

NBER WORKING PAPER SERIES

THE SPREAD OF MANUFACTURING TO THE POOR PERIPHERY 1870--2007

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Working Paper 18221
<http://www.nber.org/papers/w18221>

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
July 2012

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. For help with 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, Sevket 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, and participants at the the UW Development Seminar (May 10 2012), the Trade and History conference (Madrid May 17, 2012), the WEHC session on Industrialization (Stellenbosch July 11 2012), and the Arndt-Corden Seminar (ANU December 11 2012). The usual disclaimer applies.

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NBER Working Paper No. 18221
July 2012, Revised August 2013
JEL No. F1,N7,O2

ABSTRACT

This paper documents industrial output growth around the poor periphery (Latin America, the European periphery, the Middle East and North Africa, Asia, and sub-Saharan Africa) between 1870 and 2007. We find that although the roots of rapid peripheral industrialization stretch into the late 19th century, the high point of peripheral industrialization was the 1950-1973 period, which saw widespread import-substituting industrialization. This period was also the high point of unconditional industrial catching up, defined as the tendency of less industrialized countries to post higher per capita manufacturing growth rates, and which occurred between 1920 and 1990.

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1. Introduction

Ever since the British Industrial Revolution, the transition to modern economic growth has been associated with industrialisation. New labour-saving and energy-using technologies first originated in Britain, and then spread with a lag to countries such as Belgium and France in continental Europe and North America (Allen 2009). The initial impact was a Great Divergence in living standards between Western Europe and its New World offshoots, on the one hand, and the rest of the world on the other. This divergence is now being eroded as developing economies rapidly industrialise (Maddison 2010). But when did modern manufacturing first begin to spread to various regions in the developing world? Was it only during the “second globalization” of the 1990s and 2000s, or can we also find traces of it during the “first globalization” of the late 19th century? In both periods international economic integration may have helped developing countries import new technologies, exploit their lower labour costs, and import those raw materials with which they were poorly endowed (Wright 1990). Or are the roots of developing world industrialisation to be found in the long period of world deglobalization which began in 1914, and saw two world wars, the Great Depression, the breakdown of formal and informal empires, and import-substituting industrialization (ISI)? Trade may have made it difficult for developing countries to compete with established industries in richer countries (Williamson 2011a), and the breakdown of the 19th century international division of labour, which saw the industrial core economies export manufactures and import food and raw materials (Robertson 1938, Lewis 1978), may have favoured developing world industrialization.

This paper documents the historical origins of developing world industrialisation, drawing on a vast amount of work by economic historians in recent decades. It finds that the roots of this industrialisation stretch surprisingly far back into the past, before 1890 in several cases. By the interwar period rapid industrialization can be found in all major regions of the developing world, and this continued into the post-war ISI period. Indeed, industrial growth between 1920 and 1990 was faster in developing countries than in the leading industrial

economies, implying that poor countries were increasing their share of world manufacturing output throughout the period.

The paper also documents per capita manufacturing growth rates in the developing world, which can be compared with per capita growth rates in the leading industrial economies in order to see when peripheral “industrial catching up” on the core economies first began.¹ It is important to stress that these per capita growth rates reflect both manufacturing productivity growth and structural change (i.e. changes in the share of the labour force employed in manufacturing).² The “industrial catching up” which we document is thus not comparable with the manufacturing productivity convergence which is the focus of Rodrik (2013a), or with the aggregate productivity convergence which has been the focus of many other studies. Whether or not developing countries were experiencing industrial catching up as we have defined it is nonetheless important, since shifting resources into manufacturing, and increasing manufacturing productivity, were both key components of industrialization, and have been ever since the British Industrial Revolution (Crafts 1985). Indeed, structural change has at times been an extremely important driver of overall living standards (Temin 2002, Rodrik 2013b). We are thus interested in documenting when industrial catching up occurred, since this was an important potential contributor to aggregate productivity and living standards convergence. We find surprisingly early evidence of industrial catching up, particularly between 1920 and 1990.

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: since Paul Bairoch’s (1982) pioneering work, scholars across the world have been building historical

¹ As will become clear below, we use manufacturing data whenever possible, but in some cases are obliged to use industrial growth rates instead.

² Indeed, since these are per capita rather than per worker growth rates, they also reflect changes in the labour force participation rate.

national accounts that have pushed back our quantitative knowledge of periphery-country GDP and its components into the interwar or even pre-1914 period. Where these national accounts have been reconstructed using the output approach, the results have yielded 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 by the United Nation's Industrial Statistics Database.³ 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.⁴ As we went further back in time, we relied increasingly on individual country sources, and on recent and ongoing work by many generous colleagues.⁵ A data appendix details the sources used for each country and time period. The underlying data are available on request.

We focus on eight periods, each with distinctive characteristics. The years before World War 1 are divided into two sub-periods, before and after 1890, both of which made up the crescendo of the first global century with trade booms, liberal commercial policy, fixed exchange rates, and falling transport costs. The years from 1913 to 1920 saw the First World War, blockades and submarine warfare, the withdrawal of European manufacturers from many peripheral markets, and economic chaos in the immediate aftermath of the fighting. The interwar period from 1920 to 1938 saw a Great Depression, a collapse of world trade, and anti-global restrictions. The years between 1938 and 1950 saw another world war, leading yet again to a complete disruption of normal trade patterns and a reorientation of industry first towards, and then away from, the needs of a wartime economy. The years from 1950 to 1973 saw post-war reconstruction in the former belligerents, and decolonisation and ISI policies in the periphery. The period following the oil crises from 1973 to 1990

³ Available on CD from the United Nations.

⁴ Available at <http://www.rug.nl/feb/onderzoek/onderzoekscentra/ggdc/data/hna>, <http://oxlad.qeh.ox.ac.uk/> and http://unstats.un.org/unsd/trade/imts/historical_data.htm respectively.

⁵ These are listed in the acknowledgments. For some countries and time periods we relied on the same sources as Williamson (2010, 2011b), but the present dataset is sufficiently different that the data appendix here is self-contained.

can be viewed as a period of policy transition for the poor periphery, which ended with the second period of globalization between 1990 and 2007.

There are 163 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 131 countries in 1973-1990, and to 91 in 1950-1973. We have information for 49 countries in the World War 2 period (1938-1950), 45 countries in the interwar period (1920-1938), 35 countries in the World War 1 period (1913-1920), 31 in the 1890-1913 period, and 21 countries in the 1870-1890 period.⁶ The empirical analysis that follows will make an effort to deal with the issue of changing sample size over time, by using both constant and variable samples.

Before 1890 many of our developing country data come from the European periphery, but even for this period 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. To the extent that other countries were experiencing modern industrialization before they started to collect industrial statistics, what we are documenting here understates the early spread of modern manufacturing.

Although the econometric analysis in Section 6 uses country/time observations, the tables and figures below typically report the evidence by six regions. The first “region” includes the three traditional industrial leaders: the United Kingdom (UK), Germany and the US. The second includes those in the poor European periphery to the south and east. The remaining four poor periphery groups are the Middle East and North Africa (MENA), Asia, sub-Saharan Africa, and Latin America and the Caribbean (hereafter simply Latin

⁶ 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.

America).⁷ We will occasionally refer to these last four regions and the European periphery as “the poor periphery”, or as “followers”, contrasting the experience of these five regions with those of the industrial leaders, referred to as “the core”, or as “leaders”.

3. When and where did growth begin?

When did individual countries and entire regions start recording rapid manufacturing output growth? Tables 1 and 2 provide some answers. 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.1 supplies the details for each country, but Tables 1-2 summarize this information in a more digestible fashion. Table 1 reports average annual growth rates of industrial output in our six regions and eight time periods between 1870 and 2007. In each case, the regional growth rate is a simple unweighted average of individual country growth rates.

Since the country samples change over time, Table 1 should be used only for growth rate comparisons between regions in any given period. Of course, we can only compute growth rates where output data are available, and 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 lower than 4.2 per cent during this period, reflecting lower rates in those countries for which we do not have data. Table 1 tells us for each region and each period that there were countries there growing, on average, at the stated rate: in other words, that industrial growth was taking place somewhere in that region at this rate during

⁷ These five periphery regions certainly deserved the label “poor”. In 1913, their per capita incomes relative to the three leaders (100) were: Eastern Europe 34.4 and Southern Europe 42.3; Latin America 32.3; Middle East 22.5; Asia 16.3; and Sub-Saharan Africa 13.8 (Maddison 2010).

this particular time period. Which countries were involved, and how typical their experience might have been of the region as a whole, is an issue to which we will return below.

Table 2 focuses instead on comparisons between periods. For each region and pair 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. The two war epochs were so atypical that we exclude them from the table: it is more meaningful in our view to compare the 1890-1913 and 1920-38 periods, for example, than to compare either or these periods with World War 1. For example, we have data for four Asian countries in both 1870-90 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 meaningful, being based on consistent samples in 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.2 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 2, which uses as much information as possible.

Table 1: Average industrial growth rates

Groups	1870- 1890	1890- 1913	1913- 1920	1920- 1938	1938- 1950	1950- 1973	1973- 1990	1990- 2007
Leaders	3.1	3.4	1.4	1.9	0.9	5.2	1.1	2.1
Leaders*					-1.0	7.9	2.4	2.2
European Periphery	4.7	5.0	-6.5	4.7	3.6	8.9	3.3	2.8
Asia	1.5	4.2	5.2	4.2	-1.7	8.5	5.8	4.2
Asia*					-1.4	8.3	5.9	4.3
Latam. and Caribbean	6.4	4.4	3.4	2.8	5.3	5.7	2.7	2.2
Middle East and North Africa	1.7	1.7	-5.8	4.9	6.0	6.2	6.1	4.5
Sub-Saharan Africa			13.4	4.6	8.6	5.5	3.5	3.9

Note: The table reports 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. Leaders are US, Germany and UK while Leaders* are US and Germany, plus UK before 1939, Japan after. Asia* is Asia excluding Japan.

Table 2. Industrial growth accelerations and decelerations

Groups	(1890/1913) -	(1920/1938)-	(1950/1973)-	(1973/1990)-	(1990/2007)-
	(1870/1890)	(1890/1913)	(1920/1938)	(1950/1973)	(1973/1990)
Leaders	0.2	-1.5	3.3	-4.1	1.0
Leaders*			4.2	-5.4	-0.3
European Periphery	-0.4	0.8	3.7	-5.1	-0.6
Asia	1.2	0.0	4.5	-2.1	-1.5
Asia*			4.4	-1.8	-1.5
Latam and Caribbean	-2.2	-0.7	3.2	-3.7	-0.5
Middle East and North Africa	0.0	6.4	2.2	-0.4	-1.4
Sub-Saharan Africa			0.6	-1.2	-1.2

Note: The table reports the average difference in regions' growth rates between successive sub-periods. Note that successive columns provide the comparison for progressively larger samples of countries. Leaders are US, Germany and UK while Leaders* are US and Germany, plus UK before 1939, Japan after. Asia* is Asia excluding Japan.

Finally, Tables 1 and 2 are based on growth rates for all countries barring those with fewer than four observations in a period, a liberal inclusion criterion. Tables A.3-A.5 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 yield results very similar to those presented in the text. In short, our results seem robust to the country samples used.

Tables 1 and 2 use two definitions of the country groupings. The first one uses the same industrial leaders throughout -- the UK, Germany, and the United States. The second one, 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 Japan has to be removed from the Asian group after 1939.

What do these data tell us?

Growth among the leaders was fairly steady between 1870 and 1913, averaging 3.1-3.4 per cent per annum, followed by a decline to 1.4 during the World War 1 and 1.9 per cent during the interwar period when the Great Depression did so much damage to the leaders' manufacturing sectors (Table 1). Manufacturing output in the three leaders was lower in 1950 than in 1938, although this is solely a function of the collapse in German output following its

defeat in World 2 (Table A1). The table confirms the impressive industry-led “growth miracle” during 1950-73. If we maintain the same three leaders into the postwar era, their growth reached 5.2 per cent per annum during the growth miracle; if instead the UK is replaced by Japan, leader growth rates reached 7.9 per cent per annum. These were, of course, the years of the German *Wirtschaftswunder* and the Japanese postwar growth miracle. Since 1973, however, growth in the three post-war leaders has only averaged slightly more than 2 per cent per annum, and it was only 1.1 per cent during 1973-1990 if the UK is included among the leaders. This leaders’ slow down must have been in part due 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).

Our main interest, however, is in the performance of the periphery. 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 regions to experience rapid manufacturing growth, with growth rates of 6.4 per cent from 1870 to 1890, and 4.4 per cent from 1890 to World War 1. Indeed, Latin American growth rates were faster than those in the three leading industrial economies during all five periods before 1950 (although its growth rates were slowing over time: Table 2). Growth was very rapid during both World War 2 and the 1950-1973 ISI period, in excess of 5 per cent per annum. Since 1973 its growth rate slowed significantly, however, to less than three per cent, and it slowed again after 1990. After 1990, Latin American manufacturing growth of 2.2 per cent resembled that of a rich country that had completed its industrialization phase. In contrast, Asia, MENA, and sub-Saharan Africa all saw much higher growth rates after 1990 – around 4 per cent per annum – a more impressive performance, but also one consistent with their being comparative late-comers.

The European periphery was the second earliest rapid industrialiser, with per annum growth rates of 4.7-5 per cent before World War 1, 4.7 per cent during the interwar period, and as much as 8.9 per cent during the European Golden Age. Indeed, the European periphery growth rate exceeded that of the

leaders during every period in our sample, with the exception of World War 1, when European peripheral industrial production collapsed.

While Latin America and the European periphery were both rapidly industrialising from 1870 onwards, other regions started seeing such manufacturing growth rates 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, except for 1938-1950. The years between 1890 and 1913 emerge as ones of impressive industrialization in the poor periphery: with the exception of MENA (represented here by Turkey alone), and sub-Saharan Africa (for which we have no data), average growth rates were in excess of 4 per cent in all periphery regions, and greater than in the industrial core.

Table 3. Industrial growth in early members of the “modern growth club”

Group	Country	In	1870-1890	1890-1913	1913-1920	1920-1938	1938-1950	1950-1973	1973-1990	1990-2007
European Periphery	Finland	1880	3.9	5.0	-5.8	6.7	4.4	6.0	3.5	6.4
	Russia	1880	5.3	4.6	-14.0	15.3	4.9	8.2	4.1	-0.5
	Austria	1883	4.8	3.3	-9.6	2.3	1.3	5.8	2.6	2.8
	Hungary	1883	4.8	3.3	-10.0	4.0	0.4	7.3	1.9	5.9
	Spain	1884	3.2	1.3	0.7	-0.5	2.7	8.9	1.3	2.9
Asia	Japan	1899	3.1	5.3	6.5	6.7	-3.7	12.4	4.1	1.0
	China	1900		7.8	9.4	5.3	-2.2	9.2	8.3	9.8
	Philippines	1913		6.3	10.1	3.4	9.4	7.0	1.8	3.3
	Taiwan	1914		5.1	9.8	4.4	-10.4	11.6	8.7	4.9
	Korea	1921		8.0	9.3	7.1	-4.0	13.6	11.7	7.4
Latam and Caribbean	Chile	1881	7.5	3.9	1.2	2.6	6.5	5.1	2.2	3.5
	Brazil	1884	7.5	0.0	6.7	3.2	7.0	8.0	2.6	2.1
	Argentina	1886	6.3	8.8	2.0	4.2	4.2	4.9	-1.0	1.7
	Uruguay	1886	4.1	3.9	2.7	3.2	4.8	1.3	1.5	0.1
	Mexico	1902		6.0	4.9	3.7	7.4	7.2	3.1	3.2
Middle East and North Africa	Turkey	1931	1.7	1.7	-5.8	8.1	3.6	7.7	5.1	4.1
	Morocco	1949					12.5	4.8	4.2	2.9
	Tunisia	1950					1.8	4.0	7.0	4.6
	Algeria	1959						9.8	7.4	0.1
	Egypt	1962				1.6		6.5	7.7	5.6
Sub-Saharan Africa	South Africa	1924			13.4	6.7	7.1	7.0	2.7	2.6
	Congo, Dem. Rep	1940				2.4	13.5	3.3	-0.6	-3.9
	Zimbabwe	1951					5.2	6.7	2.9	-3.7
	Kenya	1964						8.8	5.4	1.7
	Zambia	1966						8.3	2.4	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.1 and A.6.

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

growth rates were 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. Table 3 tells us something about which countries these were. It provides the growth rates for the five original rapid industrialisers in each peripheral region, by period. The regional leaders are ordered according to how early they first achieved a 10 year average growth rate of 5 per cent or higher.⁸ Latin America was led by Chile, Brazil, Argentina, Uruguay and Mexico, while the European periphery was led by Finland, Russia, Austria, Hungary, and Spain. These countries first achieved ten years of 5 per cent average growth as early as the 1880s, implying that rapid growth began during the 1870s. Asia was led by Japan and China, with the Philippines, Taiwan and Korea following close behind: all but Korea had joined the “modern industrial growth club”, defined in this way, by the time of World War 1.

Industrial production suffered in Turkey and (as already noted) peripheral Europe during World War 1, but elsewhere continued growing rapidly. Rapid industrial growth became universal during the interwar period: all peripheral regions, with the exception of Latin America, posted average manufacturing growth rates greater than 4 per cent during this period (Table 1): 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 MENA. Indeed, Table 2 shows that growth rates in MENA 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.

World War 2 led to substantial declines in manufacturing output in China, Japan and other countries affected by the fighting, but elsewhere in the periphery output grew rapidly. Manufacturing growth was uniformly high in the periphery between 1950 and 1973, and substantially higher than during the

⁸ Details are given in Table A.6.

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

interwar period (Table 2). It was over 8 per cent in the European periphery and Asia (8.3 per cent in the latter if Japan is included with the leaders), 6.2 per cent in MENA, 5.7 per cent in Latin America, and 5.5 per cent in sub-Saharan Africa. These impressive performances were generally not sufficient to match post-war “miraculous” 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 than the leaders’ collective performance between 1870 and 1913 (3.1-3.4 per cent per annum).

Strikingly, Table 2 shows that manufacturing growth declined in all peripheral regions after 1973, and again after 1990, although it still remained high in Asia, MENA and sub-Saharan Africa, and was higher than in the leading economies as well.¹⁰

In summary, rapid peripheral industrial growth began in Latin America and the European periphery in the 1870s. It spread to Asia after 1890, and to MENA and sub-Saharan Africa in the interwar period. The high-point of peripheral industrial growth was 1950-73, since when it has been steadily declining.

4. When did rapid industrial growth become widespread?

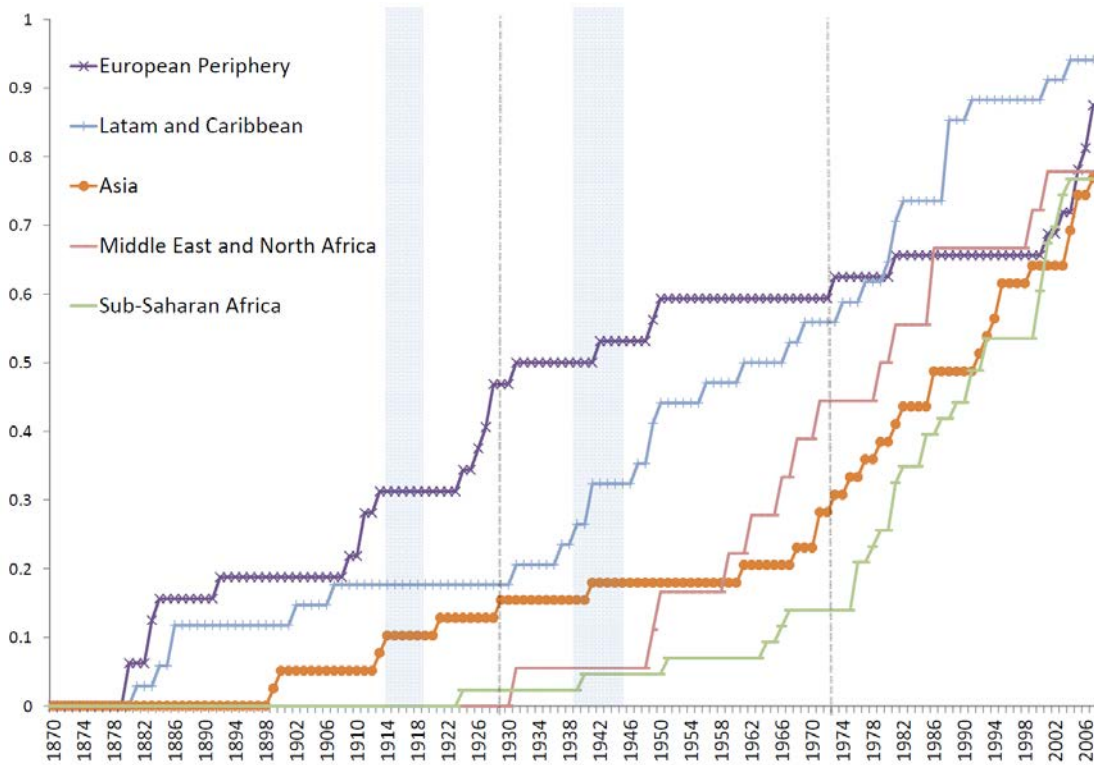
The average regional growth rates presented above have their limitations: they are masking differing country performances within each region, and they are also based on country samples which increase in size over time. We are interested not only in when modern industrial growth began in each region, but when it began to be widespread. Figure 1 attempts to address this issue. It is based on Appendix Table A.6, 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.6 gives the first year for which we can document when each country joined the “modern industrial growth club”, where membership is defined as we did earlier in Table 3.

¹⁰ The one exception to this statement being Latin America after 1990 which posted a growth rate equal to that in the UK, US and Japan.

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.6 documents.

There are two reasons why the regional “modern industrial growth club” shares should 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.6 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. Regional diffusion curves: reaching the 5 per cent threshold



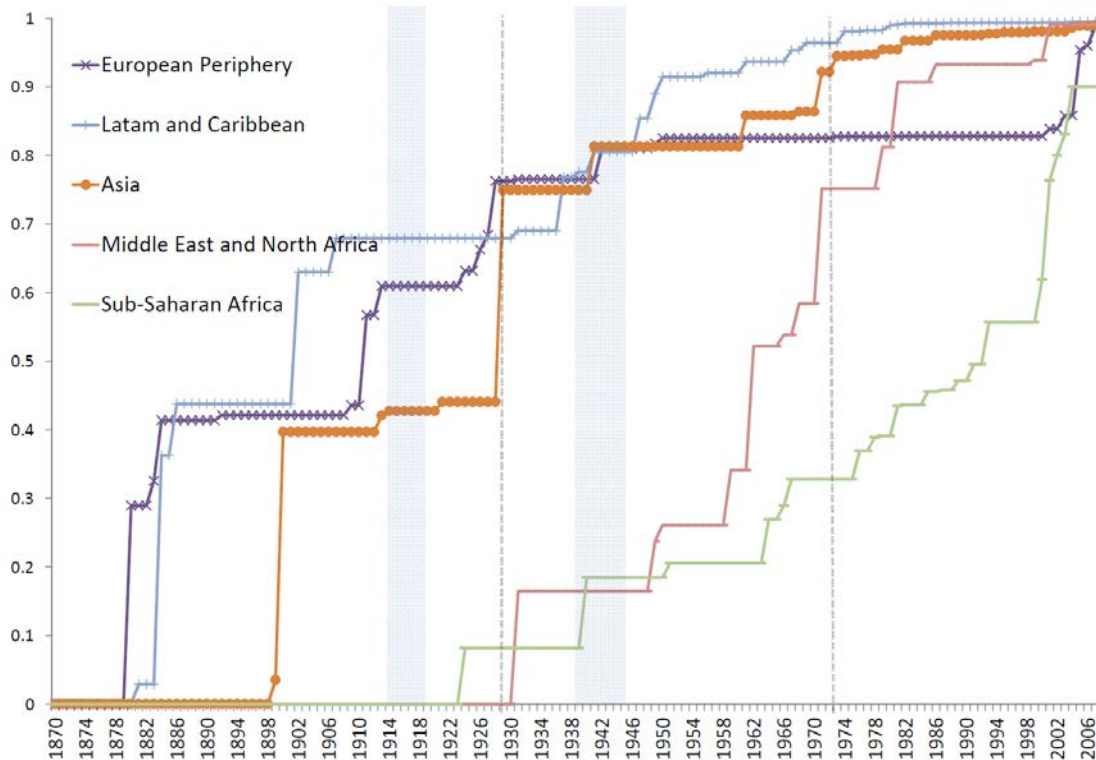
Note: The figure shows the proportion of countries for which the 10-year backward looking average industrial growth rate exceeded a 5 per cent threshold. Countries for which data are missing are assumed not to have exceeded this threshold. Source: Table A.6.

Figure 1 shows the successive waves of diffusion of rapid manufacturing growth in various regions of the periphery: first in the European periphery, then Latin America, then Asia, then MENA, and finally sub-Saharan Africa. By 1913, 31 per cent of the European periphery, 10 per cent of Asia, and 18 per cent of Latin America had joined the modern industrial club. 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 MENA 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 MENA, and 14 per cent of sub-Saharan Africa.

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 for many of which we 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: The figure shows 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. Countries for which data are missing are assumed not to have exceeded this threshold. Source: Table A.6.

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.¹¹ 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 2007 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 MENA 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 MENA, 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.

5. Was there historical persistence?

How persistent were high growth rates? More precisely, to what extent were high-growth countries in one period also high-growth countries in the following period? Table 4 provides a list of the top ten performers for each region and time period, ranked by their average growth performance over the period as a whole.¹² Certain countries appear consistently in the table: Russia, Bulgaria, China, Japan, India and Brazil being perhaps the most prominent: it seems as though the current BRICs' rapid industrialization is a phenomenon with deep historical roots. (However, these countries drop out of the table in later periods, which is consistent with the logic of "catching up", of which more later.) On the other hand, it is also obvious from the table that there has been a good

¹¹ This suggests, of course, that population and domestic market size might have been an important determinant of industrial performance between 1913 and 1973, a long anti-global episode. We intend to pursue this, and other possible determinants, in subsequent work.

¹² Table 3, in contrast, ranked countries according to how early they joined the modern growth club, which was defined in terms of growth performance over just ten years.

deal of churning over time, with many countries entering and exiting the leader board within a brief space of time (and, occasionally, re-entering at a later date).

Figure 3 confirms that there has been relatively little persistence over time in long run industrial growth rates. It computes the correlation coefficient, and the rank correlation coefficient, between average country growth rates in adjacent periods. It does so both using a consistent 30 country sample, and using the largest sample of countries for which data exist for both periods (which sample naturally increases in size over time). As can be seen, these correlation coefficients were quite high in the 19th century, of the order of 0.5 to 0.6. By and large, a lot of the countries that were growing rapidly before 1890 were also growing rapidly after 1890. However, the correlation coefficients are much lower in the 20th century, of the order of 0.3 or less, suggesting that achieving rapid (or relatively rapid) growth in one period was only a weak predictor of performance in the subsequent period. The conclusion is that while there are important exceptions, rapid long run industrial growth was not very persistent in the 20th century.

Table 4. The top ten performers by region and period

European Periphery			
1870-1890	1890-1913	1913-1920	1920-1938
Bosnia and Herzegovina	Bosnia and Herzegovina	Greece	Russia
Russia	Romania	Yugoslavia	Latvia
Austria	Serbia and Montenegro	Spain	Romania
Hungary	Finland	Italy	Finland
Finland	Russia	Portugal	Bulgaria
Spain	Bulgaria	Czechoslovakia	Ireland
Bulgaria	Italy	Finland	Estonia
Italy	Hungary	Bulgaria	Hungary
Portugal	Austria	Austria	Greece
	Portugal	Hungary	Poland
Asia			
1870-1890	1890-1913	1913-1920	1920-1938
Japan	Korea	Philippines	Korea
Indonesia	China	Taiwan	Japan
Thailand	Philippines	China	China
India	Japan	Korea	Taiwan
	Taiwan	Japan	Philippines
	India	Myanmar	India
	Thailand	Thailand	Indonesia
	Indonesia	Indonesia	Myanmar
	Myanmar	India	Thailand
Latam and Caribbean			
1870-1890	1890-1913	1913-1920	1920-1938
Chile	Argentina	Brazil	Colombia
Brazil	Peru	Peru	Peru
Argentina	Mexico	Mexico	Argentina
Uruguay	Chile	Uruguay	Costa Rica
	Uruguay	Argentina	Mexico
	Colombia	Colombia	Guatemala
	Brazil	Chile	Brazil
			Uruguay
			Chile
			Cuba
Middle East and North Africa			
1870-1890	1890-1913	1913-1920	1920-1938
Turkey	Turkey	Turkey	Turkey
			Egypt
Sub-Saharan Africa			
1870-1890	1890-1913	1913-1920	1920-1938
		South Africa	South Africa
			Congo, Dem. Rep. of

Source: Table A.1.

Table 4. The top ten performers by region and period (cont'd)

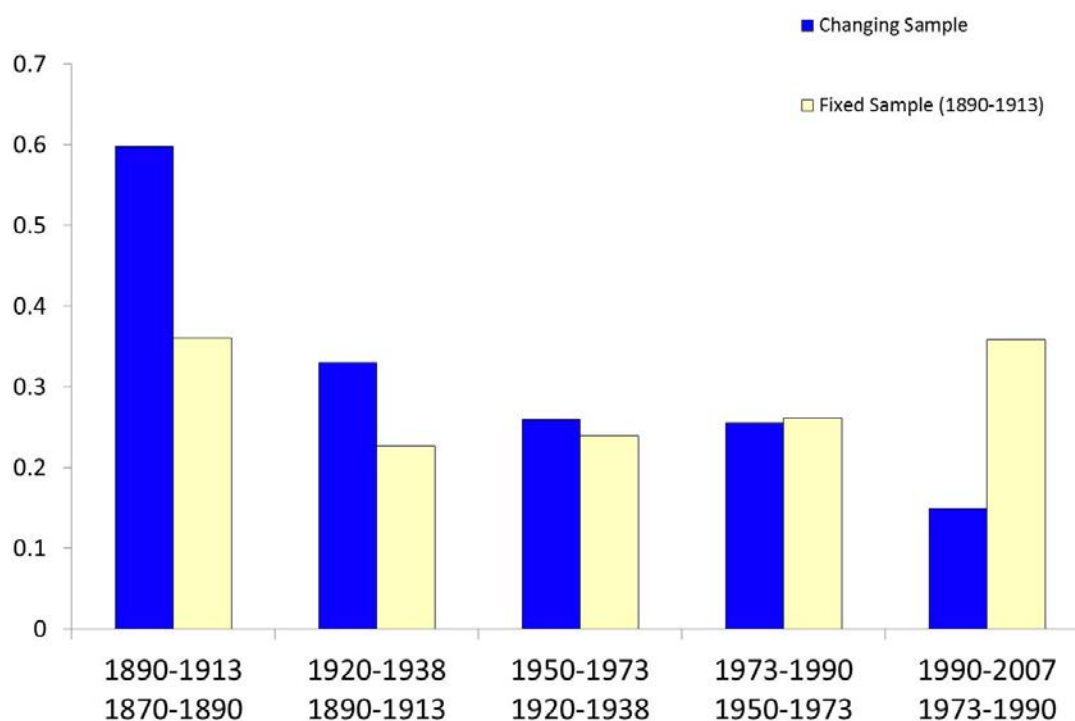
European Periphery			
1938-1950	1950-1973	1973-1990	1990-2007
Albania	Albania	Cyprus	Ireland
Bulgaria	Malta	Ireland	Lithuania
Russia	Bulgaria	Malta	Slovak Republic
Ireland	Romania	Portugal	Poland
Poland	Yugoslavia	Bulgaria	Finland
Finland	Cyprus	Latvia	Hungary
Yugoslavia	Poland	Russia	Bosnia and Herzegovina
Portugal	Spain	Yugoslavia	Czech Republic
Spain	Italy	Italy	Belarus
Romania	Russia	Finland	Estonia
Asia			
1938-1950	1950-1973	1973-1990	1990-2007
Philippines	Singapore	Indonesia	Cambodia
Thailand	Korea	Bhutan	Myanmar
India	Malaysia	Korea	Afghanistan
China	Japan	Maldives	Vietnam
Japan	Taiwan	Taiwan	China
Korea	Thailand	Malaysia	Kazakhstan
Indonesia	Pakistan	Lao People's Dem. Rep.	Bhutan
Taiwan	Mongolia	Tonga	Korea
	China	China	Malaysia
	Vietnam	Thailand	Lao People's Dem. Rep.
Latam and Caribbean			
1938-1950	1950-1973	1973-1990	1990-2007
Colombia	Belize	Grenada	Trinidad and Tobago
Venezuela	Puerto Rico	St. Lucia	Costa Rica
Mexico	Panama	Dominica	Dominican Republic
El Salvador	Barbados	Paraguay	Honduras
Brazil	Nicaragua	Belize	Belize
Ecuador	Brazil	Antigua and Barbuda	Nicaragua
Nicaragua	Costa Rica	St. Vincent and Grenadines	El Salvador
Chile	Venezuela	Puerto Rico	St. Kitts and Nevis
Honduras	Mexico	Cuba	Peru
Uruguay	El Salvador	Ecuador	Suriname

Table 4. The top ten performers by region and period (cont'd)

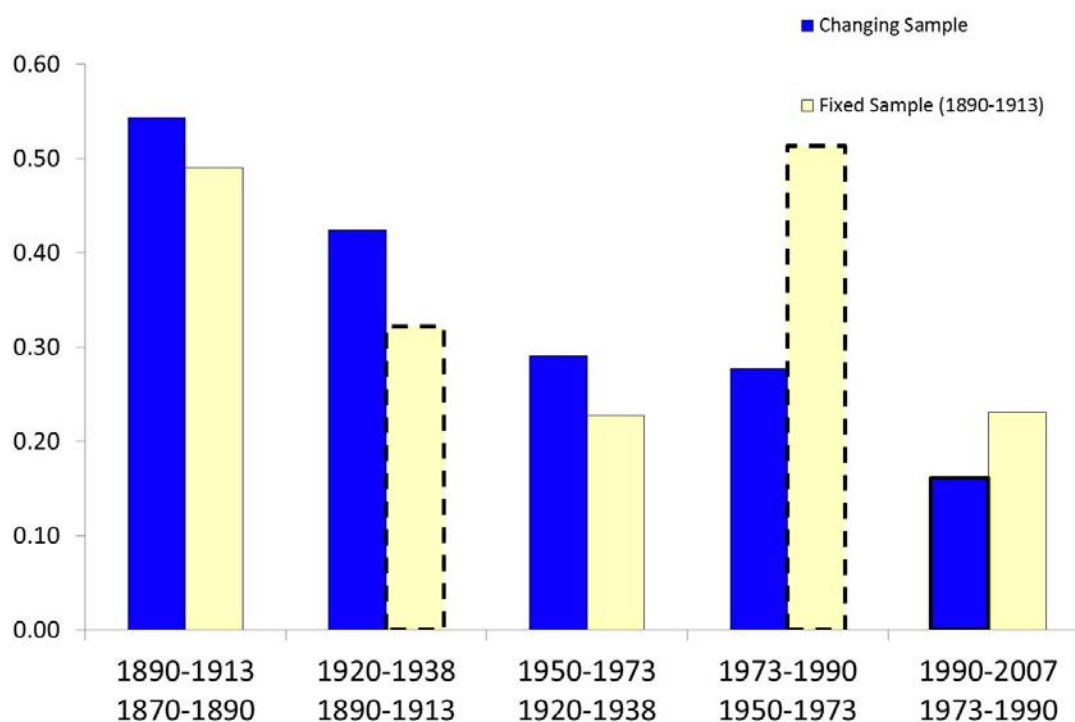
Middle East and North Africa			
1938-1950	1950-1973	1973-1990	1990-2007
Morocco	Iran, Islamic Republic of	United Arab Emirates	United Arab Emirates
Turkey	Israel	Egypt	Oman
Tunisia	Algeria	Algeria	Jordan
	Saudi Arabia	Saudi Arabia	Iran, Islamic Republic of
	Turkey	Tunisia	Syrian Arab Republic
	Egypt	Syrian Arab Republic	Yemen, Republic of
	Morocco	Sudan	Egypt
	Tunisia	Turkey	Saudi Arabia
	Syrian Arab Republic	Jordan	Sudan
	Sudan	Morocco	Tunisia
Sub-Saharan Africa			
1938-1950	1950-1973	1973-1990	1990-2007
Congo, Dem. Rep. of	Malawi	Swaziland	Equatorial Guinea
South Africa	Central African Republic	Cameroon	Mozambique
Zimbabwe	Mozambique	Cape Verde	Namibia
	Kenya	Lesotho	Uganda
	Botswana	Botswana	Lesotho
	Zambia	Mauritius	Sierra Leone
	Cameroon	Mali	Angola
	South Africa	Central African Republic	São Tomé and Príncipe
	Zimbabwe	Gambia, The	Burkina Faso
	Burkina Faso	Congo, Rep. of	Benin

Figure 3. Cross-country correlations: growth in subsequent periods

Panel A. Correlations of country growth rates between periods



Panel B. Rank correlations of country growth rates between periods



Note: dashed lines indicate rank correlations that are statistically zero and 10% significance levels. Source: Table A1.

6. Unconditional “Industrial Catching Up”

There is a vast empirical literature that asks whether poorer countries grow more rapidly than richer ones (Abramovitz 1986, Barro 1997, Bourguignon and Morrisson 2002), and finds that they do not.¹³ More recently, Rodrik (2013a) has found evidence of unconditional convergence in labour productivity for individual manufacturing sectors. Since we do not have comparable data on manufacturing employment, we cannot engage with the productivity issue. Instead, we ask a different question: did less industrialized economies experience more rapid industrial growth than more industrialized countries? More precisely, did countries with a lower level of manufacturing output per capita systematically experience more rapid per capita growth in manufacturing output than countries with more manufacturing output per capita?

We begin by comparing rates of per capita manufacturing growth in our five peripheral regions to those in the core. Table 5 gives the difference between peripheral and leader per capita growth rates, for both definitions of the leading group. As can be seen, per capita growth rates in the European periphery exceeded those in the core throughout the period, except during World War 1, and since 1890 Asian per capita growth rates have exceeded core rates, except during World War 2. Latin American growth rates were higher than core rates until 1950. MENA and sub-Saharan growth rates were only occasionally higher than core growth rates. The period which saw the most uniform peripheral ‘catching up’ on the core, on this criterion, was the interwar period.

Table 5: Catching Up: Industrial growth rate relative to leaders

Panel A: Leaders are always US, Germany and UK

Groups	1870- 1890	1890- 1913	1913- 1920	1920- 1938	1938- 1950	1950- 1973	1973- 1990	1990- 2007
European Periphery	0.8	1.1	-8.0	2.7	1.2	4.1	2.0	0.4
Asia	-0.8	2.0	2.7	2.4	-3.7	2.7	2.9	0.0
Latam and Caribbean	2.2	0.4	0.3	0.0	1.5	-0.7	0.3	-1.3
Middle east and north africa	-0.4	-0.8	-6.6	6.0	3.0	-0.7	2.4	-0.4
Sub-Saharan Africa			9.0	3.5	3.9	0.0	-0.3	-0.4

¹³ Economists have only found evidence of conditional convergence (Durlauf, Johnson and Temple 2005).

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

Groups	1870-	1890-	1913-	1920-	1938-	1950-	1973-	1990-
	1890	1913	1920	1938	1950	1973	1990	2007
European Periphery	0.8	1.1	-8.0	2.7	2.0	2.7	1.2	0.5
Asia	-0.8	2.0	2.7	2.4	-2.9	1.3	2.1	0.2
Latam and Caribbean	2.2	0.4	0.3	0.0	2.3	-2.1	-0.5	-1.2
Middle east and north africa	-0.4	-0.8	-6.6	6.0	3.8	-2.1	1.6	-0.2
Sub-Saharan Africa			9.0	3.5	4.7	-1.4	-1.0	-0.2

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 three leaders' growth rates. Note that the leader averages in Table 1 are unweighted.

Table 5 is based on comparisons between regional averages, ignoring the country-level variation in the data: it is possible that the highest industrial growth rates in peripheral regions were in the most industrial economies there. When did it become true that per capita manufacturing growth rates were systematically higher in less industrialized countries, and when was this tendency most pronounced?

In order to answer these questions, we need to be able to compare levels of manufacturing output across countries. This is difficult, so we follow two approaches. First, the World Bank's World Development Indicators report comparable manufacturing output levels for 2001, expressed in US dollars. We extrapolate these 2001 output levels back in time to six benchmark years (1870, 1890, 1920, 1950, 1973 and 1990) using our output indices, and then divide these output figures by population taken from the World Development Indicators and Maddison (2010). Where we cannot do this, for example because missing data make it impossible to link manufacturing indices before and after a world war, we are forced to drop countries from the sample.

There are dangers in extrapolating relative aggregate output levels backwards over such long periods, involving as they do compositional shifts, relative price changes, and the like. Furthermore, Maddison's data assume constant boundaries, whereas our growth rates are typically for period-specific boundaries. Therefore, we also adopted a second 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 1870, 1890, and 1920. Similarly, we used UN data for 1967 to generate comparable absolute levels of per capita output for 1950, and World Bank data to generate comparable absolute levels for 1973 and 1990. While safer, the disadvantage of this procedure is that it involves fewer country observations since Bairoch provides data for fewer countries than we do.

Armed with these two sets of data, we can now ask: when was per capita manufacturing growth faster in less industrialized countries, where the level of industrialization is measured by manufacturing output per capita (Bairoch 1982)? Such “industrial catching up”, when it took place, must have been due to 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.¹⁴

Table 6 provides the slope coefficients from regressions of the per annum, per capita manufacturing output growth rates reported in Table A.7 against initial levels of per capita output. The first column presents our preferred estimates, 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). One problem with these results is that the number of observations is not constant across time periods, making the coefficients difficult to compare.¹⁵ Subsequent columns address this issue, using the data on levels constructed by extrapolating backward from the 2001 World Bank data. In each column, the sample size is 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 1890, is -0.238, with a robust standard error of 0.091. In this manner, the coefficients in any given column are comparable with each other, being based as they are on the same country samples.

¹⁴ 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 were 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 Bloom and Williamson 1998; Bloom and Canning 2001; Lee and Mason 2010. Finally, L_m/L rises over time during industrial revolutions (see for example Crafts 1985).

¹⁵ For our six periods, the coefficients are estimated using data for 20, 23, 29, 40, 70 and 146 countries respectively. For the final two periods, this column uses benchmark data from the World Development Indicators.

Table 6: Unconditional industrial catching up

Period	Using period-specific benchmarks	Country sample					
		1870-1890	1890-1913	1920-1938	1950-1973	1973-1990	1990-2007
1870-1890	-0.341 (0.409)	-0.203 (0.256)					
1890-1913	-0.599 (0.376)	-0.009 (0.137)	-0.239 (0.223)				
1920-1938	-0.601** (0.236)	-0.238** (0.091)	-0.378** (0.140)	-0.644** (0.270)			
1950-1973	-3.722*** (0.552)	-1.023** (0.417)	-0.598* (0.324)	-0.734*** (0.269)	-0.800*** (0.268)		
1973-1990	-0.435*** (0.158)	-0.518*** (0.181)	-1.135*** (0.367)	-0.781* (0.407)	-0.737** (0.294)	-0.381*** (0.139)	
1990-2007	0.062 (0.156)	-0.396 (0.302)	-0.779** (0.327)	-0.434 (0.266)	-0.044 (0.254)	0.233 (0.199)	0.062 (0.156)
Number of Countries		23	29	44	56	92	146

Note: Coefficients are obtained by regressing regression-based growth rates of per capita manufacturing output reported in Table A.7 on the log level of per capita manufacturing output at the beginning of the period. The first column reports coefficients using period specific benchmarks; subsequent columns use backward extrapolation from a 2001 benchmark. See text for details. *, **, *** indicate statistical significance at the 10%, 5% and 1% levels respectively. Robust standard errors in parentheses.

Table 6 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. The highpoint of unconditional industrial convergence in the periphery was the ISI period between 1950 and 1973: while strong unconditional convergence persisted after the first oil shock, it was slightly less pronounced than before (compare the coefficients obtained using the 1950-73 country sample for the two sub-periods). According to the first and the last columns in Table 6 (which use the same data for the last period), unconditional convergence in per capita manufacturing output fizzled out after 1990.

7. Implications and Agenda

Rapid peripheral industrialization is not a phenomenon unique to the recent past. It was taking place at least as far back as the 1870s in Latin America and the European periphery, and was well underway in Asia by the end of the nineteenth century. It had become widespread in all three regions by the

interwar period. The highpoint of peripheral industrialization was not the 1990-2007 period, but the ISI period from 1950 to 1973, which was also the highpoint of the periphery's industrial catching up on the core.

It will be challenging to identify the fundamentals explaining the performance documented here. Latin America and the European periphery began to rapidly industrialize behind tariff barriers, but nineteenth century Asia had free trade imposed upon it, and also enjoyed rapid industrial growth. What all three experiences had in common was that they occurred during a period of generalized globalization before World War 1. However, industrial growth in the poor periphery persisted during the crisis-ridden and anti-global interwar period of world trade busts, and spread to many more countries. Industrial growth was fastest during the 1950-73 ISI period, in which developing economies erected high trade barriers between themselves and the rest of the world, but this was true everywhere, not just in the poor periphery. Post-war industrial growth was rapid in countries with many different institutional features, under pro-market and anti-market policies, and under pro-global and anti-global environments: in re-globalizing Western Europe, in closed and state-led communist Eastern Europe, and in the newly independent poor periphery pursuing inward-looking industrialization policies.

The relationship between openness and industrialization is not straightforward: it may be contingent on other factors, as appears to be true of the relationship between openness and growth more generally (Clemens and Williamson 2004). Nor can explanations for performance based on invariant country characteristics easily explain the low persistence of leadership in the industrial growth stakes. One striking feature of the data is the way in which rapid industrialization began in different regions at different times: first in Latin America and the European periphery, then in Asia, then in MENA, and finally in sub-Saharan Africa. If it were not for this geographical clustering, the assumption by Robert Lucas (2000) that countries embark on modern growth in an essentially random way might seem a good way to explain the spread of industry. It appears that his assumption may need to be augmented to allow for geographical spillovers of some sort, although whether this is due to emulation

effects, economic geography forces related to market size, or other factors, remains unclear.

The dataset we have constructed will now allow us and others to explore the determinants of the timing and location of industry's spread to the poor periphery. To what extent can industrial growth be explained by the convergence forces discussed by Lucas (2000) and Rodrik (2013a), and what explains the geographical clustering in our data? Did low peripheral wages give the poor periphery an increasing competitive advantage over time relative to those in the core? Did falling transport costs help peripheral countries industrialize, by enabling resource-scarce countries buy essential fuel and raw materials on world markets at ever-cheaper prices relative to resource-abundant countries? And what, if any, were the roles of peripheral trade policy (Coatsworth and Williamson 2004, Williamson 2006), the changing terms of trade (Prebisch 1950, Singer 1950, Williamson 2011a), and/or exchange rate policy in fostering industrialization? We intend to address these and related issues in our future work.

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Appendix (Not for publication)

Table A.1 Individual country growth experiences

Groups	Country	1870- 1890	1890- 1913	1913- 1920	1920- 1938	1938- 1950	1950- 1973	1973- 1990	1990- 2007
Leaders	Germany	2.7	3.7	0.4	1.6	-4.7	6.8	1.3	1.2
	United Kingdom	1.9	1.9	-0.6	3.0	2.3	4.3	0.1	0.8
	United States	4.9	4.5	4.5	1.2	5.3	4.4	1.9	4.2
European Core	Belgium	1.6	2.3	-5.1	2.6	2.5	4.9	1.7	2.1
	France	2.5	2.0	-2.5	2.4	1.6	6.3	0.8	1.8
	Luxembourg						5.0	2.2	2.4
	Netherlands	3.3	2.9	-2.9	4.2	2.3	7.1	2.0	2.3
	Switzerland	2.6	4.2	-2.2	2.2	-1.0	3.2	0.8	1.5
Scandinavia	Denmark	4.4	5.3	0.8	3.5	3.1	4.9	1.7	1.3
	Norway	1.2	3.0	-4.3	3.8	4.1	4.6	0.1	1.6
	Sweden	3.3	6.1	-0.1	4.4	3.5	5.3	1.5	6.4
European Periphery	Albania					13.5	16.8		1.2
	Austria	4.8	3.3	-9.6	2.3	1.3	5.8	2.6	2.8
	Belarus								5.0
	Bosnia and Herzeg	12.8	10.0						5.8
	Bulgaria	2.7	4.4	-8.8	4.8	9.3	11.9	4.4	0.1
	Croatia								0.7
	Cyprus						9.4	5.7	0.2
	Czech Republic								5.7
	Czechoslovakia			-5.1	2.3	0.9	5.1	2.1	
	Estonia				4.1			2.4	4.8
	Finland	3.9	5.0	-5.8	6.7	4.4	6.0	3.5	6.4
	Greece			11.4	3.9	-2.1	8.2	1.9	1.4
	Hungary	4.8	3.3	-10.0	4.0	0.4	7.3	1.9	5.9
	Iceland								1.8
	Ireland				4.4	4.7	5.0	5.6	10.7
	Italy	2.4	3.5	-1.8	2.5	-1.2	8.4	3.5	0.9
	Latvia			-17.9	11.0			4.3	0.3
	Lithuania								8.4
	Macedonia, FYR								-0.9
	Malta						13.9	5.3	1.1
	Moldova								2.5
	Montenegro								-1.1
	Poland			-15.0	2.9	4.7	9.3	1.4	7.3
	Portugal	2.2	2.7	-3.0	2.9	4.1	7.6	4.8	1.9
	Romania		9.8	-15.0	7.3	1.8	10.1	1.0	0.9
	Russia	5.3	4.6	-14.0	15.3	4.9	8.2	4.1	-0.5
	Serbia and Montenegro		7.0						-2.6
Slovak Republic								7.5	
Slovenia								3.8	
Spain	3.2	1.3	0.7	-0.5	2.7	8.9	1.3	2.9	
Ukraine							2.6	-0.3	
Yugoslavia			3.4	1.3	4.3	9.8	3.7		

Table A.1 Individual country growth experiences (cont'd)

Groups	Country	1870- 1890	1890- 1913	1913- 1920	1920- 1938	1938- 1950	1950- 1973	1973- 1990	1990- 2007	
Newly Settled	Australia	4.8	3.3	0.0	1.6	4.9	5.0	1.3	1.7	
	Canada	5.2	6.1	-0.1	2.5	7.2	4.8	2.3	3.0	
	New Zealand	4.5	4.3	1.6	2.9	4.5	6.0	2.4	2.2	
Asia	Afghanistan								11.4	
	Armenia								2.4	
	Azerbaijan							1.8	-9.5	
	Bangladesh						1.4	4.8	6.6	
	Bhutan							12.7	7.4	
	Brunei Darussalam								2.6	
	Cambodia								15.9	
	China		7.8	9.4	5.3	-2.2	9.2	8.3	9.8	
	Fiji						2.4	3.3	3.5	
	Georgia								7.0	
	Hong Kong SAR of China							7.7	-3.0	
	India	0.8	2.3	-4.3	3.4	1.4	6.9	5.1	6.5	
	Indonesia	1.3	1.3	1.0	2.7	-6.6	3.4	12.8	5.1	
	Japan	3.1	5.3	6.5	6.7	-3.7	12.4	4.1	1.0	
	Kazakhstan								8.2	
	Kiribati								-11.3	2.4
	Korea		8.0	9.3	7.1	-4.0	13.6	11.7	7.4	
	Kyrgyz Republic								-2.4	
	Lao People's Democratic Republic							8.5	7.1	
	Macao SAR of China								2.7	
	Malaysia						12.8	8.6	7.1	
	Maldives							9.2	6.2	
	Mongolia						9.6	7.0	-1.1	
	Myanmar		0.1	3.5	2.6		3.2	3.0	12.0	
	Nepal								6.2	5.0
	Pakistan						10.8	7.5	5.5	
	Papua New Guinea								0.1	2.0
	Philippines		6.3	10.1	3.4	9.4	7.0	1.8	3.3	
	Samoa								2.1	
	Singapore						16.2	6.9	6.1	
Solomon Islands								-2.3		
Sri Lanka						5.8	4.8	5.6		
Taiwan		5.1	9.8	4.4	-10.4	11.6	8.7	4.9		
Tajikistan							5.4	-1.6		
Thailand	1.0	1.8	1.6	2.3	2.4	11.2	8.1	5.9		
Tonga							8.5	-0.1		
Uzbekistan								1.5		
Vanuatu								-0.1		
Vietnam						7.6	1.9	10.7		

Table A.1 Individual country growth experiences (cont'd)

Groups	Country	1870- 1890	1890- 1913	1913- 1920	1920- 1938	1938- 1950	1950- 1973	1973- 1990	1990- 2007	
Latam and Caribbean	Antigua and Barbuda							6.4	2.3	
	Argentina	6.3	8.8	2.0	4.2	4.2	4.9	-1.0	1.7	
	Bahamas, The								1.9	
	Barbados						8.7	1.4	-1.1	
	Belize						11.6	6.6	4.3	
	Bolivia						3.3	-0.7	3.4	
	Brazil	7.5	0.0	6.7	3.2	7.0	8.0	2.6	2.1	
	Chile	7.5	3.9	1.2	2.6	6.5	5.1	2.2	3.5	
	Colombia		1.2	1.2	4.5	7.5	6.0	3.1	0.3	
	Costa Rica				4.1	2.3	7.9	3.3	5.5	
	Cuba				2.2	2.8	3.2	4.3	0.8	
	Dominica							7.4	-0.6	
	Dominican Republic							-6.0	3.3	5.0
	Ecuador						6.8	6.2	3.6	2.2
	El Salvador				1.7	7.1	6.9	-2.9	4.0	
	Grenada							11.1	3.1	
	Guatemala				3.3	4.5	6.4	1.8	2.6	
	Guyana							2.8	-3.2	1.1
	Haiti							2.0	1.8	-2.7
	Honduras				2.0	5.6	6.5	3.5	4.6	
	Jamaica							3.9	-0.8	-1.6
	Mexico		6.0	4.9	3.7	7.4	7.2	3.1	3.2	
	Nicaragua					-2.3	6.6	8.5	-1.5	4.2
	Panama						4.2	9.6	3.3	0.4
	Paraguay						1.3	4.1	6.6	0.8
	Peru		6.8	5.2	4.2	3.5	6.2	0.5	3.9	
	Puerto Rico							10.4	4.8	
	St. Kitts and Nevis								2.5	4.0
	St. Lucia								10.5	0.9
	St. Vincent and the Grenadines								6.3	-0.5
	Suriname								-3.8	3.9
	Trinidad and Tobago								0.4	7.1
Uruguay	4.1	3.9	2.7	3.2	4.8	1.3	1.5	0.1		
Venezuela						7.5	7.4	2.4	2.8	

Table A.1 Individual country growth experiences (cont'd)

Groups	Country	1870- 1890	1890- 1913	1913- 1920	1920- 1938	1938- 1950	1950- 1973	1973- 1990	1990- 2007
Middle East and North Africa	Algeria						9.8	7.4	0.1
	Bahrain							-1.2	
	Egypt				1.6		6.5	7.7	5.6
	Iran, Islamic Republic of						12.1	3.9	7.3
	Iraq								-4.3
	Israel						10.8	2.9	3.7
	Jordan							4.5	7.5
	Kuwait								0.1
	Lebanon								2.2
	Morocco					12.5	4.8	4.2	2.9
	Oman								8.6
	Saudi Arabia						9.1	7.3	5.4
	Sudan						-6.1	6.1	5.3
	Syrian Arab Republic						3.5	6.5	6.9
	Tunisia					1.8	4.0	7.0	4.6
	Turkey	1.7	1.7	-5.8	8.1	3.6	7.7	5.1	4.1
	United Arab Emirates							17.2	9.5
	Yemen, Republic of								6.5

Table A.1 Individual country growth experiences (cont'd)

Groups	Country	1870- 1890	1890- 1913	1913- 1920	1920- 1938	1938- 1950	1950- 1973	1973- 1990	1990- 2007
Sub-Saharan Africa	Angola							-11.8	6.9
	Benin							2.5	5.2
	Botswana						8.5	8.3	3.1
	Burkina Faso						6.0	2.8	5.8
	Burundi						1.6	5.3	-9.1
	Cameroon						7.2	8.9	3.9
	Cape Verde							8.3	3.5
	Central African Republic						9.4	6.2	0.3
	Comoros							4.8	1.8
	Congo, Dem. Rep. of				2.4	13.5	3.3	-0.6	-3.9
	Congo, Rep. of						1.7	5.7	-2.4
	Cote d'Ivoire							3.0	2.0
	Djibouti								-2.1
	Equatorial Guinea								40.5
	Eritrea								1.4
	Ethiopia							3.4	4.7
	Gabon							1.8	3.4
	Gambia, The						3.6	6.2	1.7
	Ghana						5.3	-2.6	
	Guinea								3.8
	Kenya						8.8	5.4	1.7
	Lesotho						1.7	8.3	9.6
	Madagascar							2.1	2.7
	Malawi						12.5	3.3	-1.3
	Mali							6.6	-0.7
	Mauritania							-2.1	1.2
	Mauritius							7.7	3.4
	Mozambique						9.3		12.3
	Namibia							3.7	12.0
	Niger							-2.8	2.9
	Rwanda						2.5	5.1	-2.2
	Senegal						4.1	3.6	3.0
	Seychelles							5.6	4.2
	Sierra Leone								9.1
	Somalia						-3.1	-0.1	
	South Africa			13.4	6.7	7.1	7.0	2.7	2.6
	Swaziland							9.4	2.2
	São Tomé and Príncipe								6.5
	Tanzania							3.7	5.1
	Togo							1.6	4.4
	Uganda							3.8	10.1
	Zambia						8.3	2.4	2.8
	Zimbabwe					5.2	6.7	2.9	-3.7

Table A.2 Industrial growth acceleration. Constant samples**Panel A:** 1890-1913 sample: 38 countries

Groups	(1920/1938)-	(1950/1973)-	(1973/1990)-	(1990/2007)-
	(1890/1913)	(1920/1938)	(1950/1973)	(1973/1990)
Leaders	-1.5	3.3	-4.1	1.0
European Periphery	0.8	3.2	-5.2	-0.6
Asia	-0.3	5.0	-1.8	-2.1
Latam and Caribbean	-0.7	1.8	-3.8	0.4
Middle East and North Africa	6.4	-0.4	-2.6	-1.0

Panel B: 1920-1938 sample: 49 countries

Groups	(1950/1973)-	(1973/1990)-	(1990/2007)-
	(1920/1938)	(1950/1973)	(1973/1990)
Leaders	3.3	-4.1	1.0
European Periphery	3.3	-5.1	0.4
Asia	5.0	-1.8	-2.1
Latam and Caribbean	3.2	-4.4	1.2
Middle East and North Africa	-0.4	-2.6	-1.0
Sub-Saharan Africa	0.6	-4.1	-1.7

Table A.3 Average industrial growth rates in countries with data for at least half of the period

Groups	1870-	1890-	1913-	1920-	1938-	1950-	1973-	1990-
	1890	1913	1920	1938	1950	1973	1990	2007
Leaders	3.1	3.4	1.4	1.9	0.9	5.2	1.1	2.1
Leaders*					-1.0	7.9	2.4	2.2
European Periphery	3.7	5.0	-6.5	4.7	3.6	8.6	3.3	2.9
Asia	1.5	3.6	5.2	4.2	-1.7	8.0	5.8	3.9
Asia*					-1.4	7.6	5.8	4.0
Latam and Caribbean	6.4	4.4	3.4	2.8	5.3	5.1	2.7	2.2
Middle East and North Africa	1.7	1.7	-5.8	4.9	6.0	7.4	6.7	5.0
Sub-Saharan Africa			13.4	4.6	8.6	6.7	4.2	3.0

Note: The table reports 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. Leaders are US, Germany and UK while Leaders* are US and Germany, plus UK before 1939, Japan after. Asia* is Asia excluding Japan.

Table A.4 Industrial growth accelerations in countries with data for at least half of the period

Groups	(1890/1913) - (1870/1890)	(1920/1938)- (1890/1913)	(1950/1973)- (1920/1938)	(1973/1990)- (1950/1973)	(1990/2007)- (1973/1990)
Leaders	0.2	-1.5	3.3	-4.1	1.0
Leaders*			4.2	-5.4	-0.3
European Periphery	-0.2	0.8	3.7	-4.9	-0.3
Asia	1.2	0.2	3.9	-1.1	-1.2
Asia*			3.5	-0.3	-1.1
Latam and Caribbean	-2.2	-0.7	3.2	-3.3	-0.3
Middle East and North Africa	0.0	6.4	2.2	-1.8	-1.4
Sub-Saharan Africa			0.3	-4.3	-0.7

Note: The table reports the average difference in regions' growth rates between successive sub-periods. Note that successive columns provide the comparison for progressively larger samples of countries. Leaders are US, Germany and UK while Leaders* are US and Germany, plus UK before 1939, Japan after. Asia* is Asia excluding Japan.

Table A.5 Industrial growth acceleration in countries with data for at least half of the period. Constant samples

Panel A: 1890-1913 sample: 36 countries

Groups	(1920/1938)- (1890/1913)	(1950/1973)- (1920/1938)	(1973/1990)- (1950/1973)	(1990/2007)- (1973/1990)
Leaders	-1.5	3.3	-4.1	1.0
European Periphery	0.8	3.2	-5.2	-0.6
Asia	-0.2	4.4	-1.7	-1.4
Latam and Caribbean	-0.7	1.8	-3.8	0.4
Middle East and North Africa	6.4	-0.4	-2.6	-1.0

Panel B: 1920-1938 sample: 48 countries

Groups	(1950/1973)- (1920/1938)	(1973/1990)- (1950/1973)	(1990/2007)- (1973/1990)
Leaders	3.3	-4.1	1.0
European Periphery	3.3	-5.1	0.4
Asia	3.9	-1.5	0.1
Latam and Caribbean	3.2	-4.4	1.2
Middle East and North Africa	2.2	-0.7	-1.5
Sub-Saharan Africa	0.3	-4.3	-0.1

Table A.6 Countries entering and exiting the 5% growth club

Groups	Country	Data Start	In	Out
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		

Table A.6 Countries entering and exiting the 5% growth club (cont'd)

Groups	Country	Data Start	In	Out
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			

Table A.6 Countries entering and exiting the 5% growth club (cont'd)

Groups	Country	Data Start	In	Out
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			

Table A.6 Countries entering and exiting the 5% growth club (cont'd)

Groups	Country	Data Start	In	Out
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		

Table A.6 Countries entering and exiting the 5% growth club (cont'd)

Groups	Country	Data Start	In	Out
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.7. Per capita manufacturing growth rates

Groups	Country	1870- 1890	1890- 1913	1913- 1920	1920- 1938	1938- 1950	1950- 1973	1973- 1990	1990- 2007
Leaders	Germany	1.7	2.3	1.5	1.0	-4.3	6.1	1.3	1.1
	United Kingdom	0.9	1.0	-0.9	2.7	1.8	3.8	0.0	0.4
	United States	2.6	2.7	3.2	0.1	4.0	3.0	0.9	3.1
European Core	Belgium	0.7	1.3	-4.8	2.0	2.2	4.3	1.6	1.9
	France	2.2	1.8	-1.4	2.0	1.5	5.3	0.3	1.3
	Luxembourg						4.1	1.9	1.1
	Netherlands	2.1	1.5	-4.5	2.9	1.0	5.8	1.4	1.7
	Switzerland	2.1	3.0	-2.2	1.7	-2.0	1.7	0.5	1.0
Scandinavia	Denmark	3.4	4.1	-0.4	2.7	2.1	4.2	1.6	1.0
	Norway	0.4	2.1	-5.3	3.2	3.2	3.8	-0.3	1.0
	Sweden	2.6	5.3	-0.8	4.0	2.6	4.7	1.3	6.1
European Periphery	Albania								0.7
	Austria	3.9	2.3	-8.8	2.0	0.9	5.4	2.6	2.5
	Belarus								5.3
	Bosnia and Herzegovina								3.9
	Bulgaria	1.2	3.0	-9.8	3.3	8.5	11.1	4.2	1.2
	Croatia								0.7
	Cyprus						8.5	4.7	-1.7
	Czech Republic								5.8
	Estonia							2.0	5.8
	Finland	2.5	3.9	-6.3	5.9	3.6	5.3	3.1	6.1
	Greece			10.7	2.7	-2.7	7.5	1.2	1.1
	Hungary	4.2	2.6	-10.2	3.2	0.5	6.9	2.0	6.2
	Iceland								0.6
	Ireland					4.7	5.0	4.8	9.7
	Italy	1.8	2.8	-1.7	1.7	-1.9	7.7	3.3	0.8
	Latvia							3.7	1.3
	Lithuania								8.6
	Macedonia, FYR								-1.5
	Malta						14.3	4.8	0.3
	Moldova								2.7
	Montenegro								-1.0
	Poland			-13.4	1.5	7.2	8.0	0.6	7.3
	Portugal	1.5	1.9	-3.1	1.7	3.1	7.3	4.4	1.4
	Romania		8.8	-14.8	6.0	1.5	9.0	0.5	1.1
	Russia		1.8	-13.6	14.1	5.6	7.1	3.4	-0.2
	Serbia and Montenegro								-2.4
	Slovak Republic								7.3
Slovenia								3.8	
Spain	2.7	0.7	0.0	-1.5	1.9	8.0	0.6	2.7	
Ukraine							2.3	0.4	

Table A.7. Per capita manufacturing growth rates (cont'd)

Groups	Country	1870- 1890	1890- 1913	1913- 1920	1920- 1938	1938- 1950	1950- 1973	1973- 1990	1990- 2007	
Newly Settled	Australia	1.6	1.6	-1.2	0.2	3.6	2.9	-0.1	0.6	
	Canada	3.8	4.1	-1.5	0.9	5.7	2.7	1.1	2.1	
	New Zealand	1.2	1.9	0.5	1.5	3.1	4.0	1.7	1.1	
Asia	Armenia								3.1	
	Azerbaijan							0.2	-10.2	
	Bangladesh						-0.7	2.3	4.8	
	Bhutan							10.0	5.9	
	Brunei Darussalam								0.2	
	Cambodia								14.0	
	China		7.2	8.3	4.8	-2.7	7.2	6.9	8.9	
	Fiji						0.2	1.5	2.7	
	Georgia								7.5	
	Hong Kong SAR of China							6.8	-4.3	
	India	0.3	1.9	-4.4	2.2	2.1	4.8	2.9	4.7	
	Indonesia	0.2	0.2	0.1	1.3	-7.6	1.6	10.7	3.8	
	Japan	2.3	4.2	5.5	5.2	-4.8	11.3	3.3	0.8	
	Kazakhstan								8.0	
	Kiribati								-13.5	0.7
	Korea		6.4	7.7	5.6	-6.9	11.1	10.4	6.7	
	Kyrgyz Republic								-3.5	
	Lao People's Democratic Republic							5.8	4.5	
	Macao SAR of China								0.6	
	Malaysia						10.4	6.2	5.1	
	Maldives								5.9	4.3
	Mongolia						6.9	4.2	-2.8	
	Nepal								3.8	2.7
	Pakistan							8.2	4.6	3.2
	Papua New Guinea								-2.4	-0.6
	Philippines		4.4	8.2	1.2	7.1	4.0	-0.8	1.1	
	Samoa								1.4	
	Singapore						14.4	5.0	3.7	
	Solomon Islands								-5.1	
	Sri Lanka							3.4	3.2	4.5
Tajikistan								2.5	-3.3	
Thailand							8.2	6.2	4.9	
Tonga								8.1	-0.5	
Uzbekistan									0.2	
Vanuatu									-2.6	
Vietnam								-0.4	9.4	

Table A.7. Per capita manufacturing growth rates (cont'd)

Groups	Country	1870- 1890	1890- 1913	1913- 1920	1920- 1938	1938- 1950	1950- 1973	1973- 1990	1990- 2007
Latam and Caribbean	Antigua and Barbuda							7.5	0.3
	Argentina	3.5	5.3	0.0	1.8	2.4	3.2	-2.6	0.6
	Bahamas, The								0.5
	Barbados						8.0	1.0	-1.4
	Belize						10.3	4.1	1.3
	Bolivia						1.1	-2.7	1.3
	Brazil	5.6	-2.2	4.6	1.2	4.6	5.1	0.4	0.6
	Chile	6.1	2.7	0.0	1.1	4.6	2.9	0.6	2.2
	Colombia		-0.8	-1.3	2.7	4.9	3.0	1.0	-1.4
	Costa Rica				2.2	-0.4	4.4	0.5	3.7
	Cuba				0.4	0.9	1.3	3.5	0.4
	Dominica							7.8	-0.3
	Dominican Republic						-9.2	1.0	3.4
	Ecuador					4.1	3.3	0.8	0.2
	El Salvador				0.0	5.7	3.8	-4.3	2.2
	Grenada							10.2	2.7
	Guatemala				1.8	2.0	3.5	-0.9	0.6
	Guyana						0.6	-3.0	0.8
	Honduras				-0.3	3.5	3.1	0.3	1.9
	Jamaica						2.3	-1.6	-2.7
	Mexico		4.9	5.0	2.1	4.4	4.1	0.8	1.8
	Nicaragua				-3.4	4.0	5.4	-4.3	2.0
	Panama					1.9	6.9	1.2	-1.4
	Paraguay					-1.1	1.5	4.0	-1.9
	Peru		5.5	3.9	2.6	1.8	3.5	-1.9	2.2
	St. Kitts and Nevis							2.9	2.7
	St. Lucia							9.0	-0.5
	St. Vincent and the Grenadines							5.5	-0.6
	Suriname							-4.5	2.5
	Trinidad and Tobago							-1.1	7.3
	Uruguay	0.6	1.6	0.6	1.2	3.7	0.1	0.9	-0.5
	Venezuela					4.8	3.6	-0.5	1.1

Table A.7. Per capita manufacturing growth rates (cont'd)

Groups	Country	1870- 1890	1890- 1913	1913- 1920	1920- 1938	1938- 1950	1950- 1973	1973- 1990	1990- 2007
Middle East and North Africa	Algeria						7.6	4.4	-1.5
	Egypt						4.3	4.8	3.5
	Iran, Islamic Republic of						9.2	0.3	6.6
	Iraq								-7.2
	Jordan							0.7	4.2
	Kuwait								-3.6
	Lebanon								0.9
	Morocco					11.2	2.2	2.0	1.1
	Oman								5.1
	Saudi Arabia						6.3	1.7	2.1
	Sudan						-9.2	2.7	2.9
	Syrian Arab Republic						0.3	3.0	4.3
	Tunisia					0.5	2.1	4.5	3.3
	Turkey	1.3	1.3	-5.0	7.0	2.0	5.1	2.8	2.5
	United Arab Emirates							9.3	4.2
	Yemen, Republic of								3.2

Table A.7. Per capita manufacturing growth rates (cont'd)

Groups	Country	1870- 1890	1890- 1913	1913- 1920	1920- 1938	1938- 1950	1950- 1973	1973- 1990	1990- 2007
Sub-Saharan	Angola							-13.6	4.7
Africa	Benin							-0.5	1.9
	Botswana					6.4		4.3	0.7
	Burkina Faso					4.7		0.3	2.4
	Cameroon					5.1		5.8	1.5
	Cape Verde							6.5	2.2
	Central African Republic						7.2	3.5	-1.7
	Comoros							2.3	-1.2
	Congo, Dem. Rep. of						0.5	-3.5	-6.8
	Cote d'Ivoire							-0.7	-0.7
	Djibouti								-3.7
	Equatorial Guinea								37.7
	Eritrea								-1.6
	Ethiopia							0.8	1.7
	Gabon							-1.1	0.7
	Gambia, The						0.4	2.8	-1.9
	Ghana							-5.8	
	Guinea								1.5
	Kenya						5.7	1.6	-0.9
	Lesotho						-0.6	5.8	8.4
	Madagascar							-0.9	-0.3
	Malawi						9.7	-0.4	-3.2
	Mali							4.8	-3.0
	Mauritania							-4.3	-1.3
	Mauritius							6.5	2.3
	Mozambique								9.3
	Namibia							0.4	9.9
	Niger							-5.4	-0.5
	Rwanda						-0.4	2.0	-4.4
	Senegal						1.3	0.5	0.2
	Seychelles							4.6	3.1
	Sierra Leone								6.9
	South Africa			10.5	4.5	5.4	4.4	-0.1	1.3
	Swaziland							6.0	0.8
	São Tomé and Príncipe								3.3
	Tanzania							0.6	2.5
	Togo							-1.6	1.4
	Uganda							0.2	6.9
	Zambia						5.6	-0.9	0.6
	Zimbabwe						3.5	-0.3	-4.4

Data Appendix (Not for publication)

Leaders

Germany

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United States

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Switzerland

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

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Manufacturing Industries.

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Manufacturing.

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Manufacturing.

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Czech Republic

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Finland

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Iceland

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Latvia

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Lithuania

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Macedonia, FYR

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Malta

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Moldova

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Asia

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Armenia

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Bhutan

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Bahamas

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Barbados

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Belize

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Bolivia

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

Colombia

1900-1965: MOxLAD. Manufacturing value-added (million constant 1970 LCU): Figures for 1900-1924 are calculated with the rate of growth of manufacturing value-added in constant prices from Hofman (2000). Figures for 1925-1976 are from ECLAC CE (1978). Figures for 1977-2000 are calculated with the rate of growth of manufacturing value-added in constant prices from ECLAC SYLA (1978, 1984, 1987, 1993, 1996, 1997, 2002). Figures are expressed in Pesos (P).

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Costa Rica

1920-1965: MOxLAD. Manufacturing value-added (million constant 1970 LCU): Figures for 1920-1945 are from Bulmer-Thomas (1987). Figures for 1946-1976 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 Colones (C).

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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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Ecuador

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

El Salvador

1920-1960: MOxLAD. Manufacturing value-added (million constant 1970 LCU): Figures for 1920-1945 are calculated from Bulmer-Thomas (1987). Figures for 1946-1976 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 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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Jamaica

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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 Córdoba 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).

1962-2007: World Bank, World Development Indicators. Manufacturing (constant local currency units).

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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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St. Vincent and the Grenadines

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Suriname

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Middle East and North Africa

Algeria

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Bahrain

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Egypt

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