

APPENDICES TO CHAPTER V

Appendix 5-1: Are My Conclusions Biased by their Focus on Europe?

A key concept of my analysis in chapter V is “threshold of industrialization.” I define this as the year when various countries reached the level of per capita manufacturing production achieved in England in 1778, a somewhat arbitrary date that represents the rough midpoints of various estimates of when the industrial revolution began in that country. To make such a calculation I started with Paul Bairoch’s (1982) estimates of per capita manufacturing production in a common currency of different nations for benchmark years from the eighteenth century and later and assumed exponential growth between his benchmark years to calculate when other countries achieved the specified level.

In my analysis I focus on the nations that reached the industrialization threshold sometime between the late eighteenth and the early twentieth centuries, a span of 130 years. These were mostly European nations. While it would have been useful to include in the sample various nations that did not reach the industrialization threshold before 1914, data for the comparisons are not available for many of them. Does such a procedure bias my results?

A key issue is whether the nations of Europe and the countries considered “third-world nations” (TWN) after World War II started from the same level of economic development in the eighteenth century. Existing estimates of the ratio of the average per capita GDP of the TWN to that of the Western European nations in the mid eighteenth century vary considerably. Paul Bairoch (1993: 106-8) provides a useful survey, showing that in the 1960s and 1970s, most estimates of these ratios varied between 0.4 to 0.5. His own estimate for 1750 (*ibid.*: 104) is much higher - about unity - and he uses certain qualitative evidence to support it, for instance, the great awe early European

travelers felt when viewing the rich cities of Asia and the Americas. Pomeranz (2000) has recently supported Bairoch's position, but relying only on isolated indicators from China and various European nations.

More recently, Angus Maddison (2001: 264) has estimated this ratio as 0.69 in 1500, 0.54 in 1700 and 0.47 in 1820. His position can also be supported by qualitative information. For instance, Alan Macfarland (1979: 4) emphasizes the much lower living standards of farmers living in the developing world today (such as India or China) than English villagers in the seventeenth century.

Unfortunately, Bairoch does not explain in much detail how he made his estimates for the third world and some of them seem counterintuitive. By way of contrast, Maddison (1995, 2001) discusses in some detail the methods and evidence he used to derive his estimates, and his explanations seem reasonable. I have, therefore, used his calculations in my analysis. The question of whose estimates are more credible has some important implications for understanding the course of industrialization in the third world.

Those who claim that the levels of per capita GDP in Europe in the eighteenth century were relatively similar to those in the rest of the world have offered various explanations of the relative economic backwardness of third-world nations in the twentieth century. These include demographic behavior and climate fluctuations, economic institutions, colonial exploitation, resource pressure, or the impact of colonial trade. Some of these explanations, however, seem questionable. For instance, Jones (1981) argues that the demographic/climatic fluctuations were much greater in China than in Europe and acted as a brake to Chinese economic development. If it is legitimate to generalize about the weather in China during the period from 1500 to 1900 from weather data in the

twentieth century, then climatic fluctuations were little different in the two areas and such an explanation for Chinese economic backwardness appears invalid (Pryor, 1985). The impact of colonialism seems a more promising explanation: see, for instance, Pomeranz's (2000) hypothesis focusing on resource pressure and the role of colonial trade.

Those who claim that eighteenth-century levels of per capita income in Europe and the rest of the world were very different have offered much different explanations for the relative backwardness of third-world nations in the twentieth century. For instance, Maddison (1983) and others have focused attention on a variety of institutional and organizational, such as Europe's scientific precocity, centuries of slow accumulation of capital (resulting in greater agricultural productivity), and a superior economic infrastructure, including transportation facilities and financial institutions.

Maddison's estimates mean that agricultural productivity was much higher in Europe than in the rest of the world. Given my argument that high agricultural productivity was favorable to early industrialization, my sample of early industrializing nations is not biased. Bairoch's estimates suggest that agricultural productivity was roughly the same over the globe. In this case, my sample is biased since I do not include a large group of nations with high agricultural productivity that did not experience industrialization until much later.

Appendix 5-2: On Agricultural Revolutions

The common argument about the necessity of an agricultural revolution - a dramatic upsurge in agricultural production and productivity - preceding the industrial revolution implicitly assumes (1) that high agricultural productivity in itself is not sufficient to favor industrialization and (2) that this change in the agricultural sector must have a certain time pattern as well, which implies a particular malleability of institutions. It is useful to look more carefully at the evidence supporting this claim.

In the mid-twentieth century, economic historians generally believed that some type of “agricultural revolution” necessarily preceded an industrial revolution.¹ In more recent years, however, they have become more cautious, noting that agricultural productivity could have been an evolutionary process occurring over centuries, not decades. Variant views include the proposition that, in England, two different types of major agricultural transformations took place (Allen, 1999); or that an agricultural revolution occurred, but alongside, not before, industrialization.

To provide some clarity on these issues, it is useful to turn to the actual experience of nations that industrialized early. For England a considerable amount of qualitative data is readily available. We know about the adventures of such wonderful characters as “Turnip” Townsend, who preached the doctrine of the new fodder crop. We have also learned about such agricultural innovations as the introduction of clover and other fodder crops, the use of new crop rotation schemes such as the

¹ For instance, according to Robert Brenner (1985b: 323): “It was the growth of agricultural productivity, rooted in the transformation of agrarian class or property relations, which allowed the English economy to embark upon a path of development already closed to its Continental neighbours. The path was distinguished by *continuing industrialization* and overall economic growth *through* the period when ‘general crisis’ gripped the other European economies, and into the epoch of the industrial revolution.”

Norfolk system, Jethro Tull's new method of planting and cultivating wheat and root crops, the improved Rotherham triangular plow, the improved hand tools for cutting grain, the new irrigation systems (floated water-meadows), and the new methods for breeding better cattle that were introduced in the eighteenth century. But many discussions about the agricultural revolution assume, based on rather slim evidence, that these innovations were rapidly diffused.

Certain useful cross-national evidence also supports the notion of an agricultural revolution as well. For instance, Morris and Adelman (1988) examine the linkage between a growth in agriculture and in manufacturing using a factor analysis of the economic and institutional characteristics of twenty-three nations. Using mid-nineteenth-century data they find that *increases* in agricultural productivity preceded the spread of manufacturing only in countries industrializing the earliest.

Despite such evidence, certain nagging doubts arise. In particular, according to the estimates of N.F.R. Crafts, agriculture production in England in the eighteenth century - when the agricultural revolution was allegedly occurring - grew at an average rate of only 0.5 percent per year. In the same period, there was no significant change in per capita agricultural production and, moreover, agricultural production per rural dweller grew at an average annual rate of only 0.1 percent.² Although agricultural productivity and production undoubtedly increased significantly in some areas, such results hardly show the widespread use of the new innovations or an agricultural revolution in progress. They require us instead to reexamine the issue from a more comparative

² For these calculations the population data come from Wrigley and Schofield (1981), the data on the rural population from Wrigley (1987: 162); and the agricultural production data, from Crafts (1985: 42). I have fitted an exponential curve to the data to avoid endpoint problems and have interpolated for the missing years. The earlier estimates of agricultural production by Deane and Cole (1969) show an even lower growth.

perspective.³

Table A5-1 below presents data on agricultural growth and productivity for countries that reached the threshold of industrialization before 1914. These data present a very mixed picture, both before and after the threshold of industrialization was reached.

More specifically, in the quarter-century before reaching the industrialization threshold, eleven out of the seventeen nations had a declining or barely increasing rate per capita agricultural production (i.e., annually, of 0.2 percent or less, a criterion used for the other generalizations). Rougher estimates show that seven out of thirteen nations had a declining or barely increasing rate of agricultural growth per agricultural worker. It is noteworthy that this growth rate was inversely and significantly related to the GDP per capita in 1820, which suggests that those nations with low agricultural productivity per worker needed time to “catch up” before industrialization could take root.⁴

³ It must be added that agricultural productivity can increase in a variety of institutional settings, depending on the type of change that occurred. For instance, higher agricultural productivity could be achieved by land reclamation, clearing and drainage (land-extensive investment), new techniques such as water meadows (land-intensive investment), new crops, use of fertilizers, new tools and implements, more effective use of animal power, superior buildings, or new rotations (such as convertible husbandry). Although most of these changes could be carried out in any type of agricultural economic system, some, such as use of better crop-rotation schemes, might have proved difficult to introduce in highly communal economic systems where economic activities were strongly coordinated by political or religious authority. Furthermore, many of the benefits and costs of adapting the new innovations depended on the crops cultivated, the soil types, and climatic conditions.

⁴ The relationship is:

$$\text{AAGAPW} = 0.0245* - 0.000111 \text{ Ycap} \quad \text{R} = .5858$$

$$(0.0050) \quad (0.000030) \quad \text{n} = 13$$

where AAGAPW is average annual growth of agriculture product per worker in the quarter-century before the industrialization threshold was reached and Ycap = per capita GDP in 1820.

Table A5-1: Indicators of Agricultural Sufficiency, Growth, and Labor Productivity in Countries Reaching the Threshold of Industrialization before 1914

Country	Estimated date of threshold of industrialization	25 years before industrialization threshold		25 years after industrialization threshold	
		Annual average per capita agricultural growth	Annual average agricultural labor productivity growth	Annual average per capita agricultural growth	Annual average agricultural labor productivity growth
England	1778	-0.4 percent	-0.4 ^a percent	-0.3 percent	+0.1 ^a percent
Switzerland	1817	-	-	-	-
Belgium	1823	-0.4	-0.2	-0.0	- 0.0
United States	1825	+0.1	+0.2	-0.0	+0.3
France	1835	+0.7	-	+0.7	+1.8
Germany	1852	-	-	+0.9	+1.2
Sweden	1852	+0.4 ^b	-	+0.9 ^b	- 1.7 ^b
Norway	1873	-0.1 ^c	-	-1.1 ^c	-3.1 ^c
Austria	1876	-0.0	+0.2	+0.5	+1.1
Finland	1876	-1.9 ^d	+1.2 ^d	-0.8	+0.6
Netherlands	1881	-0.4	-0.1 ^f	-0.5	+0.1 ^f
Spain	1881	+1.3	+1.0	-0.1	+0.2
Denmark	1885	-0.2	+0.2	+0.7	+1.7
Canada	1886	+1.3	+1.3	+1.1	+1.9
Italy	1887	-0.3	-0.5	+0.8	+1.3
Russia	1899	+1.2	+1.3	+1.7 ^e	+1.6 ^e
Japan	1902	+0.2	+1.1	+1.3	+2.4
Australia	1904	-1.3	-	+1.1 ^d	-
Portugal	1907	+0.8	+1.8	-	-

Notes: A dash indicates no data are available. a = based on rural population rather than rural labor; b = based on an index of grain production, which may inflate the rate; c = based on an index of grain production; d = 9 years; e = 14 years; f = value added per manhour. For Austria the threshold of industrialization refers to the Austro-Hungarian Empire; all other data, however, refer only to the Austrian half of the empire. All growth rates calculated by fitting an exponential curve to the series to minimize endpoint problems

Data sources are presented in Appendix 5-4.

In the quarter-century after reaching the threshold of industrialization only four nations out of seventeen had a declining or barely increasing rate of per capita agricultural production. While rougher estimates show that six out of sixteen nations had a declining or barely increasing rate of agricultural growth per agricultural worker.

In brief, if we define an agricultural revolution as manifested by a rapid annual increase of per capita or per worker agricultural production (more than +0.2 percent annually), then there is no evidence for one in the quarter-century before or after the threshold of industrialization was attained for countries reaching the threshold of industrialization before 1914. The inverse relationship between

per capita GDP (a proxy for agricultural productivity) and the date of the industrialization threshold, however, provides some support for the conjecture that an agricultural revolution usually (but not always) preceded an industrial revolution, although this “revolution” must be interpreted as occurring over the course of centuries. The regressions reported above also suggest that if a “visible” and dramatic spurt in agricultural productivity immediately preceded the industrialization threshold, it was probably in nations with low initial agricultural productivity.

Appendix 5-3: Did a Religion-Based Revolution in Values Necessarily Precede Industrialization?

It is a commonplace that agricultural societies have been inherently conservative and that industrialization could have come about only when values and attitudes change radically, either through urbanization, marketization (both discussed above), or a radically new religion or ideology. In this section I deal briefly with this latter phenomenon.

In a well-known monograph on the spirit of capitalism, Max Weber (1958 [1904]) argued that some forms of Protestantism encouraged personal virtues favorable to a market economy and economic growth, for instance, thrift, diligence, farsightedness, honesty, hard work, rational risk taking, self-discipline, and individualism, in contrast to a focus of Catholicism and some forms of Protestantism on eternal salvation, glory, conformity, honor, beauty, virtue, and tradition. In later works on the economy (for instance, Weber 1961 [1923]) he considerably downplayed this thesis, which he furtively discussed in only the last few pages. In the following decades, a number of historians and sociologists disputed Weber's association of Protestantism with a change in economic values (e.g., Samuelsson, 1964), and contention over this issue continues even today.

Several critics of Weber's position, such as Kurt Samuelson (1964), argue that Protestantism had little to do with any such shift in values. Others, such as Joel Mokyr (2002), claim that the most important change in values and economic attitudes sprang not from the Reformation but from the emergence of a modern scientific world view: the belief that nature could be understood by a set of systematic experiments, that the knowledge thus gained should be not be confined to the elite but spread as widely as possible, and that it could be harnessed in economic activities ("industrial enlightenment," in his telling phrase). Yet others, such as Liah Greenfeld (2001), argue that the key to industrialization was a shift in social attitudes toward economic activities, a change that had

nothing to do with religion. That is, throughout most of world history those engaged in economic activities stood relatively low on the social scale, and, as a result, such activities did not attract talent. Even as late as the early years of the eighteenth century, nobles in France could not engage in commerce or manufacturing without loss of their aristocratic status. In England, by way of contrast, the onus of “trade” was much less pronounced, many aristocrats engaged heavily in commercial activities, and industrialization came much earlier. .

My own work on the topic (Pryor, 2005), based on survey data about economic values and attitudes in more than forty countries at the end of the twentieth century, shows that the so-called spirit of capitalism really consists of several distinct sets of values, none of which is directly related to the level of economic development or the rate of economic growth. In this essay I further conjecture that the situation in Europe several centuries ago was probably quite similar.

I believe that a change in certain key values was important for industrialization, especially those values associated with the spread of literacy, higher agricultural productivity, and marketization. Nevertheless, empirical support for Weber’s links between religion, the “spirit of capitalism,” and industrialization appears fragile.

Appendix 5-4: Data Sources for Table 5-1

Illiteracy: Except for the United States, the data came from the estimates of Carlo Cipolla (1969). For the United States I started with census data for 1850 on illiteracy among different groups of whites and free blacks. For black slaves I guessed an illiteracy rate of 90 percent, roughly double that of the free blacks. Assuming that illiteracy was only slightly higher in 1800, I adjusted these percentages for the various groups upward by four percentage points and then used them to estimate total adult illiteracy in 1800, relying on population data for the different groups for which 1850 literacy data were available, using census data 1800 (U.S. Bureau of the Census, 1975: Series A119-34) and making several small additional estimates to calculate the adult black population.

Urbanization rates: The urbanization rate is the percentage of the population living in towns larger than 5,000. Most data on urbanization rates were drawn from Bairoch, *et al.* (1988). For some countries, however, I had to rely on the detailed data on cities, rather than their summary statistics, and, in such cases, I used population data taken directly, or estimated, from Mitchell (1998). For the United States I used data from U.S. Census Bureau (1975: Series A43-56).

Date of the threshold of industrialization: This is set at the level of per capita manufacturing production in England in 1778, as estimated by Paul Bairoch (1982). I assume exponential growth between his benchmark years to calculate when other countries achieved this level.

Appendix 5-5: Data Sources for Tables 5-2 and A5-1.

I calculated all growth rates by fitting an exponential curve to the data. In many cases, however, I had to interpolate between the selected years presented by the various authors and this, of course, introduces small errors into the final results of the calculations.

Australia: The population data come from Maddison (1995: 104; 2001: 189) and include the aboriginal population as well as settlers. Remaining data come from Butlin (1962). Current export series are deflated by price indices for pastoral, agricultural, dairy, and mining production, each weighted according to their proportion in exports in 1900.

Austria: All data come from Kausel (1979). The GDP data cover the Austrian half of the empire, that is, Austria proper, Bohemia, Moravia, Silesia, Galicia, Bukovina, and Dalmatia. Kausel's study included series for the GDP and its components, population, and the agricultural labor force. The export data refer to the Austro-Hungarian empire as a whole. Current export data come from Mitchell (1998) and are deflated by wholesale prices from the same source or, when not available for the earliest decade, by estimated wholesale prices based on a regression equation linking wholesale and retail prices.

Belgium: The population data come from Goossens (1993: 254, 366), as does the estimate of labor days worked in agriculture from 1812 to 1846. The per capita GDP and agricultural production data come from Buyst (2002) and represent interpolations from three years: 1770, 1812, and 1846. The agricultural series is quite similar to one derived from Goossens (1993) and Blomme and Van der Wee (1994). The export data come from Maddison (1991).

Brazil: The population and GDP data come from Maddison (2003). The export series is estimated by splicing three series, which come respectively from Maddison (1985) and United

Nations (annual, 1964, 1982).

Canada: All data come from Firestone (1968). GNP (rather than GDP) data are presented in Table 5-2.

Denmark: Data on GDP come from Hansen (1974). This study included the GDP and its components, population, and the agricultural labor force. Current export data come from Mitchell (1998) and are deflated by wholesale prices from the same source (or, when not available for the earliest decade, by estimated wholesale prices based on a regression equation linking wholesale and retail prices).

England: GDP and agricultural production series come from Crafts (1983). The population data come from Wrigley and Schofield (1981). Since data on rural workers are not available, I used the rural population estimates of Wrigley (1987). The export data come from Deane and Cole (1969: 44).

Finland: Data on GDP and its components, exports, population, and agricultural labor force come from Hjerppe (1989).

France: The GDP data come from Toutain (1987). Data on population, labor force in agriculture, exports in current prices, and a wholesale price index (used to deflate the export series) come from Mitchell (1998).

Germany: All data series come from Hoffman (1965).

India: The population and GDP series come from Maddison (2003). The export series is estimated by splicing two series, one from the United Nations (annual, 1982), the other from the World Bank (2004).

Italy: All data series come from Ercolani (1969).

Japan: All data series come from Ohkawa and Shinohara (1979). The GDP series is, however, adjusted to take into account the corrections by Maddison (2001: 205-6).

Netherlands: All data series come from Smits, Horlings, and van Zanden (2000: Tables D-1b, D-2b, D-4, H-1, and I-5). All series were in constant prices except exports, which were deflated by the GDP deflator. Labor hours were used to calculate the series for to agricultural production per worker. .

Norway: Agricultural production was calculated from an index of grain production. The underlying data, as well as the data on agricultural labor force, come from Mitchell (1998). All other series come from Norway, Statistisk sentralbyrå (1965).

Portugal: Data for workers in the agricultural sector come from Mitchell (1998). All other data are from Lains (1995). His exports series is a corrected estimates of official data.

Russia: The Russian data do not seem very reliable and cover only a subset of the European provinces. Population and current export data come from Mitchell (1998). GDP data in current and constant prices are from Gregory (1982), and the implicit GDP price index is used to deflate the export data. Estimates of nineteenth-century industrial production recently published by Lev Borisovich Kaferganz (analyzed by Gregory, 1997) suggest that the GDP growth rates are higher than previously estimated because manufacturing growth was understated in previous estimates. Agricultural production (from Gregory: 240) represents net production of major grains. His series, however, extends back only to 1885, while Goldsmith's series (1961) is for gross production of major grains and extends back to 1874. For the period before the date of the industrialization threshold, I started with the Goldsmith series and, after calculating the growth rates, adjusted it upward by the difference between the Gregory and Goldsmith series for the period. Agricultural

labor force data are extremely rough and were calculated from growth rate data presented by Gregory (1981: 133); his data appear to be a residual after labor-force estimates for other sectors were subtracted from an estimate of total labor force.

Spain: All series come from Prados de la Escosura (2003).

Sweden: An index of grain and potato production was calculated from data presented by Mitchell (1998). A comparison of this series with national account data on agricultural production for sixteen years indicate that my estimate may overstate total agricultural growth. Data on the agricultural labor force, exports in current prices, and wholesale prices (used to deflate the export data) come from Mitchell. All other data come from Krantz and Nilsson (1975) and Sweden, Statistiska Centralbyrån (1969).

USA: Data on the GDP, agricultural production, and the agricultural labor force come from Weiss (1994). Population data, exports in current prices, and the Warren-Pearson wholesale price index come from the U.S. Bureau of the Census (1975), Series A7, U2, and E52.

BIBLIOGRAPHY TO APPENDICES TO CHAPTER V

- Allen, Robert C.** 1999. "Tracking the Agricultural Revolution in England," Economic History Review 52, no. 2: 209-35.
- Aston, T. H., and C.H.E. Philpin**, eds. 1985. The Brenner Debate: Agrarian Class Structure and Economic Development in Pre-Industrial Europe. New York: Cambridge University Press.
- Bairoch, Paul.** 1982. "International Industrialization Levels from 1750 to 1980." Journal of European Economic History 11, no. 2 (Fall): 269-325.
- . 1993. Economics and World History: Myths and Paradoxes. Chicago: University of Chicago Press.
- Bairoch, Paul, Jean Batou and Pierre Chèvre.** 1988. The Population of European Cities: Data Bank and Short Summary of Results. Geneva: Librairie Droz.
- Blomme, Jan, and Herman Van der Wee.** 1994. "The Belgium Economy in a Long-Term Historical Perspective: Economic Development in Flanders and Brabant, 1500-1812." In Angus Maddison and Herman Van der Wee, eds., Economic Growth and Structural Change: Comparative Approaches over the Long Run. Bocconi: Università Bocconi.
- Brenner, Robert.** 1985a. "The Agrarian Roots of European Capitalism." Pp. 213-327 in Aston and Philpin, 1985.
- . 1985b. "The Agrarian Roots of European Capitalism." Pp. 213-327 in Aston and Philpin, eds.
- Butlin, N. G.** 1962. Australian Domestic Product, Investment and Foreign Borrowing, 1861-1938/39. Cambridge: Cambridge University Press.
- Buyst, Erik.** 2002. "Estimates of Economic Growth in the Southern Low Countries/Belgium, 1770-1846." Unpublished paper.

- Cipolla, Carlo M.** 1969. Literacy and Development in the West. Hammondsworth, U.K.: Penguin.
- Crafts, N. F. R.** 1983. "British Economic Growth, 1700-1831: A Review of the Evidence." Economic History Review 2d ser., 36, no. 2 (May): 177-99.
- . 1985. British Economic Growth During the Industrial Revolution. Oxford: Clarendon Press.
- Deane, Phyllis, and W. A. Cole.** 1969. British Economic Growth, 1688-1959: Trends and Structure. London, Cambridge University Press.
- Ercolani, Paolo.** 1969. "Documentazione statistica di base." Pp. 380-463 in Giorgio Fua, ed., Lo sviluppo economico in Italia, vol 3. Milan: Franco Angeli.
- Firestone, O. J.** 1958. Canada's Economic Development, 1867-1953. London: Bowes & Bowes.
- Goldsmith, Raymond.** 1961, "The Economic Growth of Tsarist Russia, 1860-1913." Economic Development and Cultural Change 9, no. 3 (April): 441-75.
- Goossens, Martine.** 1993. The Economic Development of Belgian Agriculture: A Regional Perspective, 1812-1846. Leuven, Belgium: Leuven University Press.
- Greenfeld, Liah.** 2001. The Spirit of Capitalism: Nationalism and Economic Growth. Cambridge: Harvard University Press.
- Gregory, Paul R.** 1982. Russian National Income, 1885-1913. New York: Cambridge University Press.
- . 1997. "Searching for Consistency in Historical Data: Alternative Estimates of Russia's Industrial Production, 1887-1913." Journal of Economic History 57, no. 1 (March): 196-203.
- Hansen, Svend Aage.** 1974. Økonomisk vækst i Danmark, vol. 2. Copenhagen: Akademisk Forlag.
- Hoffmann, Walther G.** 1965. Das Wachstum der deutschen Wirtschaft seit der Mitte des 10. Jahrhunderts. Berlin: Springer Verlag.

- Hjerppe, Riitta.** 1989. The Finnish Economy, 1860-1985. Helsinki: Bank of Finland Govt Printing Center.
- Jones, Eric L.** 1981. The European Miracle: Environments, Economies, and Geopolitics in the History of Europe and Asia. New York: Cambridge University Press.
- Kausel, Anton.** 1979. "Oesterreichs Volkseinkommen 1830 bis 1913." Pp. 689-720 in Oesterreichischen Statistischen Zentralamt, Geschichte und Ergebnisse der zentralen amtlichen Statistik in Oesterreich 1829-1979. Vienna.
- Krantz, Olle, and Carl-Axel Nilsson.** 1975. Swedish National Product 1861-1970. Stockholm: CWK Gleerup.
- Lains, Pedro.** 1995. A Economia Portuguesa no Século XIX. Lisbon: Impresa Nacional Casa da Moeda.
- Macfarlane, Alan.** 1979. The Origins of English Individualism. . New York: Cambridge University Press.
- Maddison, Angus.** 1991. Dynamic Forces in Capitalist Development. New York: Oxford University Press.
- . 1983. "A Comparison of Levels of GDP Per Capita in Developed and Developing Countries, 1700-1980." Journal of Economic History 43, no. 1 (March): 27-43.
- . 1995. Monitoring the World Economy, 1820-1992. Paris: OECD.
- . 2001. The World Economy: A Millennial Perspective. Paris: OECD
- . 2003. The World Economy: Historical Statistics. Paris: OECD.
- Mitchell, Brian R.** 1998. International Historical Statistics: Europe, 1759-1993. 4th ed. New York: Stockten Press.

- Mokyr, Joel**, 2002. The Gifts of Athena: Historical Origins of the Knowledge Economy. Princeton, N.J.: Princeton University Press.
- Morris, Cynthia Taft, and Irma Adelman**. 1988. Comparative Patterns of Economic Development, 1859-1914. Baltimore: Johns Hopkins University Press.
- Norway, Statistisk sentralbyrå**. 1965. Nasjonalregnskap 1865-1960. Oslo.
- Ohkawa, Kazushi and Miyoehei Shinohara**. 1979. "Appendix Tables." In Kazushi Ohkawa and Miyoehei Shinohara, eds., Patterns of Japanese Economic Development. New Haven: Yale University Press.
- Prados de la Escosura, Leandro**. 2003. El progreso económico de España, 1850-2000, Madrid: Fundación BBVA.
- Pryor, Frederic L**. 1985. "Climatic Fluctuations as a Cause of Differential Economic Growth of the Orient and Occident: A Comment." Journal of Economic History 45, no. 3: 667 - 675.
- . 2005. "The 'Spirit of Capitalism': Do Values Really Matter?" forthcoming.
- Pomeranz, Kenneth**. 2000. The Great Divergence: China, Europe, and the Making of the Modern World Economy. Princeton, N.J.: Princeton University Press.
- Samuelsson, Kurt**. 1964. Religion and Economic Action: A Critique of Max Weber. New York: Harper & Row.
- Smits, Jan-Pieter, Edwin Horlings, and Jan Luiten van Zanden**. 2000. Dutch GNP and Its Components, 1800-1913, GGDC Monograph Series, no. 5. Groningen: Groningen Growth and Development Centre.
- Sweden, Statistiska Centralbyrå**. 1969. Historisk statistik for Sverige. Vol. 1. Stockholm: KL Beckmans Tryckerier AB.

- Toutain, Jean-Claude.** 1987. Le produit intérieur brut de la France de 1789 à 1982. Cahiers de l'I.S.M.E.A., Série: Histoire quantitative de l'Économie française, no. 15. Grenoble: Presses Universitaires de Grenoble.
- United Nations.** Annual. Yearbook of International Trade Statistics. New York .
- United States, Bureau of the Census.** 1975. Historical Statistics of the United States: Colonial Times to 1700. Washington, D.C. GPO.
- Weber, Max.** 1958 (1904). The Protestant Ethic and the Spirit of Capitalism. 1958 (1904). New York, Scribner.
- . 1961 (1923). General Economic History, trans. by Frank H. Knight. New York: Collier Books.
- Weiss, Thomas.**1994. "Economic Growth Before 1860: Revised Conjectures." Pp. 11-28 in Thomas Weiss and Donald Schaefer, eds., American Economic Development in Historical Perspective. Stanford: Stanford University Press.
- World Bank.** 2004. World Development Indicators, 2004. <www.worldbank.org>
- Wrigley, E. A.** 1987. People, Cities, and Wealth: The Transformation of Traditional Society. New York: Blackwell.
- Wrigley, E. A., and R. S. Schofield.** 1981. The Population History of England, 1541-1871. Cambridge: Harvard University Press.