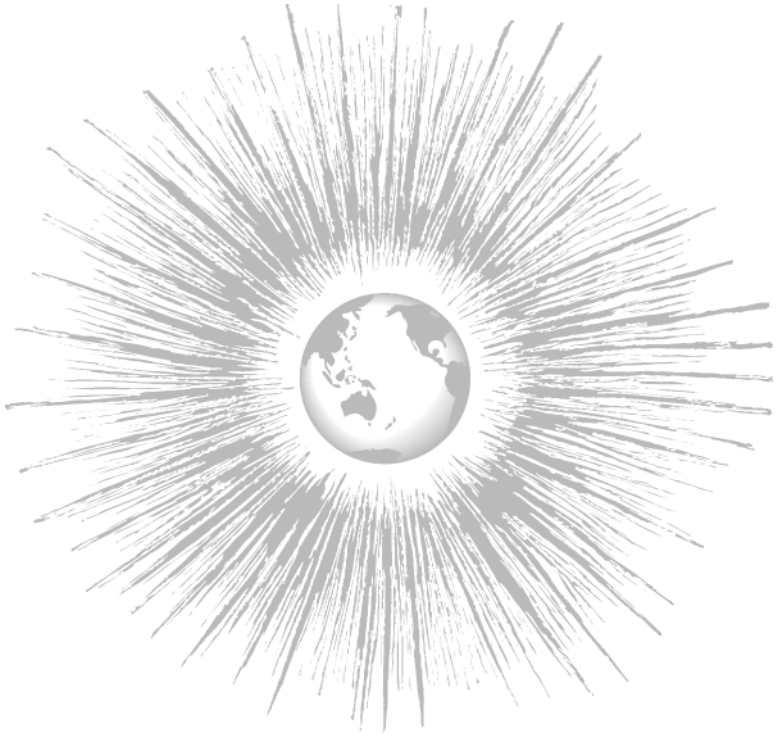

ABSTRACT:

This paper reviews the growing body of evidence on the relative economic standing of different regions of the world in the late eighteenth and early nineteenth centuries. In general, it does not find support for Eurocentric claims regarding Western Europe's early economic lead. The Eurocentric claims are based primarily on estimates of per capita income, which are plagued by conceptual problems, make demands on historical data that are generally unavailable, and use questionable assumptions to reconstruct early per capita income. A careful examination of these conjectural estimates of per capita income, however, does not support claims that Western Europe had a substantial lead over the rest of the world at the beginning of the nineteenth century. An examination of several alternative indices of living standards in the late eighteenth or early nineteenth centuries—such as real wages, labor productivity in agriculture, and urbanization—also fails to confirm claims of European superiority. In addition, this paper examines the progress of global disparities—including the presence of regional patterns—using estimates of per capita income.

Global Disparities Since 1800: Trends and Regional Patterns

M. Shahid Alam

In the tradition of Eurocentric historiography, the dominant narrative of the global economy places Western Europe well ahead of India, China, the Middle East and Southeast Asia by the beginning of the nineteenth century. In other words, Western Europe's economic superiority was an established fact before the Industrial Revolution or the growth of Western empires in Asia and Africa. The Eurocentric historians insist that the origins of Western Europe's economic ascendancy must be sought in long-lasting differentia between Europe and the rest of the world. These differentia have been variously located in Europe's genes, culture, divine Providence, cultural heritage—Hebrew, Greek, Roman or Germanic—superior governance and economic institutions, climate, geography, or some combination of the preceding factors.

Several of Europe's leading thinkers had become convinced about Europe's economic precocity towards the end of eighteenth century—and perhaps earlier. It is not our primary purpose in this paper to investigate these views—or when and why they began to emerge—but we do offer in section one a cursory review of perceptions in eighteenth-century Europe about the economic superiority of their continent or parts thereof.

In recent decades, Eurocentric accounts of the global economy have increasingly come under challenge on several fronts. In particular, it appears that the foundational Eurocentric claim that Western Europe had taken an early economic lead—perhaps as early as the beginning of the second millennium—is untenable. Instead of presenting new evidence on the question of early global disparities, this paper has a more modest goal. It reviews the growing body of

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evidence that challenges the foundational Eurocentric claim regarding Western Europe's early economic lead. It turns out that the claims of Europe's early lead are based primarily on estimates of a single statistic—per capita income—at different points in the eighteenth or early nineteenth centuries. Section two points out that this approach is not only plagued by conceptual problems but it makes demands on historical data that are generally unavailable and, hence, have to be constructed on the basis of questionable assumptions. Even so, a careful examination of the available conjectural estimates does not support claims that Western Europe had a substantial lead over the rest of the world at the beginning of the nineteenth century. Thankfully, we do not have to rely exclusively on questionable estimates of early per capita income to test the foundational Eurocentric claims. Instead, we can use several alternative indices of living standards in the late eighteenth or early nineteenth centuries, such as real wages, labor productivity in agriculture, and urbanization. A review of the evidence on these alternative indicators in section three fails to confirm claims of European superiority. In section four we examine the progress of disparities—including the presence of regional patterns—using estimates of per capita income. In a concluding section, we offer comments on how the absence of an early West European lead might affect our attempts to explain a divergence in the growth paths of Western Europe and the rest of the world, starting in the early nineteenth century.

I. CONTEMPORARY ASSESSMENTS OF EARLY DISPARITIES

The conviction that Western Europe had achieved much higher levels of civilization than Asians or Africans was firmly established among European writers before the Industrial Revolution.

Towards the late eighteenth century, if not earlier, most European thinkers had rejected medieval notions of an East that was fabulously rich. Europeans were now convinced that the old societies of the East were in a stage of development they described as 'barbarian,' ahead of the 'savage' societies in Africa but distinctly behind the 'civilized' societies of Europe, who, in the words of Voltaire, were "tardy" in their "discoveries," but then had "speedily brought everything to perfection" (Gordon 1997:134). Oriental societies, they believed, had acquired a settled agriculture and a small urban sector in ancient times but they had made little progress since then in the sciences, technology, governance and other arts of civilization. As a result, the working classes in Oriental societies still lived in great poverty compared to their counterparts in Europe (Goldman 1997:146–71; Gordon 1997; Larrain 1989:22–7; Winch, 1965:159–65).

Among classical economists, Adam Smith alone did not fully subscribe to these views. "China," he wrote, "has been long one of the richest, that is, one of the most fertile, best cultivated, most industrious, and most populous countries in the world" (1937:71). Further, "in manufacturing art and industry, China and Indostan, though inferior, seem not to be much inferior to any part of Europe" (1937:206). Nevertheless, he avers that the "real price of labor" is lower in India and China "than it is through the greater part of Europe." Indeed, the poverty "of the lower ranks of people in China far surpasses that of the most beggarly nations in Europe" (1937:72).

The devaluation of Oriental societies is, at bottom, an expression of Europe's growing military superiority over Asian societies. In the field of naval warfare, this superiority had been demonstrated as early as the sixteenth century when the Portuguese established a dominant position over much of the trade of the Indian Ocean. Starting in the mid-eighteenth century in India, this superiority was slowly extended to land warfare as well.[1] By the beginning of the nineteenth century, most European writers and statesmen were convinced that the peoples of Asia and Africa would be unable to resist Europe's growing military power. As a result, Europeans created a new worldview, one which embedded their growing military superiority in historical advantages which they always enjoyed over the nations of Asia and Africa. Over the next two centuries, these Eurocentric ideas would be used to explain and justify Europe's colonization, enslavement and destruction of non-European peoples.

In the case of India in the eighteenth and early nineteenth centuries, there existed another reason for exaggerating the poverty and misery of its working classes. As they faced growing competition from imports of fine but cheap Indian cottons, the domestic manufacturers in Europe sought increasing protection on the plea that Indian textiles were cheaper because they paid pauper wages to their workers. Daniel Defoe was making this argument as early as 1728; the wages paid to Asian workers would "fright us to talk of it, and their way of Living raise a Horror in us to think of it" (quoted in Parthasarathi 1998:80). In a parliamentary debate, John Basset claimed that "people in India are such slaves as to work for less than a penny a day, whereas ours here will not work for under a shilling" (quoted in Parthasarathi 1998:80). It did not occur to these observers that low Indian wages were more than offset by even lower prices of consumables.

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1. Michael Adas (1989) has described how Europeans employed their growing advantage in scientific knowledge and scientific instruments as a measure of their overall superiority over non-Europeans.

2. DISPARITIES IN PER CAPITA INCOME AROUND 1800

The comparisons of living standards across different countries in the pre-industrial era have relied primarily on estimates of per capita income. This has been unfortunate for two reasons. Not only does this approach make strenuous demands on data, it is also problematic conceptually.

In 1954, Simon Kuznets, easily the leading authority on national income accounts in his time, concluded that "per capita incomes in underdeveloped countries today are from about one-sixth to one-third of the per capita income of the developed countries a century ago" (P.144). According to L. J. Zimmerman (1962:35), another eminent expert on national income accounts, North America had notched a lead of nearly ten to one over China in 1860. Northwest Europe was in a less enviable position; its lead over China was only a little more than five to one. The economic historians did not know any better. When Britain was going through the Industrial Revolution, they maintained, the Indian and Chinese economies were still struggling at economic levels reached by Europe in the late Middle Ages (Lockwood 1954:3; Morris 1963:610). In other words, the global disparities we observe in our own times are not a product of the industrial revolution: they were well-entrenched before this revolution.

The large early disparities—reported by Kuznets and Zimmerman—between now-advanced and now-lagging countries are spurious. Their estimates are derived through exercises in 'backward projection.' This was completed in three steps. First, they established benchmark comparisons, using exchange rates to convert the per capita income of advanced and lagging countries for a recent year—when national income accounts are available for both countries—into a common currency. Next, they estimated—guestimated is more appropriate—the growth rate of per capita income for the two countries, starting with an initial year (say 1800) and ending in the benchmark year. In a final step, they used the estimated growth rate to derive per capita income in the initial period.

It is odd that Kuznets and Zimmerman should use exchange rates to produce 'comparable' estimates of per capita income. Anyone who has traveled from the U.S. (or any rich country) to Bangladesh (or any poor country) knows that most prices in Bangladesh (when converted into dollars), especially for non-tradables, are much lower than in the U.S.; often they are only a fraction of the prices in the U.S.[2] As a result, when we use the exchange rate to convert Bangladesh's GDP

[2] The price differences represent a failure of arbitrage—buying cheap and selling dear. This is not surprising since most services are not tradable between countries and even goods are costly to trade. The lower prices for services in Bangladesh reflect the low wages there.

into U.S. dollars, the haircuts produced in Bangladesh enter their dollar-denominated GDP at $1 per haircut, whereas the haircuts produced in the U.S. enter their dollar-denominated GDP at $10 per haircut. In other words, the exchange-rate conversions do not produce comparable GDPs for the rich and poor country. Indeed, this method seriously underestimates the per capita income of the poor country.

In order to derive comparable estimates of the GDP in Bangladesh and the U.S., we would have to evaluate them at a common set of prices—the prices of Bangladesh or the U.S. or some combination of the two. Alternatively, we could use the purchasing power parity (PPP) between the dollar and the taka to convert the GDP of Bangladesh and the U.S. into a common currency. Using the exchange rate between the U.S. dollar and the Bangladeshi taka—the method used by Kuznets and Zimmerman—the per capita income of Bangladesh was $320 in 2002. When we use purchasing power parity between the two currencies, the per capita income for Bangladesh in 2002 was $1720 (World Bank 2003:252). In this particular case, the corrected benchmark estimate is greater than the first estimate by a factor of 5.4. In general, these correction coefficients are largest for the poorest countries: the lower wages of poorer countries produce correspondingly lower prices, especially for non-tradable goods and services.

The conventional measures of per capita income introduce another downward bias in the backward projections for lagging countries. The GDP is a truncated measure of the productive activities in an economy: it excludes (i) the output of the household economy, (ii) the underground economy, and (iii) the illegal economy. Nearly always, each of these sets of excluded activities is relatively larger in the lagging countries. During the early 1990s, the size of the underground economy in the lagging countries, expressed as a percent of their official economy, ranged from 25–35 percent (for Chile, Costa Rica, Brazil, Venezuela, Paraguay and Columbia) to 68–76 percent (for Nigeria and Egypt). The corresponding shares for the advanced countries are much smaller for the same period; they ranged from 8–10 percent (for Japan, the U.S., Switzerland and Austria) to 27–30 percent (for Greece and Italy) (Frey and Schneider 2000:13–14). According to a different study by Frey and Wreck-Hannemann (1985: 100100), the size of the underground economy for the advanced countries in 1978 varied between 4 percent for Japan to 13 percent for Sweden. It is likely, therefore, that when we incorporate all the excluded activities, the true per capita income of some lagging countries could increase by a factor of two or more. The increase would be much smaller for the advanced countries.

The growth rates of per capita income used in the backward projections are also problematic. Since these growth rates are derived from actual or reconstructed national income accounts, they can be regarded as valid growth rates

only if the ratio of the excluded activities to the official GDP remained unchanged over time. In the absence of any precise knowledge of how these ratios vary over long periods for the advanced and lagging countries, it would be impossible to determine the growth rates of the true GDP: the official GDP *plus* the excluded activities. In the absence of this true growth rate, the backward projections would have to be abandoned.

In addition, the benchmark comparisons in the backward projections can be misleading because they compare per capita incomes for countries at very different stages of the demographic transition. Since many lagging countries have much higher dependency ratios (the proportion of their population that is not in the labor force because they are too young or too old), this exerts a downward pull on their per capita income relative to the advanced countries. If the comparisons were undertaken in terms of productivity per worker, this would tend to reduce the historical gaps between the now-lagging and now-advanced countries.[3]

The existing comparisons of per capita income in the early nineteenth century also produce misleading results because of their obsession with countries as the units of comparison. Frequently, these comparisons involve countries that were of very unequal size in the early nineteenth century, such as Britain, the Netherlands, France, Brazil, the U.S., India and China. The average income for a large country, such as India or China, could well be lower than that of any of these Western countries, but the most prosperous regions within India or China—comparable in size to any of the Western countries—might well be on the same economic level or better off than Belgium, Britain or France. This should not be surprising: the same resource or historical advantages that moved the Netherlands or Britain ahead of the rest of Europe could also produce similar peaks of prosperity within the most advantaged regions of India, China or the Ottoman Empire. It follows that in order to avoid making misleading comparisons, we should ensure that the units of comparisons, be they countries or regions within countries, have comparable populations. Comparing Britain to India can produce seriously misleading results. Instead, Britain should be compared to the most prosperous regions in India, be they Gujarat or Bengal, or, alternatively, India should be compared to Europe.

We owe the first set of historical comparisons using identical prices to Colin Clark in the 1950s. Indeed, he made two sets of comparisons, one for the rich and another for the poor countries, on the plea that the countries being compared

[3] If labor productivity is measured per hour of work, this advantage may be offset by the higher working hours per worker in lagging countries.

should not be too dissimilar. If we use Clark's (1957:46–7) benchmark comparisons for 1950, and growth rates of per capita income from Angus Maddison (1983), Britain's per capita income in 1820 is roughly twice as high as the per capita income for Italy, Brazil and Japan. In the same year, France has a smaller lead over these countries.

Paul Bairoch (1981) has shown that the estimates of early disparities change dramatically when the backward projections are based on purchasing power parity rather than currency exchange rates. When Bairoch converted the GDP of all countries into 1960 U.S. dollar prices, his estimates show that in 1750, the Third World had a per capita income of $188 compared to $182 for the developed countries. Only the 'more developed countries' at this time were marginally ahead of the Third World with a per capita income of $230; but they had a similar lead over Western Europe whose per capita income was $190, and they had a larger lead over Eastern Europe with a per capita income of $165.[4] This is quite an impressive vanishing act, accomplished by an upward adjustment of 1.95 in the 'current' per capita income of the Third World to make it comparable to the U.S. per capita income (Bairoch 1981:9). Centuries of Eurocentric myth-making about the precocious economic development of Europe, even Western Europe, disappear with a single correction in the backward projections.

The riposte to Bairoch's iconoclastic results was quick. Two years later, Maddison (1983:30) launched a new set of backward projections, producing comparisons that show that in 1760 Britain had a lead of 1.9 over India, 2.0 over China, and 2.1 over Mexico. France had a smaller lead of 1.6 over India, 1.7 over China, and 1.8 over Mexico.[5] In part, Maddison has generated these gaps by using smaller correction coefficients, the result of his new benchmark comparisons based on direct comparisons of output. If Maddison had used Bairoch's correction coefficients, Britain's lead in 1760 would reduce to 1.3 over India and 1.2 over Mexico.[6] Indeed, Maddison acknowledges, that if he had used correction

[4] The developed countries include Europe, Japan, and North America; all other countries are included in the Third World. The most developed countries include Belgium, Canada, Denmark, France, Germany, Norway, Sweden, Switzerland, the UK and the U.S..

[5] We are assuming that India, China and Mexico experienced no growth between 1760 and 1820; most likely, India's per capita income declined over this period, characterized by wars and poor governance, which dislocated trade and eroded the agricultural infrastructure.

[6] In large measure, Maddison's smaller correction coefficients are due to his assumption that service workers in lagging countries—medical personnel, teachers and civil servants—are only about one-third as productive as their counterparts in advanced

coefficients from Kravis, Heston and Summers' (1982) International Comparison Project, his "1760 position would be virtually as Bairoch claims" (Maddison 1983:32).

The growth rates employed by Maddison for his backward projections for lagging countries err in the opposite direction: they are too high. Thus, Maddison (1995:24) assumes a growth of 17 percent in China's per capita income between 1820 and 1950, a long period of economic decline brought about by floods, adverse climatic conditions, rebellions, civil wars, foreign invasions and anti-imperialist struggle.[7] Bairoch (1981:14) assumes a decline of 21 percent in China's per capita income between 1800 and 1950. Similarly, Bairoch (1981:14) assumes an annual growth rate of 0.6 percent for Latin America between 1800 and 1977 for his backward projections. On the other hand, Maddison (1983:30) uses a growth rate of 1.62 percent for Brazil and 0.98 percent for Mexico in his calculations.

Bairoch's estimates of per capita income in China receive support from a recent estimate made by Jan van Zanden (n.d.). Using data from pre-industrial Europe, he has discovered a strong relationship between per capita income, on the one hand, and real wages and the share of the labor force in agriculture on the other. On the assumption that this relationship holds for all countries in the pre-industrial epoch, van Zanden estimated the per capita income for China and separately for Jiangnan, one of the more advanced regions in China. The estimated per capita income for China in 1750 was only ten percent below that for Europe; China lagged behind England by 35 percent. However, Jiangnan, considered independently, was significantly ahead of Europe but fell short of the English level by ten percent.

The backward projections face yet another problem: they evaluate the gross domestic product in the initial period in terms of prices from the benchmark year. Given the large time gaps involved, the benchmark prices are likely to be quite different from the prices for the early years. If the prices of primary products relative to manufactures have declined over time—a position held by several development economists—this procedure is likely to skew the comparisons against the poorest countries if they had a relatively larger primary sector in the early years compared to the advanced countries. Fortunately, Leandro Prados de la Escosura (2000:27) has now provided estimates of gross domestic products at current prices, derived by a short-cut method, for several European countries and Japan. Generally, these new results narrow the gap between the poorest countries and Britain or the United States. Thus, in 1913, according to Maddison's backward projections, the relative per capita income (U.S. = 100) was 27 for Japan, 24 for Turkey, 24 for Portugal, and 46 for Norway. At current prices, the relative per capita incomes for the same countries were quite a bit higher, at 38 for Japan, 35 for Turkey, 40 for Portugal, and 68 for Norway. The differences are significant.

Shall we then turn to Bairoch or Maddison to construct our image of the world in 1760? We have argued that Maddison underestimates the historical per capita incomes of lagging countries because he fails to recognize the economic decline in China and India. In addition, because of his indefensible assumption about the relatively lower productivity of health, education and government services in lagging countries, his correction coefficients are too low. If these objections are valid, and we corrected for them, Maddison's numbers might well converge on Bairoch's estimates. In addition, if we corrected for activities excluded form conventional GDP and used current prices to evaluate GDP, it is likely that the advanced countries in Europe might be found to lag behind India and China in 1760.

3. Alternative measures of disparities around 1800

If we are unwilling to choose between Bairoch and Maddison on the question of early disparities between Western Europe and the rest of the world, we must turn to alternative instruments that are correlates of per capita income and for which we are likely to obtain more reliable estimates from contemporary sources.

It is easy to identify a variety of indicators which are directly correlated with per capita income, such as wages, agricultural productivity, manufacturing productivity, shares of agriculture in employment or income, urbanization, share of income spent on food, life expectancy, and average height of the adults in the population. In addition, one can also compare various indices of the degree to which the economy is commercialized.

These alternative indicators have several advantages. In most cases, they make modest demands on data, which, in many cases, are readily available from a variety of contemporary sources. In some cases, these indicators may be esti-

countries. This is scarcely plausible. Arguably, civil servants in most lagging countries are less productive because of overstaffing, but it is unlikely that three of them are doing the work of one in advanced countries. On the other hand, labor productivity in the health and education sectors of most lagging countries is likely to be higher because of heavier workloads.

7. The growth rates used in the backward projections for China are speculative. Van Zanden (n.d.) has written about "the 'underdeveloped' nature of historical national accounting for China; for the period before 1912 no serious studies are available, and the evidence for growth between 1912 and 1949, and again after 1949 is quite shaky." A more detailed critique of Maddison's (1983) assumptions is offered in Alam (2000:29–31).

mated from a small number of observations even when these have not been generated randomly. Thus, if we can estimate the life expectancy of peasants in one village (not favored, say, by virtue of its proximity to a big city), this is likely to be representative of the larger population; with two or more samples, we would be on more solid ground. Finally, the availability of several of these alternative indicators for two countries should allow us to determine their development ranking with greater confidence.

Wages. As recently as 1981, Eric Jones, a leading economic historian, in a work overflowing with hubris, claims that real wages in Europe "tended to be high since at least the thirteenth century, compared with India even in the twentieth century" (p.3).

It is well known that money wages during the pre-industrial era were much lower in Asia than in Europe. According to the directors of the East India Company, French money wages in 1736 were six times their value in India. British wages at this time were still higher (Braudel 1992:520). Even the most acute European observers, including Adam Smith and Thomas Malthus, took this as proof of miserable living conditions in Asia. It did not occur to them that lower *money* wages did not have to spell misery, since this would also translate into correspondingly lower prices of food and manufactures. Incredibly, these corrections have been made only recently, and they are beginning to reverse conventional notions about the poverty of Asian wages in the pre-industrial era.

The proportion of their income that workers spend on food can tell us a great deal about the purchasing power of their wages. The evidence from a variety of contemporary sources from the eighteenth century in Britain indicates that British workers, certainly no worse off than workers in continental Europe, were still spending a large fraction of their income on bread alone. According to Christian Peterson (1995), who has carefully investigated the place of bread in the British economy during the Industrial Revolution, "bread was overwhelmingly the chief food, generally accounting for 40 to 80 percent or even more of weekly income, according to family circumstances and the prevailing price of the loaf" (p.4). As late as 1857, one observer commented that "it is no unusual circumstance for the entire earnings of a poor hard-working man to be expended upon *bread* only, for himself and his family"; even so, the workers were not "nourished as they ought to be" (Acton 1857:3). Certainly, these spending patterns do not lend support to claims that British workers in the late eighteenth century enjoyed living standards much above the subsistence level.

In 1988, Prasannan Parthasarathi compared the grain wages (the amount of grains that wages will purchase) in Britain and South India during the eighteenth century for workers in weaving, spinning and agriculture (p.84). After adjusting for differences in the calorie content of wheat and rice, he found that weekly

wages for the South Indian and London weaver were comparable, and both had an advantage over the weaver in rural and small-town Britain. In spinning too, the South Indian workers had a marginal advantage. Although Parthasarathi uses the wages of 'outcaste' and 'untouchable' workers in South Indian agriculture, those with the lowest social status in India, they come off no worse than workers in British agriculture. Since Indian workers were more likely to be employed year round, they may well have held the advantage in terms of annual earnings. In addition, the South Indian worker of the eighteenth century was in a privileged position, compared to his English counterpart, with regard to his bargaining position in the labor market and the political order. This is confirmed by Fernand Braudel (1992), who writes that the Indian "weaver was undoubtedly given a certain amount of leeway: he received his advance in money (not, as in Europe, in materials); and he could always resort directly to the market, something not open to worker operating in the *Verlagssystem*. What was more, he could always default, change his place of work, even go on strike and give up the loom to return to the land or join the army" (p.508). The Indian workers would lose most of these rights when India was colonized by the British.

Although grain wages are likely to be a good proxy for real wages if workers are spending a large fraction of their income on grains, this may not hold if the grain price of manufactures varies widely across countries.[8] Fortunately, Robert Allen (2001) has estimated the purchasing power of wages in Europe and Asia for a basket of wage goods. According to his estimates, the real wages of Indian farm workers in 1600 were 10 percent higher than in England, and 21 percent below those in Northern Italy. In 1750, the same wages in China and Japan were 18 percent below those in England, and 10 percent below those in Northern Italy. On the other hand, urban real wages in the commercial centers of Northwestern Europe—which remained at the peak they had reached after the Black Death—were above the wages in India and China. According to Allen (2001:11, table 4), this dynamic urban growth pole seems to be lacking in Asia. However, he acknowledges that "a more extensive Asian data base would reveal a parallel: the absence of information on urban Chinese wages is particularly troubling in this regard" (p.11).

In addition, two historians of the Turkish economy have now estimated the real wages of construction workers in Istanbul from 1489 to 1914 (Özmucur and Pamuk 2002). Their results show that real wages of skilled and unskilled

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8. Broadberry and Gupta (2003) cite the much lower grain price of manufactures in Britain to reject Parthasarathi's wage comparisons for the eighteenth century.

construction workers in Istanbul in 1750–1799 were at least as high as wages in Paris, Valencia, Leipzig and Warsaw, and only marginally below wages in Vienna. In turn, all these cities lagged behind London, Antwerp and Amsterdam by a margin of about two-to-one. Further, real wages in Istanbul, beating the trend in many parts of Europe, held their ground between 1600 and 1800.

Labor Productivity in Agriculture. According to one Eurocentric narrative, since Asians were unable to limit their fertility voluntarily, their population tended to outstrip resources, resulting in low agricultural output per worker. In contrast, Europeans maintained higher levels of productivity in agriculture due to their greater success in limiting their fertility. It is doubtful, however, if Europe as a whole enjoyed any advantage over Asia or the Middle East in agricultural output per worker.

One set of estimates provided by Bairoch (1975:36, 40) suggests that Europe, Asia, Africa and Latin America had comparable levels of labor productivity in the first half of the nineteenth century. The average labor productivity, converted into millions of calories, was 5.1 for Asia (excluding China), 6.9 for Africa, and 7.2 for Latin America (excluding Argentina) in 1909–1913. The labor productivity for Germany was 7.5 in 1840, 7 for France in 1810, 6.5 for Sweden in 1810, and 4 for Italy in 1840. If we assume that the averages for Asia, Africa and Latin America had not changed much in the previous century, a reasonable assumption for Asia and Africa, the European countries do not appear to have a strong early lead. Almost certainly, the averages for Asia and Africa conceal higher levels for individual countries or regions within countries, which would exceed the numbers for Germany and France. Only Britain at this time, with labor productivity equal to 14 in 1810, would appear to be distinctly ahead of nearly every one.

A recently computed estimate of labor productivity in Javanese agriculture for 1815 suggests that it was not too far behind several European countries. Peter Boomgaard (2002) estimates that the male agricultural laborer in Java produced on average 3.3 million calories. This was slightly higher than a labor productivity of 3.2 for Portugal but a fourth below the figures for Finland (4.1), Sweden (4.2), Spain (4.3) and Norway (4.5). Arguably, the other regions of Southeast Asia were no worse off at the time.

Some of the standard Eurocentric notions of stagnant and impoverished Asian economies are now being severely tested by the newly emerging evidence on agricultural productivity in the Yangtze Delta, the most advanced region of China during the pre-industrial period. An early study on the economy of Songjiang, a segment of the Yangtze Delta that is particularly well documented, shows that labor productivity in this region increased by 30 percent from the sixteenth to the eighteenth century (Lee and Feng 1999:31). More recently, Li Bozhong (Li 1998:139–41) has shown that between 1520 and 1850, the population in the Yangtze Delta increased from 20 million to 36 million, its average agricultural yield increased by 47 percent, and, more significantly, the productivity of its agricultural labor went up by 52 percent.[9] If we add to the higher labor productivity in agriculture the rising incomes from the redeployment of women to weaving and spinning, this translates into rising average incomes in the Yangtze Delta between 1620 and 1850. After his comparison of economic conditions in Asia and Europe in the pre-industrial era, Pomeranz (2000) concludes tentatively: "…it seems likely that average incomes in Japan, China, and parts of southeast Asia were comparable to (or higher than) those in Western Europe even in the late eighteenth century" (p.49).

In addition, there is new evidence now on the high productivity of labor in the Yangtze Delta. The results of Allen's (2003) comparative study of the Delta and English Midlands show that "labor productivity in the Yangtze Delta was about 79% of that in England in 1800. While this was, of course, less than the English or Dutch achievement, it was considerably above that of most countries in Europe" (p.11). Even though the gross output per day worked in the Delta rose between 1620 and 1820, Allen's results nevertheless show a decline in net output per day worked between these two dates. This decline is the result of an implausibly large deduction for seed and fodder in 1820; this deduction was somewhat less than two percent of the gross output in 1620 but rises to more than a quarter of the gross output in 1820. Finally, using Chinese weights, the earnings of the Delta family falls marginally below the income of the Midlands family; the use of English weights reverses this inequality. In other words, the "income race was a dead heat, and Pomeranz's conjecture about Asian and European living standards is vindicated" (Allen 2003:14).

In this regard, Allen's (2003) comment on the decline he reports in family farm incomes in the Yangtze Delta is revealing. He writes that "the Chinese trajectory looks headed for a crash rather an industrial take-off" (p.15). By this reasoning, at least six European countries which went on to achieve an industrial take-off in the nineteenth century—Germany, Austria, Spain, Italy, Poland and Belgium—were also headed for a crash, since they too experienced a decline in agricultural output per worker between 1400 and 1800. The declines in labor productivity were quite substantial: 41 percent for Austria, 34 percent for Spain, 33 percent for Italy, and 31 percent for Germany. Since these results are from an

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9. Shiba Yoshinobu (1999)—cited in Lee and Feng (1999:38)—also has demonstrated an increase in consumption and output per capita in the Yangtze Delta during this period.

earlier paper by Allen (1998:45), it would appear that, briefly, he had forgotten his own estimates of agricultural decline in much of now-developed Europe.

A comparison of the long-distance trade in grains suggests that Chinese food-producers were generating considerably larger grain surpluses than Europe in the eighteenth century. According to a conservative estimate by Wu Chengming (1985) that takes account only of the most important grain-trading routes in China, the grains entering long-distance trade in the eighteenth century were enough to feed 14 million people (cited in Pomeranz 2000:34). "This would be," writes Kenneth Pomeranz (2000), "more than five times a generous estimate of Europe's long-distance grain trade at its pre-1800 peak and over twenty times the size of the Baltic grain trade in a normal year during its heyday" (p.34). As if this were not enough, the province of Shandong, "neither particularly commercialized nor particularly backward," imported enough grain per year during the eighteenth century to feed 700,000 to one million people (p.34). Thus, the grain imports of one Chinese province, with a population of 23 million in 1800, matched the long-distance grain trade of all of Europe (pp.34–5). This trade was not included in Wu's total for China's long-distance grain trade.

Urbanization. The historical evidence on rates of urbanization across Europe and Asia do not support the income estimates for the early 1800s which give Europe a lead of better than two-to-one over China, India and Japan. It should be noted, however, that the 'historiographical inequality' between Europe and the rest of the world on urbanization is quite wide.[10]

At a highly aggregate level, Bairoch's (1988:459) estimates for 1800 show that the levels of urbanization in developed countries, at ten percent of the total population, are only modestly above the urbanization levels in the Third World at nine percent.[11] In disaggregated comparisons, Latin America (with an urbanization rate of fourteen percent) is significantly ahead of the developed countries; Asia is at the same level as the developed countries; and Africa (with an urbanization rate of four percent) lags significantly behind all other regions. These urbanization rates are closely related to Bairoch's (1981) estimates of per capita income for the different regions in 1800. In terms of per capita income, Latin

[10] According to Gilbert Rozman (1990): "Whereas de Vries [1984] found sufficient data to assign size categories to over 60 percent of cities with a population in excess of 10,000 in 1500, over 80 percent in 1600, 90 percent in 1700, and 99 percent in 1800, East Asian specialists have not found population data for even as many as 10 percent of cases for most of these periods" (p.62).

[11] Here the developed countries include Europe, the U.S., Canada, Australia, and New Zealand, but not Japan; the Third World includes all other countries.

America was about 20 percent ahead, Asia 10 percent behind, and Africa 28 percent behind the developed countries.

Of the major regions in Asia in 1800, only China appears to lag behind Western Europe in urbanization. For cities with a population of 10,000 and over, the urbanization rate in China in 1800 was 3.8 percent, compared to 10.6 percent for Western Europe (Maddison 2001:248). Bairoch (1988:357–8) thinks that China's urban population has been underestimated, and he adjusts it upward to a range of 6–7.5 percent for cities with a population of 5000 or more. This revised estimate is also quite low as compared to urbanization levels in the 11–14 percent range at the beginning of the sixteenth century. Since China's population increased by a factor of 3.8–4.5 between 1500 and 1850, this large decline in urbanization appears problematical (Bairoch 1988:356–7).

It is unlikely that the urban reversal in China could be the result, as Bairoch (1988:358–9) suggests, of a decline in agricultural output per worker produced by the population explosion during this period. There is no evidence of such an agricultural decline. We are led, then, to think that the estimates of urbanization in China may be off the mark. This is strongly suggested by the evidence on China's industrial structure. Recently, Li Bozhong (Li 1998:19, 23) has indicated that only 43 percent of the labor force of the Yangtze Delta in 1850 was agricultural. The comparable figures for several European countries were as follows: 35 percent for Britain, 41 percent for the Netherlands, 49 percent for Belgium, 62 percent for Germany, and 59 percent for France (Allen 2004:20). Could the percentage for all of China have been much behind that of Germany or France?

The levels of urbanization in other major regions of Asia and the Middle East in the eighteenth century were at or above the levels for Europe. Using a cutoff population of 5000, the level of urbanization in all of Europe during the eighteenth century held constant at 11–13 percent. India started at the same level as Europe in 1700, but due to the breakup of the Moghul Empire, this ratio had declined to 9–11.5 percent in 1800. Japan increased its levels of urbanization over the eighteenth century, starting at 11–14 percent and ending the century at 14–15 percent (Bairoch 1988:215, 400, 360). Thomas Smith (1958:68) places the share of Japan's urban population at 22 percent during the eighteenth century, compared to an average of 10–15 percent for Western Europe. Although not as densely populated, according to Victor Liebermann (1995:797) five percent of the population of Southeast Asia in 1650 lived in cities of 30,000 or larger. This was higher than the ratio for Western Europe.

Although rates of urbanization may vary a great deal across countries (excluding countries with continental dimensions, such as India and China) even at similar levels of per capita income, we may reasonably expect rising per capita incomes in any country to produce higher rates of urbanization, especially

Table 1 – Global Disparities in PCI: Aggregate Views

	Lead over Periphery (Ratio)						
	1820	1870	1913	1950	1973	1990	1998
United States	2.1	4.1	6.3	8.9	7.9	8.3	8.9
Western Europe	2.2	3.5	4.4	4.7	6.0	6.3	6.1

during the pre-industrial epoch when dramatic improvements in transportation could be ruled out. Indeed, an examination of the urbanization rates for Europe in 1700 show that these rates vary between 3.3 percent for Switzerland and 33.6 percent for the Netherlands (Maddison 2001:248). However, between 1000 and 1800, the levels of urbanization in Europe (minus Russia) increases only modestly from 13.7 percent (defining urban as population aggregates of 2000 or more) to 15.5 percent; this amounts to an increase of 13 percent over a period of eight hundred years. By Maddison's calculations, the per capita income of Western Europe increased more than three-fold over this period, and the per capita income of Eastern Europe (minus the former U.S.S.R) increased by 67 percent. On the other hand, the urbanization levels rise quickly from 15.5 percent to 22.1 percent between 1800 and 1850, at a time when the steam engine had not made a significant impact upon transportation by land or water (Bairoch 1988:219; Maddison 2001:28).

4. Polarization since 1800

The economic parity across major regions of the world around 1800—and for several millennia before this—was replaced for the most part by growing regional disparities over the next two hundred years. This departure from economic parity is rooted in the exploitation of new energy sources. Productivity in the old agrarian economies, the dominant system of economy for several millennia past, was limited by a technology that harnessed energy from plants—an organic source—for most economic activities. Once the Industrial Revolution introduced technologies that could harness energy from inorganic sources, primarily coal and oil, this effectively removed the constraint on the amount of energy that an economy could mobilize. This new technology could not be acquired simultaneously by all societies, thereby creating the conditions for unequal development that has continued to the present day. Those countries that were pioneers in the acquisition of this technology would not only get ahead, but they would use their growing economic and military power to establish structures that would

perpetuate this initial disparity. It is not our purpose in this section to look at the structures that perpetuated these inequalities: we only wish to document the patterns of unequal development that have unfolded since 1800. We monitor this unequal development in terms of per capita income—despite our critique of the reliability of these estimates for early years—because we possess the most complete time-series on these estimates. In addition, we are interested not so much in the size of the absolute disparities in the early years but the directions in which they have been changing since 1800.

First, consider an aggregate view of global disparities that compares per capita gross domestic product (PCI) in the periphery and two central regions in the core of the global economy—the United States and Western Europe.[12] Using data from Angus Maddison (2001:23–4), Table One presents the growing lead that the United States and Western Europe experienced over the periphery between 1820 and 1998. The leads are measured as the ratio of PCI in these two regions over PCI in the periphery. The United States, the leading core region at least since the late nineteenth century, experienced a more than four-fold increase in its lead over the periphery between 1820 and 1950. However, the U.S. lead is partly diluted over 1950–1973, and although the lead widens again after 1973, the extension of the advantage is quite anemic compared to the period before 1950.

The progress of Western Europe's lead over the periphery follows a somewhat different path. Starting with roughly the same lead as the United States over the periphery—a lead of 2.2 versus 2.1—Western Europe continues to extends its lead till 1973. The extent of this lead, however, is quite a bit smaller than that of the United States. In addition, Western Europe's lead remains unchanged between 1973 and 1998. The differences between the United States and Western Europe are due to the fact that the latter was falling behind the former till the 1950s, and then over the next quarter century—when Western Europe grew more rapidly than the United States—it greatly narrowed the lag. However, Western Europe failed to narrow the gap any further after 1973.

Very nearly the same picture emerges if we pursue the evolution of the leads using data from Bairoch (1981:7, 10). The U.S. lead over the periphery—here defined to include Asia *minus* Japan, Latin America and Africa—increased steeply from 1.3 in 1830 to 11.9 in 1950, but remained unchanged over the next 20 years. If we could include the former U.S.S.R and Eastern Europe in our defini-

[12] The periphery is a comprehensive category that includes Eastern Europe, the former U.S.S.R, East Asia minus Japan, West Asia, Africa, and Latin America. Western Europe includes twelve countries: Austria, Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Sweden, Switzerland and the United Kingdom.

Table 2 – Global Disparities in PCI: Regional Patterns

	US Lead over Different Regions (Ratio)						
	1820	1870	1913	1950	1973	1990	1998
Western Europe	1.0	1.2	1.5	2.1	1.4	1.5	1.5
Eastern Europe	2.0	2.8	3.5	4.5	3.3	4.3	5.0
USSR (former)	1.8	2.6	3.6	3.4	2.8	3.4	7.0
Latin America	1.9	3.5	3.5	3.7	3.7	4.6	4.7
East Asia-Japan	2.2	4.5	8.3	16.3	15.9	11.4	9.3
West Asia	2.3	4.4	7.8	5.1	3.4	4.7	5.1
Africa	3.0	5.5	9.1	11.2	12.2	16.8	20.0

tion of the periphery, the U.S. lead between 1950 and 1970 would have declined. These two excluded regions grew rapidly over this period.

The evolution of America's lead over the periphery suggests that the history of the global economy since 1800 may be divided into three phases: an extended period of rapid increase in global disparities between 1800 and 1950; a short period of reversal in these disparities, from 1950–1980; and the return of rising global disparities since the 1980s. We will show later that this periodization is rooted in three tendencies in global capitalism: centralization of capital and power, intra-core rivalries and wars, and resistance from the periphery.

A more disaggregated analysis reveals important variations in the patterns of unequal development across different regions. Table Two presents data on these patterns from 1820 to 1998. In the century preceding 1913, the United States extended its lead over every region of the world, but the lead varies significantly across regions. In terms of their lag behind the United States, the different regions fall into three classes. The U.S. lead over Western Europe was the smallest, at 1.5. The U.S. had a roughly similar lead, around 3.5, over Eastern Europe, the former U.S.S.R and Latin America. The U.S. commanded a much larger lead over the three remaining regions: 7.8 over East Asia and West Asia, and 9.1 over Africa. For the most part, these trends persist over the inter-war years, 1913–1950. West Asia alone significantly reduced its lag with respect to the U.S.; the U.S. lead over this region declined from 7.8 to 5.1. In part, this was the result of growing oil production in several countries in this region starting in the 1920s. The former U.S.S.R and Latin America maintain their lag at a nearly constant level.

The most visible reversal of the previous trends occurs between 1950 and 1973. Five of the seven regions reduce their lag behind the United States in 1913,

Table 3 – Global Disparities by Income Categories

	LICs	MICs	LMICs	HMICs	HICs *minus* USA	HICs
PCI	2040	5630	5130	9220	24,390	27,590
US Lead Over	17.2	6.2	6.8	3.8	1.4	1.3
World Pop. (%)	40.2	44.2	38.9	5.3	10.9	15.6

while Latin America manages to maintain its lag at a constant level. Only Africa slips behind, but the rate of slippage is slower than before. However, the old trends towards greater inequalities resumed after 1973. Apart from East Asia and Western Europe, all the other regions fall behind over 1973–1990 as well as 1990–1998, although the larger slippage occurs in the first of these two periods. Western Europe barely maintains its position relative to the United States. The pattern of lags across regions have also changed somewhat between 1950 and 1998. As before, Western Europe is still in a class by itself; Japan (not shown separately) also belongs in this category. Africa belongs at the opposite pole: the U.S. lead over this region was 20 to one in 1998. The U.S. lead over Sub-Saharan Africa would be still larger. The five remaining regions fall in an intermediate class, clearly separated from Western Europe (or Japan) and Africa. The U.S. lead over these regions varies between 4.7 (for Latin America) and 8.0 (for East Asia).

Finally, consider the global disparities in 2002 by income classes; this is presented in Table Three using data and categories from the World Bank. The World Bank divides the world into three income categories: High Income Countries (HICs), Middle Income Countries (MICs), and Low Income Countries; the MICs are further divided into Low MICs and High MICs. The LICs make up 40.2 percent of the world population; the U.S. lead over this category is 17.2. The U.S. lead over the MICs, constituting 44.2 percent of the world population, is considerably smaller at 6.2. The HICs *minus* the U.S.—with 10.9 percent of the world population—lag the U.S. by a factor of 1:1.4, a relatively small lag.

5. Concluding Remarks

It may be useful at this stage to examine what the pattern of global disparities—their timing and evolution— might say about the forces that may have been at work behind the emergence of these disparities and their changing patterns over time.

First, there are all the claims about Western Europe's deep structural advantages over Asia and Africa, some of them dating back several millennia, which are seen as pushing this region into an early lead over the rest of the world. As one would expect, according to this view, this should have resulted in a substantial lead by the beginning of the nineteenth century. But an examination of the alternative indicators—including agricultural productivity, real wages, urbanization and trade—does not support the existence of any significant early gaps between Western Europe and the rest of the world. Indeed, the most advanced regions in China during the early nineteenth century were at the same level as England, the leading region within Europe. On the basis of this evidence, then, we would be led to discount the claims about enduring European advantages—geographical, climatic, cultural or racial—which were thought to be quickening the pace of change in Europe.

Second, the timing of the emergence of global disparities suggests where the answers regarding their origins might lie. The rise of global disparities and the adoption of coal as a source of energy, the defining feature of the industrial revolution, take off starting in the early nineteenth century. This simultaneity is not coincidental. The use of coal effectively removed the previous energy constraints limiting growth in the traditional economy that depended on plants as the primary source of energy. However, this new source of energy did not become available to all economies at the same time. Until the middle of the twentieth century, the spread of the new energy technology was mostly limited to Western Europe and its overseas offshoots. It is the *unequal* dissemination of the new energy technology that is the proximate source of the growing disparities between the West and the rest of the world. The unequal spread of the new energy technology can also be explained mostly in terms of the economic and military advantages this conferred on the pioneers and early adopters of this technology. These early advantages were converted into a global dominance that obstructed the spread of the new energy technology to the rest of the world.

Thirdly, it may be noted that the extent of a region's lag behind the U.S. is fairly closely related to its location in the global capitalist system. Thus, those regions of the periphery which had been reduced to colonies or near-colonies during the first decades of the nineteenth century—East Asia (minus Japan), West Asia and Africa—fell much father behind the U.S. than regions which retained a measure of sovereign control over their economies—Eastern Europe, the U.S.S.R and Latin America. By comparison, the U.S. lead over Western Europe remained small, reaching a height of 2.1 in 1950 but has declined since to 1.4 in 1973 where it has hovered till 1998. The small West European lag is not surprising. Most countries in Western Europe were in the core of global capitalism at the outset, or they entered into the core during the nineteenth century before they could be pushed into the periphery.

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