.3	-0.5	8.8	1.2	2.9	
Ukraine						-0.3	
Yugoslavia			1.3	10.0	4.1		

CA-AU-NZ	Australia	4.8	3.3	1.6	5.0	1.2	1.7
	Canada	5.1	6.1	2.5	4.7	2.3	3.0
	New Zealand	4.7	4.3	2.9	6.0	2.6	2.2
Asia	Afghanistan						11.4
	Armenia						2.4
	Azerbaijan					2.3	-9.5
	Bangladesh				1.7	4.8	6.6
	Bhutan					11.2	7.4
	Brunei Darussalam						2.6
	Cambodia						15.9
	China		7.8	5.3	9.2	8.4	9.8
	Fiji				2.6	3.1	3.5
	Georgia						7.0
	Hong Kong SAR of China					8.7	-3.0
	India	0.7	2.3	3.4	7.1	5.0	6.5
	Indonesia	1.3	1.3	2.7	3.1	12.9	5.1
	Japan	3.0	5.3	6.7	12.4	3.9	1.0
	Kazakhstan						8.2
	Kiribati					-19.5	2.4
	Korea		8.0	7.1	13.2	11.8	7.4
	Kyrgyz Republic						-2.4
	Lao People's Democratic Republic					6.6	7.1
	Macao SAR of China						2.7
	Malaysia				11.7	8.3	7.1
	Maldives					8.3	6.2
	Mongolia				9.5	7.4	-1.1
	Myanmar		0.1	2.6	3.4	3.3	12.0
	Nepal					6.2	5.0
	Pakistan				11.0	7.6	5.5
	Papua New Guinea					1.1	2.0
	Philippines		6.3	3.4	7.0	1.7	3.3
	Samoa						2.1
	Singapore				16.1	6.7	6.1
	Solomon Islands						-2.3
	Sri Lanka				6.0	4.6	5.6
	Taiwan		5.1	4.4	11.5	9.0	4.9
Tajikistan					5.8	-1.6	
Thailand	1.0	1.8	2.3	2.3	7.7	5.9	
Tonga					9.1	-0.1	
Uzbekistan						1.5	
Vanuatu						-0.1	
Vietnam				8.9	1.1	10.7	
Latin America and Caribbean	Antigua and Barbuda					6.8	2.3
	Argentina	6.4	8.8	4.2	4.9	-0.9	1.7

Bahamas, The						1.9
Barbados					1.5	-1.1
Belize					6.7	4.3
Bolivia				3.2	-0.9	3.4
Brazil	7.2	0.0	3.2	7.8	2.9	2.1
Chile	7.5	3.9	2.6	5.2	2.0	3.5
Colombia		1.2	4.5	5.9	3.1	0.3
Costa Rica			4.1	7.8	3.2	5.5
Cuba			2.2	3.1	4.7	0.8
Dominica					7.6	-0.6
Dominican Republic				-6.3	3.4	5.0
Ecuador				6.1	3.9	2.2
El Salvador			1.7	6.9	-3.3	4.0
Grenada					11.1	3.1
Guatemala			3.3	6.3	1.9	2.6
Guyana				3.0	-2.3	1.1
Haiti				1.7	2.0	-2.7
Honduras			2.0	6.4	3.6	4.6
Jamaica				3.7	-1.2	-1.6
Mexico		6.0	3.7	7.1	3.1	3.2
Nicaragua			-2.3	8.6	-1.1	4.2
Panama				9.7	3.6	0.4
Paraguay				4.0	7.4	0.8
Peru		6.8	4.2	6.3	0.9	3.9
Puerto Rico				9.5	4.8	
St. Kitts and Nevis					2.6	4.0
St. Lucia					11.1	0.9
St. Vincent and the Grenadines					7.0	-0.5
Suriname					-4.1	3.9
Trinidad and Tobago					0.9	7.1
Uruguay	4.2	3.9	3.2	1.4	1.5	0.1
Venezuela				7.5	2.5	2.8
Middle East and North Africa						
Algeria				9.7	7.9	0.1
Bahrain					-1.2	
Egypt			1.6	6.9	7.9	5.6
Iran, Islamic Republic of				11.9	3.6	7.3
Iraq						-4.3
Israel				10.9	3.0	3.7
Jordan					4.7	7.5
Kuwait						0.1
Lebanon						2.2
Morocco				4.8	4.2	2.9
Oman						8.6

	Saudi Arabia				9.8	7.6	5.4
	Sudan					6.6	5.3
	Syrian Arab Republic				3.5	6.9	6.9
	Tunisia				3.5	7.7	4.6
	Turkey	1.2	1.2	8.1	7.6	5.0	4.1
	United Arab Emirates					18.8	9.5
	Yemen, Republic of						6.5
Sub- Saharan Africa	Angola					-10.5	6.9
	Benin					2.2	5.2
	Botswana				6.3	8.0	3.1
	Burkina Faso					2.7	5.8
	Burundi					5.3	-9.1
	Cameroon				7.8	9.6	3.9
	Cape Verde					8.8	3.5
	Central African Republic				8.6	6.6	0.3
	Comoros					4.7	1.8
	Congo, Dem. Rep. of			2.4	-4.2	-0.4	-3.9
	Congo, Rep. of				3.0	5.8	-2.4
	Cote d'Ivoire					3.3	2.0
	Djibouti						-2.1
	Equatorial Guinea						40.5
	Eritrea						1.4
	Ethiopia					3.9	4.7
	Gabon					2.5	3.4
	Gambia, The				3.5	6.2	1.7
	Ghana				5.3	-3.5	2.2
	Guinea						3.8
	Kenya				8.5	5.4	1.7
	Lesotho					8.1	9.6
	Madagascar					2.4	2.7
	Malawi					3.1	-1.3
	Mali					6.7	-0.7
	Mauritania					-0.6	1.2
	Mauritius					7.5	3.4
	Mozambique				9.5		12.3
	Namibia					3.4	12.0
	Niger					-5.9	2.9
	Rwanda				2.3	5.4	-2.2
	Senegal				4.4	3.7	3.0
	Seychelles					4.8	4.2
	Sierra Leone						9.1
	Somalia					0.2	
	South Africa			6.7	6.9	2.8	2.6
	Swaziland					8.6	2.2

São Tomé and Príncipe			6.5
Tanzania		4.9	5.1
Togo		1.0	4.4
Uganda		3.0	10.1
Zambia	8.3	2.1	2.8
Zimbabwe	-0.3	2.7	-3.7

Note: Individual country growth rates are computed as the β coefficient of the following regression: $Y=\alpha+\beta t$ where Y is the natural logarithm of industrial production and t is a linear time trend. Regressions are performed with at least for observations.

Table A.3 Industrial growth acceleration. Constant samples**Panel A: 1890-1913 sample**

Groups	(1920-1938)- (1890-1913)	(1950-1972)- (1920-1938)	(1973-1989)- (1950-1972)	(1990_2007)- (1973-1989)
Leaders	-1.5	3.3	-4.3	1.1
European Core	0.0	2.5	-4.1	0.7
Scandinavia	-0.9	1.1	-3.8	1.9
European Periphery	0.8	3.2	-5.0	-0.8
CA-AU-NZ	-2.2	2.9	-3.2	0.3
Asia	0.0	3.5	-0.6	-0.9
Latam and Caribbean	-0.7	1.8	-3.7	0.3
Middle East and North Africa	6.9	-0.5	-2.6	-0.9

Panel B: 1920-1938 sample

Groups	(1950-1972)- (1920-1938)	(1973-1989)- (1950-1972)	(1990_2007)- (1973-1989)
Leaders	3.3	-4.3	1.1
European Core	2.5	-4.1	0.7
Scandinavia	1.1	-3.8	1.9
European Periphery	3.5	-5.1	-0.2
CA-AU-NZ	2.9	-3.2	0.3
Asia	3.5	-0.6	-0.9
Latam and Caribbean	3.2	-4.3	1.2
Middle East and North Africa	2.4	-0.8	-1.6
Sub-Saharan Africa	-3.2	-0.2	-1.9

Note: This table reports the growth rate difference between two sub periods, keeping the country sample constant throughout the whole period. Panel A takes the 1890-1913 sample formed by 39 countries and Panel B uses the 1920-1938 sample, formed by 51 countries.

Table A.4 Average industrial growth rates in countries with data for at least half of the period

Panel A: US, Germany and UK in Leaders

Groups	1870- 1889	1890- 1913	1920- 1938	1950- 1972	1973- 1989	1990- 2007
Leaders	3.0	3.4	1.9	5.2	1.0	2.1
European Core	2.5	2.8	2.9	4.0	1.4	2.0
Scandinavia	2.8	4.8	3.9	4.9	1.1	3.1
European Periphery	3.7	5.0	4.7	8.6	3.5	2.9
CA-AU-NZ	4.9	4.6	2.3	5.2	2.0	2.3
Asia	1.5	3.6	4.2	7.5	5.5	3.9
Latam and Caribbean	6.3	4.4	2.8	5.1	2.9	2.2
Middle East and North Africa	1.2	1.2	4.9	7.4	7.0	5.0
Sub-Saharan Africa			4.6	4.1	4.2	3.0
Countries	30	39	54	79	129	168

Panel B: US, Germany, UK (before 1939) and Japan (after 1939) in Leaders

Groups	1870- 1889	1890- 1913	1920- 1938	1950- 1972	1973- 1989	1990- 2007
Leaders	3.0	3.4	1.9	7.9	2.3	2.2
European Core	2.5	2.8	2.9	4.0	1.1	1.8
Scandinavia	2.8	4.8	3.9	4.9	1.1	3.1
European Periphery	3.7	5.0	4.7	8.6	3.5	2.9
CA-AU-NZ	4.9	4.6	2.3	5.2	2.0	2.3
Asia	1.5	3.6	4.2	7.0	5.5	4.0
Latam and Caribbean	6.3	4.4	2.8	5.1	2.9	2.2
Middle East and North Africa	1.2	1.2	4.9	7.4	7.0	5.0
Sub-Saharan Africa			4.6	4.1	4.2	3.0

Note: The table reports the unweighted average industrial growth rates by region. Individual country growth rates are computed as the β coefficient of the following regression: $Y=\alpha+\beta t$ where Y is the natural logarithm of industrial production and t is a linear time trend. Regressions are performed in countries with data for at least half of the period.

Table A.5 Average industrial growth rates relative to the leaders in countries with data for at least half of the period

Panel A: US, Germany and UK in Leaders

Groups	1870- 1889	1890- 1913	1920- 1938	1950- 1972	1973- 1989	1990- 2007
European Core	-0.4	-0.6	1.1	-1.0	0.0	-1.1
Scandinavia	-0.1	1.3	2.1	0.0	-0.2	0.0
European Periphery	0.7	1.5	3.0	3.6	2.2	-0.2
CA-AU-NZ	2.0	1.1	0.6	0.2	0.7	-0.8
Asia	-1.4	0.1	2.5	2.5	4.1	0.8
Latam and Caribbean	3.4	0.9	1.1	0.1	1.5	-0.9
Middle East and North Africa	-1.7	-2.3	3.1	2.4	5.6	1.9
Sub-Saharan Africa			2.8	-0.8	2.8	-0.2

Panel B: US, Germany, UK (before 1939) and Japan (after 1939) in Leaders

Groups	1870- 1889	1890- 1913	1920- 1938	1950- 1972	1973- 1989	1990- 2007
European Core	-0.4	-0.6	1.1	-2.4	-1.1	-1.0
Scandinavia	-0.1	1.3	2.1	-1.5	-1.1	0.3
European Periphery	0.7	1.5	3.0	2.1	1.3	0.1
CA-AU-NZ	2.0	1.1	0.6	-1.3	-0.2	-0.5
Asia	-1.4	0.1	2.5	0.6	3.3	1.2
Latam and Caribbean	3.4	0.9	1.1	-1.4	0.7	-0.6
Middle East and North Africa	-1.7	-2.3	3.1	0.9	4.7	2.2
Sub-Saharan Africa			2.8	-2.3	1.9	0.1

Note: Average industrial growth rates by region relative to the leaders are computed in two steps. First, we compute the average growth rates for each region as in Table 1. Second, we subtract the GDP-weighted average of the period-average growth rates for the three leaders.

Table A.6 Industrial growth accelerations in countries with data for at least half of the period

Panel A: US, Germany and UK in Leaders

Groups	(1890-1913)- (1870-1889)	(1920-1938)- (1890-1913)	(1950-1972)- (1920-1938)	(1973-1989)- (1950-1972)	(1990_2007)- (1973-1989)
Leaders	0.3	-1.5	3.3	-4.3	1.1
European Core	0.3	0.0	2.5	-2.6	0.6
Scandinavia	2.0	-0.9	1.1	-3.8	1.9
European Periphery	-0.1	0.8	3.9	-4.7	-0.8
CA-AU-NZ	-0.3	-2.2	2.9	-3.2	0.3
Asia	1.2	0.2	3.5	-0.6	-1.4
Latam and Caribbean	-2.2	-0.7	3.2	-3.1	-0.6
Middle East and North Africa	0.0	6.9	2.4	-1.6	-1.7
Sub-Saharan Africa			-3.2	-2.3	-1.8

Panel B: US, Germany, UK (before 1939) and Japan (after 1939) in Leaders

Groups	(1890-1913)- (1870-1889)	(1920-1938)- (1890-1913)	(1950-1972)- (1920-1938)	(1973-1989)- (1950-1972)	(1990_2007)- (1973-1989)
Leaders	0.3	-1.5	4.3	-5.6	-0.2
European Core	0.3	0.0	2.5	-2.9	0.7
Scandinavia	2.0	-0.9	1.1	-3.8	1.9
European Periphery	-0.1	0.8	3.9	-4.7	-0.8
CA-AU-NZ	-0.3	-2.2	2.9	-3.2	0.3
Asia	1.2	0.2	3.2	0.1	-1.3
Latam and Caribbean	-2.2	-0.7	3.2	-3.1	-0.6
Middle East and North Africa	0.0	6.9	2.4	-1.6	-1.7
Sub-Saharan Africa			-3.2	-2.3	-1.8

Note: These tables report the average difference in groups' growth rates between successive sub-periods. Since the countries included in each group change over time, the columns of this table are not comparable.

Table A.7 Industrial growth acceleration in countries with data for at least half of the period. Constant samples

Panel A: 1890-1913 sample

Groups	(1920-1938)- (1890-1913)	(1950-1972)- (1920-1938)	(1973-1989)- (1950-1972)	(1990_2007)- (1973-1989)
Leaders	-1.5	3.3	-4.3	1.1
European Core	0.0	2.5	-4.1	0.7
Scandinavia	-0.9	1.1	-3.8	1.9
European Periphery	0.8	3.2	-5.0	-0.8
CA-AU-NZ	-2.2	2.9	-3.2	0.3
Asia	0.2	2.6	-0.2	0.1
Latam and Caribbean	-0.7	1.8	-3.7	0.3
Middle East and North Africa	6.9	-0.5	-2.6	-0.9

Panel B: 1920-1938 sample

Groups	(1950-1972)- (1920-1938)	(1973-1989)- (1950-1972)	(1990_2007)- (1973-1989)
Leaders	3.3	-4.3	1.1
European Core	2.5	-4.1	0.7
Scandinavia	1.1	-3.8	1.9
European Periphery	3.5	-5.1	-0.2
CA-AU-NZ	2.9	-3.2	0.3
Asia	3.5	-0.6	-0.9
Latam and Caribbean	3.2	-4.3	1.2
Middle East and North Africa	2.4	-0.8	-1.6
Sub-Saharan Africa	-3.2	-0.2	-1.9

Note: This table reports the growth rate difference between two sub periods, keeping the country sample constant throughout the whole period.

Table A.8 Countries entering and exiting the 5% growth club

Group	Country	Data		
		Start	In	Out
Leaders	United States	1870	1886	2002
	Germany	1870	1939	1968
	United Kingdom	1870	1941	1962
European Core	Netherlands	1870	1880	1975
	Switzerland	1870	1887	1932
	France	1870	1927	1978
	Belgium	1870	1928	1975
	Luxembourg	1948	1991	1991
Scandinavia	Norway	1870	1892	1971
	Denmark	1870	1893	1973
	Sweden	1870	1896	2007
European Periphery	Finland	1870	1880	2007
	Russian Federation	1870	1880	2007
	Austria	1870	1883	1977
	Hungary	1870	1883	2007
	Spain	1870	1884	1980
	Bosnia and Herzegovina	1881	1892	1912
	Serbia and Montenegro	1898	1909	1910
	Bulgaria	1870	1911	1985
	Italy	1870	1911	1982
	Romania	1902	1913	1982
	Greece	1913	1924	1981
	Czechoslovakia	1913	1926	1966
	Portugal	1870	1927	1986
	Latvia	1913	1928	2007
	Poland	1913	1928	2007
	Estonia	1920	1931	2007
	Yugoslavia, Federal Republic of	1910	1942	1984
	Albania	1938	1949	1970
	Ireland	1936	1950	2007
	Cyprus	1962	1973	1987
	Malta	1970	1981	1985
	Slovak Republic	1990	2001	2007
	Belarus	1990	2003	2007
	Slovenia	1990	2005	2007
	Ukraine	1987	2005	2007
	Lithuania	1995	2006	2007
	Czech Republic	1995	2007	2007
	Moldova	1995	2007	2007
Croatia	1990			
Iceland	1997			
Macedonia, FYR	1990			
Montenegro	2000			

CA-AU-NZ	Canada	1870	1885	2002
	Australia	1870	1886	1971
	New Zealand	1875	1886	1979
Asia	Japan	1874	1899	1993
	China, P.R.	1889	1900	2007
	Philippines	1902	1913	1982
	Taiwan Province of China	1903	1914	2007
	Korea, Republic of	1910	1921	2007
	India	1870	1929	2007
	Indonesia	1880	1941	2001
	Pakistan	1950	1961	2007
	Sri Lanka	1957	1968	2003
	Bangladesh	1960	1971	2007
	Thailand	1870	1971	2007
	Vietnam	1962	1973	2007
	Mongolia	1964	1975	2007
	Singapore	1966	1977	2007
	Malaysia	1968	1979	2007
	Fiji	1965	1981	2000
	Myanmar	1901	1982	2007
	Nepal	1973	1986	2003
	Tonga	1975	1986	1990
	Bhutan	1981	1992	2007
	Hong Kong SAR of China	1982	1993	1993
	Kiribati	1982	1994	1998
	Lao People's Democratic Republic	1984	1995	2006
	Maldives	1984	1995	2007
	Papua New Guinea	1980	1999	2000
	Cambodia	1993	2004	2007
	Kyrgyz Republic	1990	2004	2005
	Armenia	1990	2005	2007
	Tajikistan	1985	2005	2007
Georgia	1996	2007	2007	
Afghanistan	2002			
Azerbaijan	1981			
Brunei Darussalam	1989			
Kazakhstan	2000			
Macao SAR of China	1996			
Samoa	1994			
Solomon Islands	1990			
Uzbekistan	1995			
Vanuatu	1998			
Latam and Caribbean	Chile	1870	1881	1999
	Brazil	1870	1884	1982
	Argentina	1875	1886	1973
	Uruguay	1870	1886	1959
	Mexico	1891	1902	1983

Peru	1896	1907	1971
El Salvador	1920	1931	2001
Colombia	1900	1937	1981
Costa Rica	1920	1939	2004
Cuba	1930	1941	1987
Nicaragua	1920	1941	1979
Venezuela	1936	1947	1981
Guatemala	1920	1949	1982
Honduras	1920	1949	2007
Ecuador	1939	1950	1985
Panama	1945	1956	1998
Dominican Republic	1950	1961	2004
Bolivia	1950	1967	1981
Paraguay	1938	1969	1990
Haiti	1950	1974	1981
Guyana	1960	1977	2001
Puerto Rico	1969	1980	1985
Barbados	1970	1981	1982
Belize	1970	1981	2007
Trinidad and Tobago	1971	1982	2007
Antigua and Barbuda	1977	1988	1989
Dominica	1977	1988	1994
Grenada	1977	1988	2004
St. Vincent and the Grenadines	1977	1988	1990
St. Lucia	1980	1991	1994
St. Kitts and Nevis	1977	2001	2005
Suriname	1975	2004	2007
Bahamas, The	1989		
Jamaica	1966		
<hr/>			
Middle east and north Africa			
Turkey	1880	1931	1999
Morocco	1938	1949	1982
Tunisia	1937	1950	2004
Algeria	1948	1959	1989
Egypt	1919	1962	2006
Israel	1955	1966	2001
Syrian Arab Republic	1957	1968	2007
Iran, Islamic Republic of	1960	1971	2007
Saudi Arabia	1968	1979	2007
Sudan	1970	1981	2004
Jordan	1975	1986	2007
United Arab Emirates	1975	1986	2007
Oman	1988	1999	2006
Yemen, Republic of	1990	2001	2003
Bahrain	1980		
Iraq	1997		
Kuwait	1995		
Lebanon	1994		
<hr/>			

Sub-Saharan Africa	South Africa	1913	1924	1978
	Congo, Dem. Rep. of	1929	1940	1959
	Zimbabwe	1939	1951	1978
	Kenya	1953	1964	1992
	Zambia	1955	1966	1994
	Ghana	1956	1967	2004
	Botswana	1965	1976	1997
	Cameroon	1965	1976	2007
	Central African Republic	1965	1976	1990
	Senegal	1959	1978	1983
	Gambia, The	1966	1979	1993
	Lesotho	1970	1981	2007
	Malawi	1970	1981	1981
	Rwanda	1965	1981	1988
	Swaziland	1971	1982	1997
	Burundi	1970	1985	1993
	Congo, Rep. of	1965	1985	1991
	Mauritius	1976	1987	2002
	Benin	1971	1989	2004
	Mali	1980	1991	1994
	Seychelles	1978	1991	2004
	Togo	1976	1993	2005
	Uganda	1982	1993	2007
	Burkina Faso	1970	2000	2006
	Cote d'Ivoire	1980	2000	2002
	Mauritania	1985	2000	2001
	Ethiopia	1981	2001	2007
	Namibia	1980	2001	2007
	Sierra Leone	1990	2001	2005
	Mozambique	1967	2002	2007
	Angola	1985	2003	2007
	Cape Verde	1986	2003	2003
	Tanzania	1985	2004	2007
	Comoros	1980		
	Djibouti	1990		
	Equatorial Guinea	2000		
	Eritrea	1992		
	Gabon	1980		
	Guinea	1988		
	Madagascar	1984		
	Niger	1985		
	Somalia	1970		
	São Tomé and Príncipe	2001		

Note: “Data Starts” is the first year for which industrial production growth data are available. **“In”** indicates the first year that a country experienced a 10-year average backward looking growth rate greater than 5 per cent. Backward looking average growth rates are computed following a regression-based approach. More precisely, we take the β coefficient of the following regression

model: $Y = \alpha + \beta t$ estimated using data for the $T-1$ to $T-10$ period and assign this growth rate to year T . Y is the natural logarithm of industrial production and t is a linear time trend. The 5 per cent threshold is computed by taking the average of the growth rates in the U.S., U.K. and Germany, during the 1870-1913 period. **“Out”** indicates the last year that a country showed a 10-year backward looking year-on-year average growth rate greater than 5 per cent.

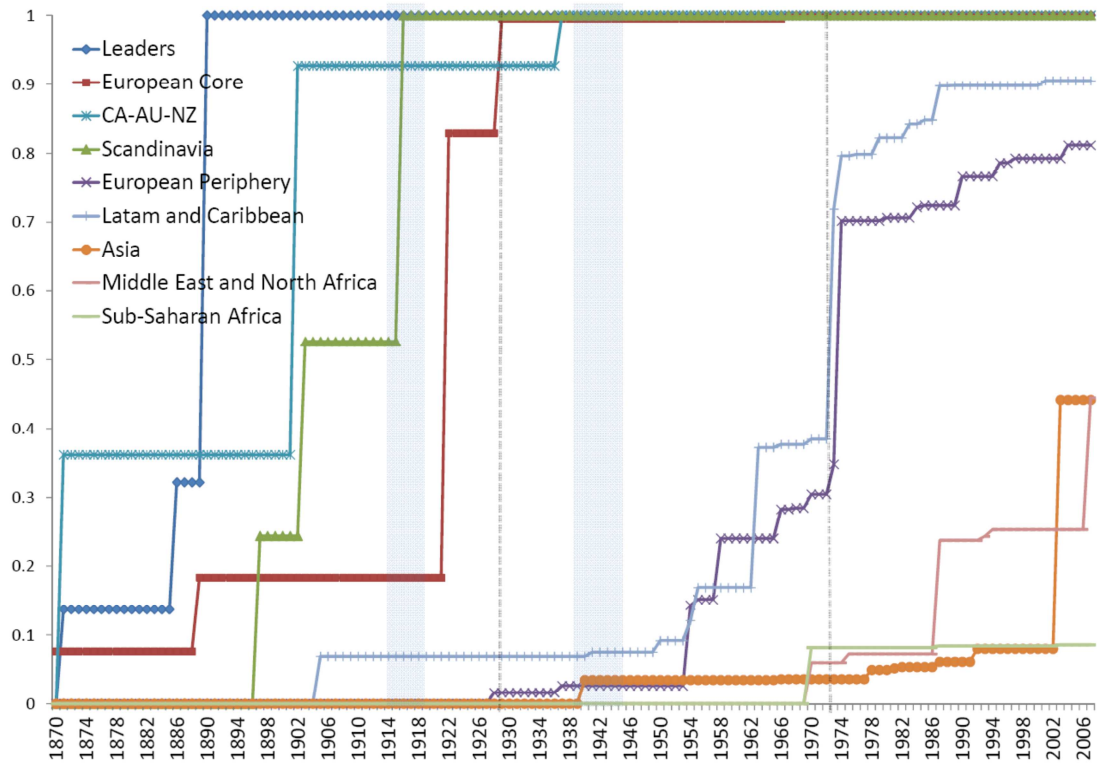
Table A.9 Dates when countries passed output per capita thresholds

Group	Country	Threshold 1	Threshold 2	Threshold 3
3 Leaders	United Kingdom	1871	1913	1936
	Germany	1886	1907	1927
	United States	1890	1912	1918
European Core	Belgium	1889	1928	1955
	France	1922	1951	1960
	Netherlands	1929	1954	1960
	Luxembourg	1967	1967	1967
Scandinavia	Norway	1897	1913	1939
	Denmark	1903	1924	1943
	Sweden	1916	1946	1959
European Periphery	Austria	1928	1954	1959
	Finland	1937	1954	1961
	Italy	1954	1961	1966
	Ireland	1955	1967	1974
	Spain	1958	1965	1969
	Portugal	1966	1973	1982
	Greece	1966	1972	1978
	Cyprus	1968	1979	1988
	Hungary	1970	1984	2001
	Romania	1973		
	Malta	1973	1975	1978
	Poland	1974	2000	2006
	Russian Federation	1974	1989	
	Latvia	1980	1987	
	Bulgaria	1984		
	Estonia	1985	1986	2005
	Slovak Republic	1990	1990	1998
	Slovenia	1990	1990	1990
	Macedonia, FYR	1990		
	Serbia and Montenegro	1990	1990	
Croatia	1990	1990	1990	
Czech Republic	1995	1995	1995	
Lithuania	1997	2003		
Iceland	1997	1997	1997	
Belarus	2004			
CA-AU-NZ	Australia	1871	1925	1945
	Canada	1902	1926	1943
	New Zealand	1937	1954	1964
Asia	Japan	1940	1958	1961
	Singapore	1966	1968	1971
	Korea, Republic of	1978	1985	1987
	Azerbaijan	1981		
	Hong Kong SAR of China	1982	1983	1987

	Malaysia	1987	1992	1996
	Brunei Darussalam	1989	1989	1989
	Thailand	1992	2003	
	Macao SAR of China	1996	1996	2002
	China, P.R.	2003		
Latam and Caribbean	Argentina	1905	1937	1947
	Uruguay	1941	1952	1979
	Dominican Republic	1950	1950	1950
	Chile	1954	1993	
	Venezuela	1955	1972	
	Mexico	1963	1974	1998
	El Salvador	1963		
	Jamaica	1966		
	Costa Rica	1970	1994	1999
	Barbados	1973		
	Brazil	1973		
	Colombia	1974		
	Trinidad and Tobago	1976	2005	
	Guatemala	1979		
	Cuba	1983		
	Panama	1985		
	St. Kitts and Nevis	1986		
	Peru	1987		
	Bahamas, The	1989	1989	1989
	Dominica	1998		
	Puerto Rico	2001	2001	2001
Middle East and North Africa	Saudi Arabia	1970	1985	
	United Arab Emirates	1975	1977	1977
	Turkey	1987	2006	
	Oman	1993	2006	
	Lebanon	1994		
	Kuwait	1995		
	Iran, Islamic Republic of	2007		
	Tunisia	2007		
Sub-Saharan Africa	South Africa	1970		
	Seychelles	1980	1991	1997
	Mauritius	1987	1998	
	Swaziland	2003		
	Equatorial Guinea	2005	2007	2007

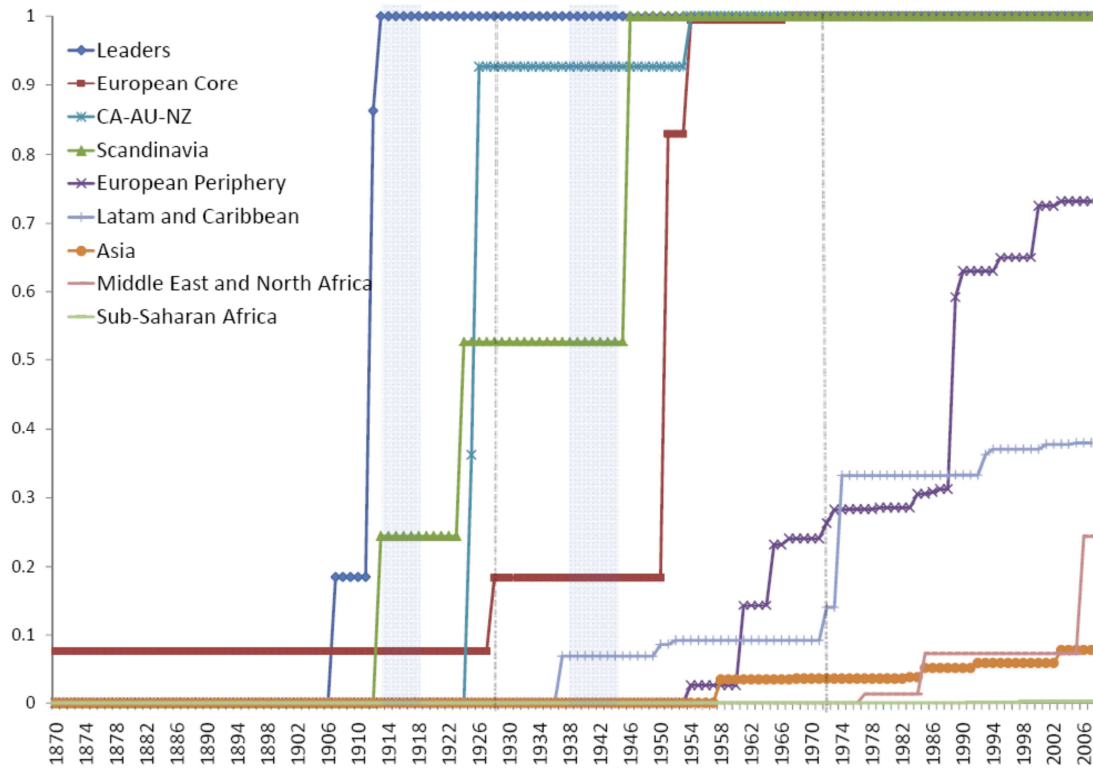
Note: Threshold 1 is the first year the country surpassed the UK level for 1870. This threshold is 403 2001 U.S. dollars. **Threshold 2** is the first year the country surpassed the UK level for 1913. This threshold is 701.8 2001 U.S. dollars. **Threshold 3** is the first year the country surpassed the US level for 1928. This threshold is 1006.8 2001's U.S. dollars. Countries that do not surpass any of these thresholds are not reported.

Figure A.1. Regional diffusion curves: UK 1870 threshold



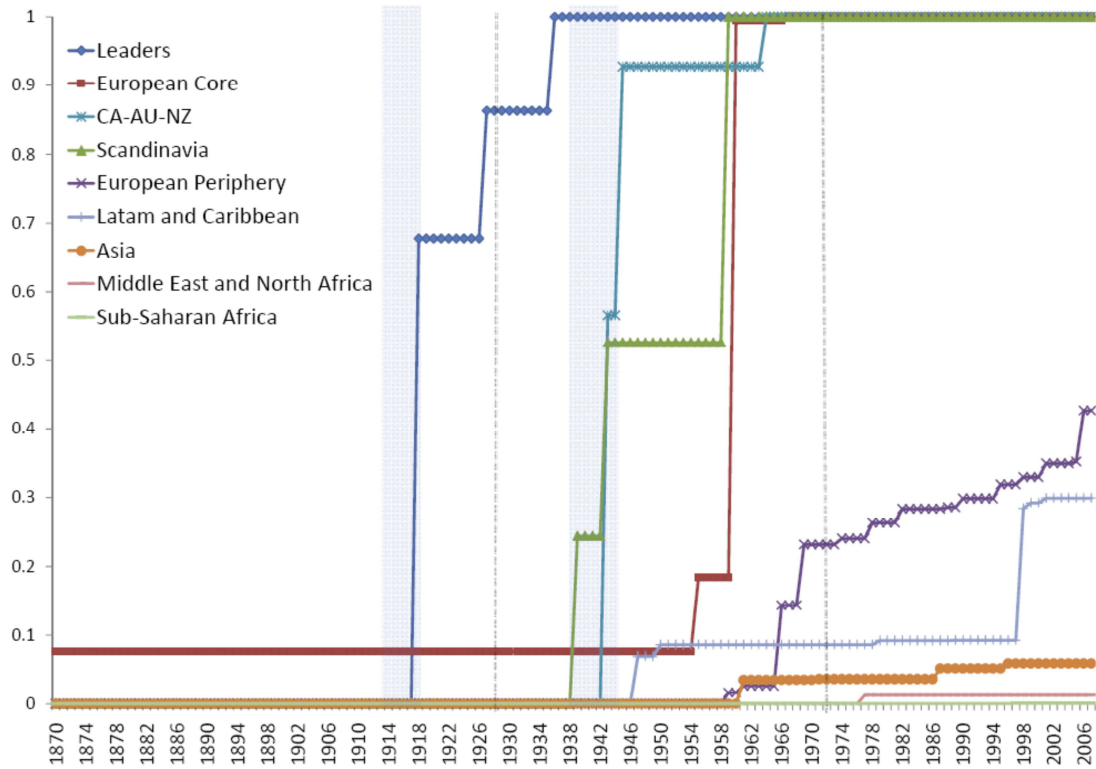
Note: These diffusion curves show the proportion of the region’s population in 2007 living in countries exhibiting per capita manufacturing production greater than 403 US dollars. This threshold is equivalent to the British per capita manufacturing added value level in 1870. Shaded areas are the two World Wars. Dotted lines correspond to 1929 and 1973.

Figure A.2. Regional diffusion curves: UK 1913 threshold



Note: These diffusion curves show the proportion the region’s population in 2007 living in countries exhibiting per capita manufacturing production greater than 701.8 US dollars. This threshold is equivalent to the British per capita manufacturing added value in 1913. Shaded areas are the two World Wars. Dotted lines correspond to 1929 and 1973.

Figure A.3. Regional diffusion curves: US 1928 threshold



Note: These diffusion curves show the proportion the region’s population in 2007 living in countries exhibiting per capita manufacturing production greater than 1006.8 US dollars. This threshold is equivalent to the US per capita manufacturing added value in 1928. Shaded areas are the two World Wars. Dotted lines correspond to 1929 and 1973.

Data Appendix

Leaders

Germany

1870-1980: Broadberry, Stephen (1997), *The Productivity Race. British Manufacturing in Perspective, 1850-1990*. Table A3.1 (a), p. 42. Data for 1913-24, 1938-49 interpolated.

1980-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

United Kingdom

1970-1981: Broadberry, Stephen (1997), *The Productivity Race. British Manufacturing in Perspective, 1850-1990*. Table A3.1 (a) p. 42. Data for 1938-45 interpolated.

1981-2007: United Nations, Industrial Statistics Database 2010 at the 2-digit level of ISIC Code (Revision 3). Manufacturing.

United States

1870-1989: Broadberry, Stephen (1997), *The Productivity Race. British Manufacturing in Perspective, 1850-1990*. Table A3.1 (a) p. 42. Data for 1870-89 interpolated.

1989-1998: United Nations, Industrial Statistics Database 2010 at the 2-digit level of ISIC Code (Revision 3). Manufacturing.

1998-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

European Core

Belgium

1871-1901: Smits, Jan-Pieter, Pieter Woltjer and Debin Ma (2009), "A Dataset on Comparative Historical National Accounts, ca. 1870-1950: A Time-Series Perspective," Groningen Growth and Development Centre Research Memorandum GD-107, Groningen: University of Groningen. Industry value added.

1901-1960: United Nations International Trade Statistics 1900-1960. Index of Manufacturing Production 1953=100. Data for 1913-21, 1938-50 interpolated.

1960-1967: OECD Industrial Production Historical Statistics 1960-1975. Manufacturing industries.

1967-1981: United Nations, General Industrial Statistics Database 1953-93 CD. Manufacturing.

1981-2007: United Nations, Industrial Statistics Database 2010 at the 2-digit level of ISIC Code (Revision 3). Manufacturing.

France

1870-1950: Smits, Jan-Pieter, Pieter Woltjer and Debin Ma (2009), "A Dataset on Comparative Historical National Accounts, ca. 1870-1950: A Time-Series Perspective," Groningen Growth and Development Centre Research Memorandum GD-107, Groningen: University of Groningen. Total industry. Data for 1913-1919, 1938-1948 interpolated.

1950-1985: Smits, Jan-Pieter, Pieter Woltjer and Debin Ma (2009), "A Dataset on Comparative Historical National Accounts, ca. 1870-1950: A Time-Series Perspective," Groningen Growth and Development Centre Research Memorandum GD-107, Groningen: University of Groningen. Manufacturing.

1985-1999: United Nations, Industrial Statistics Database 2010 at the 2-digit level of ISIC Code (Revision 3). Manufacturing.

1999-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Luxembourg

1948-1960: OECD, Industrial Production Historical Statistics 1900-1962. Manufacturing Industries.

1960-1963: OECD, Industrial Production Historical Statistics 1960-1975. Manufacturing Industries.

1967-1981: United Nations, General Industrial Statistics Database 1953-93 CD. Manufacturing.

1981-1995: United Nations, Industrial Statistics Database 2010 at the 2-digit level of ISIC Code (Revision 3). Manufacturing.

1995-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

The Netherlands

1870-1977: Smits, Jan-Pieter, Pieter Woltjer and Debin Ma (2009), "A Dataset on Comparative Historical National Accounts, ca. 1870-1950: A Time-Series Perspective," Groningen Growth and Development Centre Research Memorandum GD-107, Groningen: University of Groningen. Manufacturing. Data for 1943-1946 interpolated.

1977-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Switzerland

1870-1913: The Swiss Economic and Historical Database. Wavre index of industrial production. Table K10, column L.

<http://www.fsw.uzh.ch/hstat/nls/sylkgenerator.php?datei=K.10Bau.BWS1851-1913R.slk&filename=K.10Bau.BWS1851-1913R.slk&chapter=./k/>

1913-1944: The Swiss Economic and Historical Database. Index of Industrial Production David (1995). Table K14, Column N.

<http://www.fsw.uzh.ch/hstat/nls/sylkgenerator.php?datei=K.14.Index.Ind.1913-92R.slk&filename=K.14.Index.Ind.1913-92R.slk&chapter=./k/>

1944-1958: The Swiss Economic and Historical Database. Table K13, column Z.
<http://www.fsw.uzh.ch/hstat/nls/sylkgenerator.php?datei=K.13Lage.ziffer1925-68L.slk&filename=K.13Lage.ziffer1925-68L.slk&chapter=../k/>

1958-1960: OECD, Industrial Production Historical Statistics 1955-1971. Manufacturing Industries.

1960-1967: OECD, Industrial Production Historical Statistics 1960-1975. Manufacturing Industries.

1967-1980: United Nations, General Industrial Statistics Database 1953-93 CD. Manufacturing.

1980-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Scandinavia

Denmark

1870-1913: Hansen, Aage (1974), *Økonomisk Vækst i Danmark*, Copenhagen: Akademisk Forlag.

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1960-1967: Mitchell Brian R. (2007), *International Historical Statistics: Europe 1750-2005*, 6th ed. Palgrave Macmillan. Table D1, p. 459. Industrial production.

1967-1980: United Nations, General Industrial Statistics Database 1953-93 CD. Manufacturing.

1980-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Norway

1970-1930: VA in secondary sector. Data graciously provided by Ola Grytten

1930-1960: United Nations, Historical Data 1900-1960 on international merchandise trade statistics. Index of manufacturing production 1953=100. Data for 1938-1950 interpolated.

1960-1967: OECD, Industrial Production Historical Statistics 1960-1975. Manufacturing industries.

1967-1970: United Nations, General Industrial Statistics Database 1953-93 CD. Manufacturing.

1970-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Sweden

1970-1981: Smits, Jan-Pieter, Pieter Woltjer and Debin Ma (2009), "A Dataset on Comparative Historical National Accounts, ca. 1870-1950: A Time-Series Perspective," Groningen Growth and Development Centre Research Memorandum GD-107, Groningen: University of Groningen. Manufacturing.

1981-1993: United Nations, Industrial Statistics Database 2010 at the 2-digit level of ISIC Code (Revision 3). Manufacturing.

1993-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

European Periphery

Albania

1938-1950: Lampe and Jackson (1982), *Balkan Economic History, 1550-1950. From Imperial Borderlands to Developing Nations*, Indiana University Press. Table 13.11, Industrial Output 1938-1950, p. 561. Data for 1938-49 interpolated.

1950-1970: Lampe and Jackson (1982), *Balkan Economic History, 1550-1950. From Imperial Borderlands to Developing Nations*, Indiana University Press. Table 14.1, Growth of Population, Labor force and Production, p. 580. Net Material Product in Industry (Constant Prices). Data for 1950-60, 1960-70 interpolated.

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Austria

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1917-1921: League of Nations (1945), *Industrialization and Foreign Trade*. New York: League of Nations 1945. Table IV, p. 136. Annual index of manufacturing production (1913 = 100).

1921-1960: United Nations, Historical Data 1900-1960 on international merchandise trade statistics. Index of Manufacturing Production 1953=100.

1960-1967: OECD, Industrial Production Historical Statistics 1960-1975. Manufacturing Industries.

1967-1976: United Nations, General Industrial Statistics Database 1953-93 CD. Manufacturing.

1976-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Belarus

1990-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Bosnia and Herzegovina

1881-1915: Palairot, Michael (1993), "The Habsburg Industrial Achievement in Bosnia-Herzegovina, 1878-1914: An Economic Spurt That Succeeded?," *Austrian History Yearbook*, XXIV (1993), pp. 133-152. Index of Large Scale Industrial Value Added. Bosnia Herzegovina, 1881-1915 (All Industries 1907=1000), Table 1, p. 142.

1994-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Bulgaria

1870-2000: Data graciously provided by Martin Ivanov, based on Ivanov, M., *The Gross Domestic Product of Bulgaria 1870-1945-2000*, forthcoming. Data for 1870-1887 interpolated.

2000-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Croatia

1990-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Cyprus

1962-1967: Mitchell Brian R. (2007), *International Historical Statistics: Africa, Asia & Oceania 1750-2005*, 6th ed. Palgrave Macmillan. Table D1, p. 368. Industrial production.

1967-1975: United Nations, General Industrial Statistics Database 1953-93 CD.

Manufacturing.

1975-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Czech Republic

1996-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Czechoslovakia

1913-1937: Svernilson, Ingvar (1954), *Growth and Stagnation in the European Economy*, United Nations Economic Commission for Europe. Table A66. Annual Manufacturing Production 1913-1950.

1937-1991: Smits, Jan-Pieter, Pieter Woltjer and Debin Ma (2009), "A Dataset on Comparative Historical National Accounts, ca. 1870-1950: A Time-Series Perspective," Groningen Growth and Development Centre Research Memorandum GD-107, Groningen: University of Groningen. Industry value added. Data for 1937-1948 interpolated.

Estonia

1920-1938: League of Nations (1945), *Industrialization and Foreign Trade*. New York: League of Nations 1945. Table VI, p. 143. Annual index of manufacturing production (1925-29 = 100).

1985-1993: United Nations, Industrial Statistics Database 2010 at the 2-digit level of ISIC Code (Revision 3), Manufacturing.

1993-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Finland

1870-1975: Smits, Jan-Pieter, Pieter Woltjer and Debin Ma (2009), "A Dataset on Comparative Historical National Accounts, ca. 1870-1950: A Time-Series Perspective," Groningen Growth and Development Centre Research Memorandum GD-107, Groningen: University of Groningen. Data for 1937-1948 interpolated. Manufacturing value added.

1975-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Greece

1913-1938: Svernison, Ingvar (1954), *Growth and Stagnation in the European Economy*, United Nations Economic Commission for Europe. Table A66, Annual Manufacturing Production 1913-1950.

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1939-1948: United Nations, Patterns of Industrial Growth. Manufacturing. Data for this period are interpolated.

1948-1967: OECD, Industrial Production Historical Statistics 1900-1962, Manufacturing.

1967-1981: United Nations, General Industrial Statistics Database 1953-93 CD. Manufacturing.

1981-2000: United Nations Industrial Statistics Database 2010 at the 2-digit level of ISIC Code (Revision 3). Manufacturing.

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Hungary

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1917-1929: League of Nations (1945), *Industrialization and Foreign Trade*. New York: League of Nations 1945. Table VI, p. 143. Annual index of manufacturing production (1925-29 = 100).

1929-1938: Ránki Gyorgy (1964), "Problems of the Development of the Hungarian Industry, 1900-1944," *The Journal of Economic History* 24: 204-228. Tables 1 and 2, p. 214.

1938-1943: Ránki Gyorgy (1964), "Problems of the Development of the Hungarian Industry, 1900-1944," *The Journal of Economic History* 24: 204-228. Table 4. War-time industrial production calculated on unchanged price basis, p. 220.

1943-1967: Mitchell Brian R. (2007), *International Historical Statistics: Europe 1750-2005*, 6th ed. Palgrave Macmillan. Table D1, p. 459. Industrial production.

1967-1991: United Nations, General Industrial Statistics Database 1953-93 CD. Manufacturing.

1991-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Iceland

1997-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Ireland

1926-1948: Mitchell Brian R. (2007), *International Historical Statistics: Europe 1750-2005*, 6th ed. Palgrave Macmillan. Table D1, p. 459. Industrial production. Data for 1926-1928, 1929-1930, 1932-1935, and 1939-1943 interpolated.

1948-1967: OECD, Industrial Production Historical Statistics 1900-1962, Manufacturing.

1967- 1981: United Nations, General Industrial Statistics Database 1953-93 CD. Manufacturing.

1981-2007: United Nations, Industrial Statistics Database 2010 at the 2-digit level of ISIC Code (Revision 3). Manufacturing.

Italy

1870- 1970: Baffigi, Alberto (2011), "Italian National Accounts," A project of Banca d'Italia, Istat and University of Rome Tor Vergata, in Economic History Working Papers, Banca d'Italia, N. 18. Table 5. Manufacturing (current frontiers).

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1970-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Latvia

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1980-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Lithuania

1995-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Macedonia, FYR

1990-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Malta

1970-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Moldova

1995-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Montenegro

2000-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Poland

1913-1938: Svernilson, Ingvar (1954), *Growth and Stagnation in the European Economy*, United Nations Economic Commission for Europe. Table A66, Annual Manufacturing Production 1913-1950.

1938-1967: Mitchell Brian R. (2007), *International Historical Statistics: Europe 1750-2005*, 6th ed. Palgrave Macmillan. Table D1, p. 459. Industrial production. Data for 1938-1948 interpolated.

1967-1981: United Nations, General Industrial Statistics Database 1953-93 CD. Manufacturing.

1981-1992: United Nations, Industrial Statistics Database 2010 at the 2-digit level of ISIC Code (Revision 3). Manufacturing.

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Portugal

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1953-1967: OECD, Industrial Production Historical Statistics 1955-1971. Manufacturing Industries.

1967-1988: United Nations, General Industrial Statistics Database 1953-93 CD. Manufacturing.

1988-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Romania

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1938-1981: Smits, Jan-Pieter, Pieter Woltjer and Debin Ma (2009), "A Dataset on Comparative Historical National Accounts, ca. 1870-1950: A Time-Series Perspective," Groningen Growth and Development Centre Research Memorandum GD-107, Groningen: University of Groningen. Romania, Value Added by Sector of Origin at Adjusted Factor Costs in Constant Prices. Industry Volume index (1990 = 100).

1981-2004: United Nations, Industrial Statistics Database 2010 at the 2-digit level of ISIC Code (Revision 3). Manufacturing.

2004-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Russia/USSR

1870-1967: Mitchell Brian R. (2007), *International Historical Statistics: Europe 1750-2005*, 6th ed. Palgrave Macmillan. Table D1, p. 458. Industrial production. Data for 1913-1924, 1940-1944 interpolated.

1967-1990: United Nations, General Industrial Statistics Database 1953-93 CD. Manufacturing.

1990-2007: United Nations, Industrial Statistics Database 2010 at the 2-digit level of ISIC Code (Revision 3). Manufacturing.

Serbia and Montenegro

1898-1910: Lampe, John R. and Marvin R. Jackson (1982), *Balkan Economic History, 1550-1950: From Imperial Borderlands to Developing Nations*, Bloomington, Ind.: Indiana University Press. Table 8.6, p. 205. Gross Real Industrial Output (million dinars, 1898 prices).

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Slovak Republic

1990-1993: United Nations, Industrial Statistics Database 2010 at the 2-digit level of ISIC Code (Revision 3). Manufacturing.

1993-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Slovenia

1990-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Spain

1870-1981: Smits, Jan-Pieter, Pieter Woltjer and Debin Ma (2009), "A Dataset on Comparative Historical National Accounts, ca. 1870-1950: A Time-Series Perspective," Groningen Growth and Development Centre Research Memorandum GD-107, Groningen: University of Groningen. Manufacturing value added.

1981-1995: United Nations, Industrial Statistics Database 2010 at the 2-digit level of ISIC Code (Revision 3). Manufacturing.

1995-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Ukraine

1987-1990: United Nations, Industrial Statistics Database 2010 at the 2-digit level of ISIC Code (Revision 3). Manufacturing.

1990-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Yugoslavia

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1938-1948: Lampe, John R. and Marvin R. Jackson (1982), *Balkan Economic History, 1550-1950: From Imperial Borderlands to Developing Nations*, Bloomington, Ind.: Indiana University Press. Table 13.11. Industrial Output, p. 561. Gross Output.

1948-1963: OECD, Industrial Production Historical Statistics 1900-1962. Manufacturing.

1963-1967: Mitchell, Brian R. (2007), *International Historical Statistics: Europe 1750-2005*, 6th ed. Palgrave Macmillan. Table D1, p. 460. Industrial production.

1967-1990: United Nations, General Industrial Statistics Database 1953-93 CD. Manufacturing.

Australia, Canada and New Zealand

Australia

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Bhutan

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Bahamas

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Barbados

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Bolivia

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Colombia

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Costa Rica

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Cuba

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Dominica

1977-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Dominican Republic

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1965-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Ecuador

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1965-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

El Salvador

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manufacturing value-added from ECLAC SYLA (1982, 1986, 1993, 1997, 2002). Figures are expressed in Colones (C).

1960-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Grenada

1977-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Guatemala

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1960-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Guyana

1960-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Haiti

1950-1997: MOxLAD. Manufacturing value-added (million constant 1970 LCU): Figures for 1950-1976 are from ECLAC CE (1978). Figures for 1977-2000 are calculated from the rate of growth of manufacturing value-added from ECLAC SYLA (1984, 1987, 1993, 1996, 1997, 2002), years ending 30 September. Figures are expressed in Gourdes (G).

1997-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Honduras

1920-1960: MOxLAD. Manufacturing value-added (million constant 1970 LCU): Figures for 1920-1949 are calculated from Bulmer-Thomas (1987). Figures for 1950-1976 are from ECLAC CE (1978). Figures for 1977-2000 are calculated with the rate of growth of manufacturing value-added from ECLAC SYLA (1982, 1986, 1993, 1997, 2002). Figures are expressed in Lempiras (L).

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1965-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Nicaragua

1920-1994: MOxLAD. Manufacturing value-added (million constant 1970 LCU): Figures for 1920-1944 are calculated from Bulmer-Thomas (1987). Figures for 1945-1976 are from ECLAC CE (1978). Figures for 1977-2000 are calculated with the rate of growth of manufacturing value-added from ECLAC SYLA (1981, 1986, 1993, 1997, 2002). Figures are expressed in Córdobas Viejas (CV).

1994-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Panama

1945-1980: MOxLAD. Manufacturing value-added (million constant 1970 LCU): Figures for 1945-1976 are from ECLAC CE (1978), figures for 1945-1949 include mining and quarrying. Figures for 1977-2000 are calculated with the rate of growth of manufacturing value-added in constant prices from ECLAC SYLA (1984, 1987, 1993, 1996, 1997, 2002). Figures are calculated based on the rate of growth are higher than the levels reported in subsequent issues of ECLAC SYLA. Figures are expressed in Balboas (B).

1980-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Paraguay

1938-1962: MOxLAD. Manufacturing value-added (million constant 1970 LCU): Figures for 1938-1976 are from ECLAC CE (1978), includes mining and quarrying from 1938-1950. Figures for 1977-2000 are calculated with the rate of growth of manufacturing value-added in constant prices from ECLAC SYLA (1984, 1987, 1993, 1996, 1997, 2002). Figures are expressed in Guaraníes (G).

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Figures are expressed in Soles (S).

1960-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Puerto Rico

1969-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

St. Kitts and Nevis

1977-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

St. Lucia

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1987-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

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Iraq

1997-2003: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Israel

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1967-2007: United Nations General Industrial Statistics Database 1953-93 CD. Manufacturing.

Jordan

1975-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Kuwait

1995-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Lebanon

1994-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Morocco

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Oman

1988-2004: World Bank, World Development Indicators. Manufacturing (Constant Local Currency Units). Data for 1988-1990 interpolated.

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Yemen, Republic of

1990-2003: World Bank, World Development Indicators. Manufacturing (constant local currency units).

South-Saharan Africa

Angola

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Benin

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Botswana

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Burkina Faso

1970-2006: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Burundi

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Cape Verde

1986-2004: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Central African Republic

1965-2006: World Bank, World Development Indicators. Manufacturing (constant local currency units).

Comoros

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