

**Europe and the causes of globalization, 1790 to 2000**

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## **1. Introduction**

According to the recent declaration agreed by EU leaders at Laeken, the EU seeks to become “a power wanting to change the course of world affairs in such a way as to benefit not just the rich countries but also the poorest. A power seeking to set globalisation within a moral framework, to anchor it in solidarity and sustainable development” (Irish Times, December 17, 2001). Indeed, globalization is identified by the declaration as one of the two key challenges facing the Union. The prominence given to this issue reflects in part the belief, shared by politicians and ‘anti-globalization’ protestors alike, that globalization is a new and unprecedented phenomenon. But is this in fact the case? And does Europe actually have anything to contribute to this process at the start of the 21<sup>st</sup> century? In this chapter, I trace the evolution of international economic integration over the past two centuries, and seek to explain that evolution, highlighting Europe’s role. I conclude by speculating about ways in which the EU may be able to inform the globalization debate over the coming decades.

There will be at least two main themes in what follows. The first is that the move towards greater economic integration has not been unidirectional, but that the globalization process has suffered periodic reversals. Moreover, it is the 19<sup>th</sup> century rather than the 20<sup>th</sup> which saw the most impressive integration gains. The second is that the major threats to the smooth functioning of the world economy have changed over time, from war, to tariffs and quotas, to spillovers from domestic regulation. This change in part reflects the changing nature of international trade. The way in which the international community has responded to these evolving threats by developing appropriate institutions has been the major determinant, along with technology, of globalization trends since 1790.

## **2. Globalization through history: the 19<sup>th</sup> century was different**

Contrary to popular belief, the most impressive episode of international economic integration which the world has seen to date was not the second half of the 20<sup>th</sup> century, but the years between 1870 and the Great War. The 19<sup>th</sup> century, and in particular the late 19<sup>th</sup> century, was the period that saw the largest decline ever in inter-continental barriers to trade and factor mobility. I start by surveying trends in commodity market integration (CMI), and then turn to factor mobility and foreign direct investment (FDI).

### **2.1. Commodity market integration**

The costs of trading across frontiers will be reflected in price differentials for homogenous goods in different markets, and a decline in these price differentials provides the clearest indication of international CMI. Findlay (ch. 2 in this volume) shows that economic links between continents extend far back in time, and that these links had important effects on the transfer of technology and germs, the determination of aggregate price levels, the development of key industries, and other important economic variables. However, prior to the 19<sup>th</sup> century there is no systematic evidence of inter-continental price convergence: for example, Figure 1 gives data on price gaps between Amsterdam and Southeast Asia for three commodities, cloves, coffee and black pepper (here measured as the ratio of the Amsterdam to the Asian price). In all three cases, the story is the same: little or no price convergence prior to 1800, but substantial price convergence thereafter. Nor is there any evidence of Anglo-Indian price convergence from the mid-17<sup>th</sup> to the mid-18<sup>th</sup> century: the trade expansion between 1500 and 1800 was due to demand and supply shifts, rather than to CMI (O'Rourke and Williamson 2002a).

The 19<sup>th</sup> century could not have been more different. Figure 1 shows rapid Dutch-Asian price convergence for the 19<sup>th</sup> century: for example, by the 1820s the clove price spread was one-fourteenth of the 1730s level. Figure 2 provides similar evidence for another commodity, wheat, and a different pair of countries, Britain and the US.<sup>1</sup> The price gap

fluctuated widely around an average level of maybe 100% between 1800 and 1840, before falling sharply, and reaching negligible levels by the eve of World War I. (Strikingly, there has been *no* further price convergence for this commodity and this pair of markets during the 20<sup>th</sup> century.) The evidence of Figure 2 could be replicated many times over: by the late 19<sup>th</sup> century it is difficult to find commodities and pairs of markets for which there is no evidence of powerful CMI.<sup>2</sup> To take just three examples, London-Cincinnati price differentials for bacon fell from 92.5% in 1870 to 17.9% in 1913 ; the Liverpool-Bombay cotton price spread fell from 57% in 1873 to 20% in 1913; and the London-Rangoon rice price spread fell from 93 to 26% over the same period (O'Rourke and Williamson 1999, pp. 43-53). CMI during this period was a genuinely worldwide phenomenon.

Surprisingly, there has been almost no work done documenting long run trends in CMI over the 20<sup>th</sup> century. Figure 2 suggests that for one commodity, wheat, and one pair of countries, Britain and the US, integration is no better today than it was before 1914. Clearly much work needs to be done on this important issue; in what follows I offer a survey of some of the more readily accessible data. Crucially, the evidence that follows is for the late 20<sup>th</sup> century only; research spanning the entire 20<sup>th</sup> century is to my knowledge non-existent.

The *World Bank Development Indicators* 1999 gives agricultural producer prices (in dollars per metric ton) for wheat and maize. Figure 3 gives the coefficient of variation for wheat and maize prices from 1966 to 1995. For wheat, data are available for 10 countries over the full period; data for a further nine countries are available through 1994; and data for a further seven countries are available through 1992.<sup>3</sup> For maize, data are available for 13 countries over the full period; for an additional 12 through 1994; and for an additional nine through 1990.<sup>4</sup> For both foodstuffs the data show a clear *increase* in the coefficient of variation between 1966 and 1995, rather than a decline: no sign of market integration here (the figure uses the 10 and 13-country samples for which data are available over the entire period; using the larger samples available over shorter periods yields identical results).

The other data source I use is the IMF's *International Financial Statistics*, which gives prices for a number of commodities; in some cases, prices are given for the same commodity in more than one market. Table 1 gives percentage price gaps for 16 commodities (based on regressions of the price gaps on time and time squared). There are as many price gaps increasing as decreasing during the 1950s, 1980s and 1990s, as well as overall; more price gaps increased than declined during the 1960s and 1970s.

Of course, one would not want to infer too much from these late 20<sup>th</sup> century price data. First, since I have taken them from official sources, rather than directly from primary sources such as newspapers, I cannot be sure of how comparable the goods are in each market; price trends may thus reflect changing quality differentials as well as trading costs. Second, the official sources used give a biased sample of goods (i.e., commodities); if these markets are more prone to government intervention than, say, industrial markets, the figures would give a misleading overall impression. Nonetheless, there is a sharp contrast between this ambiguous late 20<sup>th</sup> century evidence, and the pervasive late 19<sup>th</sup> century evidence of commodity price convergence. The message is not that commodity markets have in fact disintegrated over the past few decades, but that we urgently need serious research on CMI during the 20<sup>th</sup> century.

The lack of such research has led most scholars to rely on quantity data when assessing overall trends in CMI over the period, despite the obvious defects of such measures. Once again, the 19<sup>th</sup> century emerges as the canonical period of increasing world trade. World trade grew at a little over 1% per annum between 1500 and 1800 (O'Rourke and Williamson 2002a), but it has grown at around 3.5% per annum since 1820, with the 19<sup>th</sup> and 20<sup>th</sup> century growth rates being roughly equal (Maddison 1995). However, the 19<sup>th</sup> century growth rate was more impressive than the 20<sup>th</sup>, in the sense that world GDP growth was twice as high since 1913 as it was between 1820 and 1913: the implication is that trade ratios (e.g. the ratio of merchandise exports to GDP) grew more rapidly during the 19<sup>th</sup> century than they did

during the 20<sup>th</sup>. Table 2 documents the eight-fold increase in this ratio worldwide between 1820, when trade was negligible as a share of GDP, and 1913, when merchandise exports accounted for almost 8% of world GDP, and more than 16% of western European GDP. Progress in the 20<sup>th</sup> century was much less impressive. Table 2 shows that merchandise exports accounted for a smaller share of world GDP in 1950 than they had done in 1913, suggesting interwar disintegration; and that the 1913 levels of openness (on this measure) had not been recouped as late as 1973 in the UK, Spain, Australia, Latin America, China, India and Thailand. Indeed, they had not been recouped as late as 1992 in much of the developing world, and in particular in Latin America and India (where they had not even been recouped by 1998).

However, the merchandise share of GDP has been shrinking since 1913, which would tend to pull down the share of merchandise exports in GDP, irrespective of globalization trends. As Robert Feenstra (1998), among others, has pointed out, the growth in merchandise trade has been far more impressive relative to merchandise value added than relative to GDP (although even his Table 2, which gives data for advanced countries only, shows Japanese and UK ratios lower in 1990 than in 1913). And other more qualitative criteria also clearly demarcate the present era from the period before World War I (CEPR 2002): higher levels of intra-industry trade relative to inter-industry trade; a rapid growth of trade in components, reflecting the increased fragmentation of firms' production processes;<sup>5</sup> and the emergence of new, 'weightless' commodities thanks to new information technology.

Overall, several conclusions regarding CMI over the past two centuries seem reasonable. First, ongoing CMI started in the 19<sup>th</sup> century, which saw far more dramatic progress towards integration than did the 20<sup>th</sup> century.<sup>6</sup> Second, international commodity markets are probably better integrated today than they were in 1913, although we do not have hard quantitative evidence to back up this assertion. Third, there are significant qualitative differences between trade today and trade in the past. Even so, it is important not to

exaggerate the significance of the past decade's changes (CEPR 2002). 'Weightless' activities only account for a tiny share of GDP; and gravity equations explaining the volume of trade find that distance continues to influence trade greatly. Thus, a typical elasticity of trade with respect to distance emerging from these regressions (say -1.25) implies that trade volumes at distances of 4000 km are down by 82% relative to their values at 1000 km. The death of distance has, it turns out, been greatly exaggerated.

## **2.2. Capital market integration and foreign direct investment**

Standard measures tell a consistent story: capital markets became much more integrated in the late 19<sup>th</sup> century, reaching extremely high levels of integration in 1913; they disintegrated during the interwar period, and are only now recovering the levels of integration experienced in 1913. Once again, the 19<sup>th</sup> century stands out as the century which saw the greatest increase in integration: for example, Lothian (2000) documents a big 19<sup>th</sup> century decline in the international dispersion of real interest rates. By contrast, the 20<sup>th</sup> century saw disintegration followed by recovery. This U-shaped pattern is apparent in data on current account to GDP ratios; on real and nominal interest-rate differentials; and in applications of the Feldstein-Horioka test to long-run data (Obstfeld and Taylor 1998, 2001).

As is the case with international commodity markets, however, such quantitative evidence ignores several important qualitative changes which have occurred over time. Net, long run capital flows may be no more impressive now than in 1913, but international capital markets today differ in several respects from those of one hundred years ago. Most notably, a far broader range of financial assets are traded today, while the ratio of gross to net capital flows is much greater now than then, reflecting greater volumes of short run capital flows (Bordo, Eichengreen and Kim 1998). On the other hand, international capital markets today do a far less impressive job of channeling savings towards developing countries than did their counterparts of a hundred years ago (Obstfeld and Taylor 2001).

FDI is a dimension of capital flows that deserves separate mention, since it can play a particularly powerful role promoting technological transfer (Cantwell and Piscitello, ch. 8 in this volume), and in helping peripheral countries converge on the core (Barry, ch. 9 in this volume). Table 3, taken from Michael Twomey's (2000) recent book on the subject, shows that a 20<sup>th</sup> century U-shaped pattern also applies to FDI: FDI relative to GDP collapsed between 1913 and 1950, before subsequently recovering. Outward FDI remains much less important today than it was in 1913 for two former colonial powers, the UK and the Netherlands. In terms of world averages, the stock of FDI reached over 9% of world GDP in 1913, a figure only exceeded in the early 1990s (the figure stood at 16% in 1999).<sup>7</sup> FDI is more important now to the world as a whole, but we are talking about a quantitative, not a qualitative shift. Furthermore, as Table 3 shows, FDI plays a significantly less important role today in developing countries than it did on the eve of World War I: it accounts for 18% of GDP in developing countries today, as opposed to 40% in 1913. This reflects the fact that LDCs are host to less than a third of world FDI today, as opposed to almost two thirds in 1914 (O'Rourke 2002). As in the case of capital flows more generally, however, the composition of FDI flows has shifted markedly over time (Baldwin and Martin 1999). In 1914, 70% of US FDI in the Third World was in agriculture, mining or petroleum; 26% was in services; and just 1% in manufacturing. In 1998 these figures were 14%, 59% and 27% respectively (Twomey 2000, Table 3.14, p. 55).

As in the case of commodity trade, it appears that the 19<sup>th</sup> century was the canonical globalization epoch, in that by the end of the period capital markets and FDI had become very extensive; by contrast, quantitative measures show only minor gains over the 1913-2000 period as a whole, with a late 20<sup>th</sup> century recovery following an early 20<sup>th</sup> century slump.

### **2.3. Migration**

It is in the area of migration that the late 19<sup>th</sup> century seems most clearly to have been more globalized than today. Although barriers to immigration were being erected by the end of the



period, by and large the late 19<sup>th</sup> century stands out as a relatively liberal interlude in terms of migration policy, and falling transport costs eventually led to huge migration flows (roughly 60 million Europeans emigrated to the New World between 1820 and 1914).

At the beginning of the century, transport costs remained high, free labour flows were still small, and intercontinental migration was dominated by slavery. During the 1820s, free immigration into the Americas averaged a mere 15,380 per annum, compared with a slave inflow of 60,250 per annum. By the 1840s, the free inflow had increased to 178,530 per annum (and the slave inflow had declined to 44,510 per annum: Chiswick and Hatton 2001, Table 1), although it was not until the 1880s that the cumulative European migration exceeded that of the African (Eltis 1983, p. 255). In the first three decades after 1846, total European intercontinental emigration averaged around 300,000 per annum; the numbers more than doubled in the next two decades, and rose to more than a million per annum after 1900 (Chiswick and Hatton 2001, Figure 1). There were also significant migrations within Europe and the New World, as well as substantial intercontinental emigration from Asia.

As with trade and capital flows, this dimension of globalization went into reverse after 1914. European emigration had averaged over 1.2 million per annum in the decade before the war; it was less than half that between 1916 and 1930; and during the 1930s it was lower than it had been in the late 1840s (Chiswick and Hatton 2001, Figure 1). Again, decline was followed by recovery; gross immigration into the US was 4.1 million during the 1920s, 0.5 million in the 1930s, 1 million in the 1940s, 2.5 million in the 1950s, 3.3 million in the 1960s, 4.5 million in the 1970s, and 7.3 million in the 1980s (Chiswick and Hatton 2001, Table 2). However, in the case of migration this U-shaped recovery is not yet complete. The world stock of migrants was 2.3% of the total world population in both 1965 and 1990. Within Western Europe, the share of migrants in the total population increased from 3.6% to 6.1% over the same period, while within North America, the migrant share increased from 6% to 8.6% (Zlotnik 1999). By contrast, the foreign born accounted for 14.7% of the population of

the United States, and 22% of the Canadian population in 1911. Similarly, 1990s immigration rates into countries like the US (roughly 30 per thousand), Canada (70 to 80 per thousand in the early 1990s) and Germany (roughly 80 per thousand in the first half of the decade, and 50 per thousand thereafter), while clearly substantial, were dwarfed by those of the late 19<sup>th</sup> and early 20<sup>th</sup> centuries: in the first decade of the 20<sup>th</sup> century these were 167.6 in Canada, 118.4 in Cuba, 102 in the United States, and 291.8 in Argentina (O'Rourke 2002).

#### **2.4. Summary: the 19<sup>th</sup> and 20<sup>th</sup> centuries compared**

It would appear that the 19<sup>th</sup> century saw greater globalization gains than any period before or since. There is however an important distinction to be made between levels and trends. There was greater progress towards integration in the 19<sup>th</sup> century along every dimension of globalization, but in terms of the absolute level of integration, matters are more obscure. Commodity markets are probably somewhat better integrated today, although we lack convincing evidence to this effect; capital markets are on balance about as well integrated today; and labour markets are less well integrated today.

### **3. Explaining international economic integration**

Why did the 19<sup>th</sup> century see more impressive gains in international economic integration than did the 20<sup>th</sup>? The answers must lie in the technological and political histories of the two periods, and I consider each in turn.

#### **3.1. Technological change**

Findlay (ch. 2 in this volume) has discussed the impact of globalization on the European industrial revolution of the late 18<sup>th</sup> century, but causation was by no means one way: some of the most dramatic effects of that revolution, with its breakthroughs in steam technology and metallurgy, would occur in the following century in the transportation sphere. O'Rourke and Williamson (1999) document the impact of railroads in cutting transport costs on land; by sea, the development of the steamship played a crucial role in making intercontinental trade

cheaper. Knick Harley's (1988) index of British ocean freight rates remains relatively constant between 1740 and 1840, before dropping by about 70% between 1840 and 1910: a dramatic decline indeed, and one which was mirrored on sea routes worldwide (Findlay and O'Rourke 2001). Strikingly, Figure 2 shows that it was precisely around 1840 that sustained CMI involving the British and American wheat markets began. Transport cost declines were the big cause of late 19<sup>th</sup> century commodity market integration. They were also necessary for the surge in migration during that period: while wage gaps between Europe and the New World had always been high, prior to the advent of cheap ocean transport emigration was simply not an option for those poor Europeans who stood to benefit from it most (Hatton and Williamson 1998).

Figure 4 extends the British freight rate evidence into the 20<sup>th</sup> century: it plots freight rates deflated by the Statist wholesale price index between 1869 and 1966.<sup>8</sup> Between 1869 and 1914 these freight rates fell by 34 percentage points (based on a regression of the deflated rates on time and time-squared). Freight rates increased sharply during the war, remaining abnormally high until 1920. While they fell until 1925, they never attained their prewar levels, and rose thereafter, with the overall trend between 1921 and the late 1950s being broadly flat (at a level roughly equal to the 1869 level). However, in the late 1950s real freight rates fell sharply, almost to the lows attained in the late 1900s.

In the most careful study of post-1945 trends to date, David Hummels (1999) concludes that ocean freight rates have actually increased over much of the period. An index of liner shipping prices, calculated by the German Ministry of Transport, rises from 1954 to 1958, is fairly flat until 1970 (despite the introduction of containers in the 1960s), rises through the 1970s, peaks in 1985, and falls sharply thereafter. Deflated by the German GDP deflator it never attains its 1960s levels, even as late as 1997; deflated by the US GDP deflator it only recovers to its 1954 position by 1993.

The fact that ocean freight rates have failed to register significant declines in real terms since 1910 or so seems to offer one obvious explanation for the apparent failure of the 20<sup>th</sup> century economy to register as much CMI as did the preceding century. Three important caveats are in order, however. First, we need better freight rate data spanning the entire period. Second, air travel is obviously a key 20<sup>th</sup> century invention which marks a qualitative break with the past, and which has revolutionized certain sectors of the economy, such as tourism. Net labour flows between continents may be less important now than in 1913, but presumably gross passenger numbers have increased relative to population (a similar distinction to the one made earlier between gross and net flows for capital markets). Air freight rates declined dramatically in the 1950s, 1960s and 1980s, while declining more slowly in the 1990s, and rising in the 1970s. These declines were greatest on North American routes. The result, predictably enough, has been a more than ten-fold increase in the ratio of air to ocean shipments in the years since 1962 (Hummels 1999). Third, the increasing speed of ocean transport has implied cost savings not accounted for by the freight rate data. More rapid transport between 1950 and 1998 was, according to Hummels (2001), equivalent to reducing US tariffs on manufacturing goods from 32% to 9%, a significant decline. A similar calculation has not yet been done for the 19<sup>th</sup> century, however, another period of very significant reductions in transport times.

As far as international capital markets are concerned, the most important breakthrough of the last two hundred years was the introduction of the telegraph. To take just one example, before the introduction of the trans-Atlantic cable in 1866 it took 10 days for information to travel between London and New York: thus, would-be arbitrageurs between those two markets had to place orders, based on information already 10 days old, which would only be executed in a further 10 days. With the cable, investors could learn of international price differentials, and respond to these, within a day: the result was an immediate 69% decline in mean absolute price differentials for identical assets between the two cities (Garbade and

Silber 1978, p. 825). No other innovation, including that other late 19<sup>th</sup> century invention, the telephone, or its late 20<sup>th</sup> century equivalent, the internet, has had a comparable impact on the speed of information flows and capital market integration.

### **3.2. Politics**

It seems as though technology might indeed help to explain the slower pace of integration experienced in the 20<sup>th</sup> century; but it cannot explain the U-shaped pattern of disintegration followed by recovery that seems to have characterised the period since 1913. After all, new technologies are not typically forgotten, and were not in this instance. To explain disintegration, politics has to be taken into account: the historical record indicates that politics can quite easily reverse the impact of technology, at least in the short to medium run.

#### **3.2.1. War**

Prior to the 18<sup>th</sup> century, intercontinental trade largely involved ‘non-competing’ goods with no obvious substitutes in destination markets, Asian spices being an obvious example. In such an environment, intercontinental trade would not be expected to have the economy-wide income distribution effects which were identified by Heckscher and Ohlin, and the evidence suggests that indeed it did not have such effects (O’Rourke and Williamson 2002b). Political trade disputes were thus not so much intra-national as inter-national, and involved mercantilist states competing for the rents associated with monopolising trade routes or foreign colonies. Wars were frequent, and disrupted the international economy: Figure 1 shows disintegration occurring during the 1650s and 1660s, coinciding with the first and second Anglo-Dutch Wars; during the 1750s, coinciding with the Seven Years War (1756-63); and during the 1790s, coinciding with the outbreak of the French and Napoleonic Wars (1791-1815).

Findlay and O’Rourke (2001) show that the disruption associated with the last of these wars was both extensive and long-lived. Blockades and embargoes had a large relative price impact, the volume of trade declined sharply, and import-substitution was everywhere encouraged. This last effect is the primary reason why wars (or Great Depressions) have such

long-lasting consequences: industries which have grown up under such hothouse conditions tend to require protection to survive, and whenever wars end they leave powerful protectionist coalitions in their wake. Thus, according to Crouzet (1964) the trade embargoes and blockades associated with the wars of 1791-1815 replaced French industry's traditional Atlantic orientation with an inward-looking and defensive one, and help explain France's abiding suspicion of the international market-place; while Jefferson's Embargo Act (1807-9) arguably had similar effects in the Northern U.S. In exactly the same manner, the First World War led to peacetime demands for industrial protection in countries such as India, Australia and Argentina; more seriously, it led to a wartime expansion of grain production in regions such as North America, to cope with Allied demand, which in turn provoked a postwar crisis of agricultural over-supply which was a key source of interwar trade tensions, and helped provoke the American Smoot-Hawley tariff (Aggarwal and Dupont, ch. 6 in this volume). Nor do wars only disrupt international commodity markets: Lothian (2001) shows that wars have been associated with capital market disintegration since the 17<sup>th</sup> century, while the negative effects of wars on labour mobility, at least in the context of modern warfare, seem even more obvious.

Viewed in this context, a key institutional innovation which ushered in the long 19<sup>th</sup> century, and helped make it the canonical period of globalization, was the international system instituted by the Congress of Vienna, which marked the end of an unusually bloody, lengthy, and worldwide conflict. In Paul Schroeder's view, the political equilibrium which ensued arose from "a mutual consensus on norms and rules, respect for law, and an overall balance among the various actors in terms of rights, security, status, claims, duties and satisfactions rather than power" (Schroeder 1992, p. 694). Rather than relying on an unattainable balance of power, the Congress implicitly recognized British and Russian hegemony in their respective spheres of influence (the wider globe, and Eastern Europe and much of Asia respectively); but the hegemony was relatively benign, and the entire system

relied on “the restoration of the rule of law, beginning with its foundation, the security and legitimacy of all thrones” (Schroeder 1992, p. 696).

Ultimately, of course, the Vienna system was unable to withstand the rise of Germany, which simultaneously challenged British dominance overseas, Russian dominance in Eastern Europe, and British economic dominance in Western Europe. Nonetheless, the fact remains that battlefield deaths as a proportion of Europe’s population were seven times higher in the 18<sup>th</sup> century than they were in the 19<sup>th</sup> (Schroeder 1994, p. vii), and the 19<sup>th</sup> century stands out as an unusually peaceful one in the context of Europe’s bloody history. Thus European wars, which have historically been such a major cause of international economic disruption, were less important during this canonical globalization period than they have been before or since; and this is surely no coincidence.

### **3.2.2. Traditional protectionism: tariffs and quotas**

The French and Napoleonic wars thus gave rise to a settlement which led to “a dramatic decline in the incidence, scope, length and violence of wars” (Schroeder 1994, p. vii). But there are of course more prosaic reasons why the international economy can be disrupted. Tariffs, quotas and other instruments can be used in an effort to stimulate infant industries; or to influence the distribution of income; or to cope with the impact of recession. The 19<sup>th</sup> and early 20<sup>th</sup> centuries saw protectionism being implemented for all these reasons, and more.

It was not just wars which gave rise to infant industry protection; such protection was adopted in many New World economies in the late 19<sup>th</sup> century. The great transport cost declines surveyed earlier made intercontinental bulk trade in basic commodities possible, and led to a new worldwide division of labour, in which the resource-rich New World exported food and raw materials in return for European manufactured goods. Not only the New World found itself playing this role: India, a traditional exporter of textiles, found itself specialising more and more in primary products. Thus, textiles accounted for more than half of the English East India Company’s exports to Europe in the late 1750s; the figure had dwindled to a mere

3.7% in 1850-1 (Findlay and O'Rourke 2001). India was not legislatively independent, but the New World was, and high tariffs on industrial products were adopted in Latin America, the United States, Canada, and Australia. The collapse in primary product prices in the 1920s and 1930s, and the Depression-induced protection in core markets, would persuade many developing countries to follow suit in the 20<sup>th</sup> century, with ultimately disastrous consequences.

Another motivation for protection, particularly in the late 19<sup>th</sup> century, was the desire to avoid the distributional effects associated with globalization (O'Rourke and Williamson 1999). As the land-abundant New World exported competing land-intensive products such as wheat to Europe, European landowners found their incomes declining, and in many cases their governments provided them with agricultural protection: thus tariffs represented compensation for declining transport costs (Bairoch 1989, pp. 55-58). As labour-abundant Europe exported unskilled workers to the New World, unskilled wages there fell in relative terms and New World inequality rose. Again, governments responded by tightening immigration restrictions. Thus, globalization largely undermined itself during this period: it did not simply come to an abrupt end in 1914.

This is not to deny the importance of the First World War in destroying the liberal economy of the pre-1914 era: it was an enormous shock which had long run as well as short run consequences for international economic integration. Indeed, the imbalances to which it gave rise were, as already stated, one of the key causes of the interwar descent into autarky. However, the late 19<sup>th</sup> century record does clearly show that left to its own devices, globalization can undermine itself politically, and that distribution matters, not just for its own sake, but on account of the political responses which it provokes. (Further evidence of this tendency for markets to undermine themselves can be found in the pre-1914 period's development of a variety of welfare institutions: see Atkinson (ch. 12 in this volume), and Polanyi (1944).)



An account of the rise and decline of globalization from 1815 to 1945 would therefore go something like this: In the aftermath of a catastrophic world war, the great powers agreed on a system of interstate politics that largely kept the peace for a hundred years. This interlude coincided with a transport revolution that, together with the telegraph, led to the greatest increase in the integration of the international economy which the world has ever seen. The globalization of the late 19<sup>th</sup> century was due to technology rather than economic policies, since tariffs and migration quotas worked hard to mute its impact, at least from the 1870s; and the First World War ultimately undid much of what had been achieved.

The economic imbalances caused by the Great War exacerbated protectionist pressures, while the failure of the League of Nations to recreate the stability of the Congress era made it more difficult for Governments to head those pressures off (Aggarwal and Dupont, ch. 6 in this volume). Two further factors also help explain interwar deglobalization: the Great Depression and democracy. The Depression obviously helped persuade governments to adopt tariffs and migration restrictions; it also led to the widespread adoption of Keynesian macroeconomic policies, which had far-reaching implications for capital mobility. Obstfeld and Taylor (2001) have located the causes of the 20<sup>th</sup>-century U-shaped pattern of capital mobility in governments' attempts to wrestle with the famous macroeconomic policy trilemma: you cannot have fixed exchange rates, capital mobility and an independent monetary policy simultaneously. This trilemma was resolved in the late 19<sup>th</sup> century by abandoning interventionist monetary policy: the gold standard promoted capital flows and fixed exchange rates, but tied the monetary authorities' hands. Democracy was always going to make it more difficult for governments to adopt such a stance; faced with the Great Depression, interwar governments abandoned fixed exchange rates and/or capital mobility in order to concentrate on internal macroeconomic management. The postwar Bretton Woods settlement opted for fixed exchange rates and Keynesianism, at the expense of abandoning capital mobility. It was only with the abandonment of fixed exchange rates in the

early 1970s that international capital markets began to recover, to the point where they have now become as integrated as they had been in 1913.

Distributional concerns, the macroeconomic environment, and World War I thus explain the interwar period's descent into autarky. However, just as the wars of 1791-1815 ushered in the Congress of Vienna, so the wars of 1914-45 led to another ambitious postwar settlement which, crucially, involved the setting up of explicitly economic institutions such as the GATT. These were designed to help governments face down the traditional 'economic' (Listian, Heckscher-Ohlin and Keynesian) demands for protection outlined above. Thus, the settlement promoted the gradual liberalization of commodity markets: trade was liberalised within the OECD, and CMI gradually resumed. Indeed, the CMI which has occurred since 1945 differs from that of the 1870-1914 period in that it was largely due to trade liberalization, rather than technological change.

It is important to recognise, however, that focussing on postwar liberalization in the OECD leads to an unbalanced view of late 20<sup>th</sup> century trade policies. Table 4 gives data on manufacturing tariffs for a number of countries back to 1913. It shows the familiar OECD story of rising interwar tariffs and falling postwar tariffs, and also shows that for most of these countries tariffs are lower today than they were in 1913 (the UK being an exception). However, this OECD story is not a universal one (and even in the context of the OECD it ignores the more restrictive agricultural protection of today, as well as the greater use of non-tariff barriers). In much of the developing world manufacturing tariffs today are higher than they were in 1913, as a result of import substitution policies, socialism, or the intellectual legacy of decolonisation. Just as important, for much of the late 20<sup>th</sup> century the Soviet Block remained largely closed to international markets: the post-1945 economic settlement only applied to the West, while the post-1945 political settlement led to a Cold War, rather than a post-1815 style peace. It is for this reason above all that the 1990s stands out as a key

globalization decade, with an entire region of the world opening itself to international markets for the first time in a generation (Kierzkowski, ch. 11 in this volume).

#### **4. The future: coping with regulatory spillovers**

Figure 5 illustrates the argument thus far: it shows how the level of international economic integration has changed between 1820 and 2000. TT represents the maximum level of integration achievable, given the state of technology: it rises continuously throughout this period, but at a slower rate during the 20<sup>th</sup> century than during the 19<sup>th</sup>. How close to this technological frontier the world progresses is however a matter of politics: PP represents the actual level of integration achieved over the period. Integration thus depends on technology (TT), and on politics (the gap between TT and PP). This gap was much smaller in 1875 than in 1820, indicating that in the absence of war, and with the gradual liberalization of trade associated above all with Britain (Aggarwal and Dupont, ch. 6 in this volume), politics was working in the same integrationist direction as technology. The post-1875 backlash is indicated by the growing TP gap between 1875 and 1914; but this backlash was not sufficient to overturn the impact of continuing technological progress. Where technology dominates 19<sup>th</sup> century trends, politics explains the 20<sup>th</sup>-century U-shape. The disintegration of World War I is followed by a partial recovery through the 1920s, disintegration through 1945, and the rapid integration of the post-war era, driven by GATT and other political institutions.

Just as the Congress of Vienna succeeded in reducing the incidence of warfare, so the GATT and WTO have succeeded in reducing the incidence of tariffs, and to a lesser extent quotas. These international settlements, following in the wake of two 30-year world wars, together with the massive transport cost declines of the 19<sup>th</sup> century, and the more modest declines of the 20<sup>th</sup>, are the key to understanding the large globalization upswing of 1815-1914, and the smaller upswing (which largely represented a recovery of prior losses) of 1945-2000.<sup>9</sup> While wars and tariffs have not gone away, another challenge to CMI has recently

gained prominence: the difficulty of reconciling different countries' health, safety, antitrust or environmental standards with the free international movement of goods and services. Disputes regarding hormone-fed beef, or genetically modified crops, or dolphin-friendly tuna, are likely to become more common in the future, if for no other reason than that health, safety, antitrust and environmental legislation can be expected to accumulate in all countries over time, in large part reflecting public opinion.

Over the past two centuries Europe has had a profound impact on globalization trends, both positive and negative. The technological breakthroughs of the late 18<sup>th</sup> and early 19<sup>th</sup> centuries mentioned above were largely (if not entirely) hers; and the world wars which have periodically had such an impact on the international economy have also originated in Europe. Indeed, one of the key determinants of globalization, at least until the Second World War, has been the evolving relationship between Europe's nation states. European political and economic thought, and European colonialism, are two further factors with which any complete account of the history of international economic integration would have to deal: for example, not only has Europe produced the classical theories of free trade (and its antithesis, Marxism), but European overseas expansion and European nationalism combined to produce post-colonial 'nation-states,' which pursued autarkic policies as enthusiastically as had the new European nation states of the 1920s (Liebich, ch. 5 in this volume). Today Europe no longer enjoys the international prominence which it once did (but see Steinherr, ch. 7 in this volume): but does Europe have anything to contribute to international economic integration in the years ahead?

To the extent that spillovers from domestic regulatory regimes into the international trade sphere pose a major challenge for future CMI, the answer is probably 'yes'. EU member states have considerable experience in negotiating complex economic agreements in which domestic regulations and trade concerns are intertwined, the most obvious example of this being the negotiation of the 'Single Market' or '1992' programme. European integration has

involved reconciling the ‘globalization’ of internal EU markets (which is why the EU will never make a particularly convincing opponent of globalization per se) with the continuing heavy regulation of European economies (for good or ill). Europe, it could be said, has a comparative advantage in producing trade agreements between independent nation states which allow those states to preserve a large amount of domestic regulatory autonomy, while at the same time facilitating the free international flow of commodities and factors of production. As such, it seems that now would be an appropriate time for the EU to become much more centrally involved in debates concerning the ‘international economic architecture’ (CEPR 2002), and in particular the future of the WTO.

Table 1. Percentage price gaps, selected commodities and markets

(based on regressions on time and time-squared)

Commodity	Markets	1948	1951	1957	1960	1970	1980	1990	1999
Butter	UK-NZ				-0.3	27.8	50.6	68.1	79.4
Cocoa beans	UK/NYC-Brazil	-4.3	-1.7	2.7	4.5	8.4	9.3	7.0	2.4
Coconut oil	NYC-Phillippines			18.5	20.0	21.9	19.1	11.8	1.3
Coffee	NYC-Brazil	10.4	14.6	21.6	24.5	31.0	32.5	29.2	22.1
Fishmeal	Hamburg-Iceland					20.2	11.9	8.9	10.3
Lamb	UK-NZ			22.0	33.9	59.1	62.4	43.7	8.1
Lead	NYC-UK			51.4	39.0	14.4	15.8	43.2	90.1
Newsprint	Finland-NYC		5.7	12.4	15.3	22.7	26.7	27.1	25.0
Palm Oil	Europe-Malaysia		5.2	10.3	12.1	15.1	13.1	6.0	-2.0
Rice	New Orleans- Bangkok		48.9	32.2	25.8	14.3	17.5	35.5	64.3
Rubber	NYC-Thailand	45.6	37.6	24.1	18.6	6.9	5.0	12.8	28.2
Sugar	US-Brazil			46.0	46.7	55.1	73.1	100.8	134.0
Sugar	Phillippines-Brazil	74.1	61.7	42.6	35.8	26.6	38.1	70.2	116.8
Tea	London-Sri Lanka			18.1	17.0	13.9	11.8	10.6	10.3
Tin	London-Malaysia			2.8	2.9	2.9	2.3	1.0	-0.2
Tin	Bolivia-Malaysia		4.1	2.9	2.4	1.9	2.6	4.7	6.9
Zink	NYC-Bolivia		5.3	15.8	21.1	38.8	56.5	74.1	90.1
Zink	NYC-London			26.1	34.5	54.4	61.8	56.6	41.2

Source: IMF *International Financial Statistics* June 2000.

Table 2. Merchandise exports as a share of GDP (percent)

Country	1820	1870	1913	1929	1950	1973	1992	1998
France	1.3	4.9	7.8	8.6	7.6	15.2	22.9	28.7
Germany	na	9.5	16.1	12.8	6.2	23.8	32.6	38.9
Netherlands	na	17.4	17.3	17.2	12.2	40.7	55.3	61.2
UK	3.1	12.2	17.5	13.3	11.3	14.0	21.4	25.0
Total Western Europe	na	10.0	16.3	13.3	9.4	20.9	29.7	na
Spain	1.1	3.8	8.1	5.0	3.0	5.0	13.4	23.5
USSR/Russia	na	na	2.9	1.6	1.3	3.8	5.1	10.6
Australia	na	7.1	12.3	11.2	8.8	11.0	16.9	18.1
Canada	na	12.0	12.2	15.8	13.0	19.9	27.2	na
USA	2.0	2.5	3.7	3.6	3.0	4.9	8.2	10.1
Argentina	na	9.4	6.8	6.1	2.4	2.1	4.3	7.0
Brazil	na	12.2	9.8	6.9	3.9	2.5	4.7	5.4
Mexico	na	3.9	9.1	12.5	3.0	1.9	6.4	10.7
Total Latin America	na	9.0	9.5	9.7	6.2	4.6	6.2	na
China	na	0.7	1.7	1.8	2.6	1.5	2.3	4.9
India	na	2.6	4.6	3.7	2.9	2.0	1.7	2.4
Indonesia	na	0.9	2.2	3.6	3.4	5.1	7.4	9.0
Japan	na	0.2	2.4	3.5	2.2	7.7	12.4	13.4
Korea	0.0	0.0	1.2	4.5	0.7	8.2	17.8	36.3
Taiwan	--	--	2.5	5.2	2.5	10.2	34.4	na
Thailand	na	2.2	6.8	6.6	7.0	4.1	11.4	13.1
Total Asia	na	1.3	2.6	2.8	2.3	4.4	7.2	na
World	1.0	4.6	7.9	9.0	5.5	10.5	13.5	17.2

Source: Findlay and O'Rourke (2001). na = not available.

Table 3. Trends in Foreign Direct Investment, 1913-1995

	1913	1938	1950	1971	1980	1995
Developed Country	Outward stock of FDI/GDP (percent)					
Canada	6	14	6	7	9	20
France	23	21		5		25
Germany	11	1		3	4	10
Japan	11	21		2	2	5
Netherlands	82	91		35	25	47
UK	49	38	9	17	15	28
US	7	8	4	8	8	18
	1914	1930s	1950s	1970	1995	
Developing Countries	Inward stock of FDI/GDP (percent)					
Average colonies	42	61	35	14	19	
Average independent	36	37	17	9	14	
Average	40	51	30	13	18	

Source: Twomey (2000), Table 3.4, p. 35; Table 7.2, p. 195.



Table 4. Average tariffs on manufactured goods, selected countries, 1913-1998

	1913	1931	1950	1980	1998/99
Austria	18	24	18	14.6	NA
Belgium	9	14	11	NA	NA
Denmark	14	–	3	NA	NA
France	20	30	18	NA	NA
Germany	13	21	26	NA	NA
Italy	18	46	25	NA	NA
Netherlands	4	--	11	NA	NA
Spain	41	63	--	8.3	NA
Sweden	20	21	9	6.2	NA
UK	0	--	23	NA	NA
EU	NA	NA	NA	8.3	4.1
Russia	84	**	**	**	13.4 <sup>a</sup>
Switzerland	9	19	--	3.3	3.2 <sup>b</sup>
Australia	16	--	--	--	6
Canada	26	--	--	--	4.9
Japan	25-30	--	--	9.9	5.5
New Zealand	15-20	--	--	--	4.4
USA	44	48	14	7	4.5
Argentina	28	--	--	--	14
Brazil	50-70	--	--	--	15.2
Colombia	40-60	--	--	--	11.4
Mexico	40-50	--	--	--	12.6
China	4-5	--	--	--	17.4
India	approx. 5	--	--	--	34.2
Iran	3-4	--	--	--	--
Thailand	2-3	--	--	--	47.2 <sup>c</sup>
Turkey	5-10	--	--	--	0.25

Source: Findlay and O'Rourke (2001).

Notes: NA = not applicable; – = not available; \*\* refers to the fact that the USSR ran such a restrictive trade policy that average tariffs were irrelevant; <sup>a</sup> = 1997; <sup>b</sup> = 1996; <sup>c</sup> = 1993.

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## Endnotes

\* Several good friends have helped me with this paper. Parts of it draw on joint work with Ronald Findlay (Findlay and O'Rourke 2001) and Jeffrey G. Williamson (O'Rourke and Williamson 1999). I am grateful to both for allowing me to do this, and for many helpful conversations on these and related issues. Tim Hatton, Alan Taylor, and Jeff Williamson provided detailed scientific advice on Figure 5. I am particularly grateful to Jim Livesey for important historical insights, and for reading an earlier draft. The usual disclaimer applies.

<sup>1</sup> The British data are Gazette averages through 1980, and are taken from Mitchell (1988).

After 1980, they are taken from the Commodity Price Trends tables in the UK *Annual Abstract of Statistics*. The US data for 1870-1913 are taken from O'Rourke (1997), where they are expressed in shillings per cwt; onto these data are spliced the series in U.S.

Department of Commerce (1975) for 1800-1870; and from the US Department of Agriculture website (<http://usda.mannlib.cornell.edu/usda/usda.html>) for 1914-1999.

<sup>2</sup> Continental European grain markets protected by defensive tariffs provide one exception: see O'Rourke (1997).

<sup>3</sup> Data are available over the full period for: Algeria, Australia, Belgium, Greece, Malawi, Pakistan, South Africa, Spain, Tunisia, Turkey. Through 1994, data are available for: Austria, Egypt, France, Ireland, Italy, Paraguay, Portugal, Sweden, United States. Through 1992, data are available for: Denmark, Guatemala, Jordan, Kenya, Norway, Rwanda, United Kingdom.

<sup>4</sup> Data are available over the full period for: Algeria, Australia, Congo, Greece, South Korea, Malawi, South Africa, Spain, Sri Lanka, Switzerland, Thailand, Turkey, Venezuela. Through 1994, data are available for: Austria, Dominican Republic, Egypt, France, Honduras, Italy, Lesotho, Panama, Paraguay, Philippines, Portugal, United States. Through 1990, data are available for: Belgium, Burkina Faso, Costa Rica, Cote d'Ivoire, Guatemala, Kenya, Rwanda, Zambia, Zimbabwe.

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<sup>5</sup> According to Yeats (1998) 30% of world manufactures trade is trade in components rather than final products.

<sup>6</sup> It would be nice to have intercontinental price evidence for the period 1450-1550, which would shed light on whether the European Voyages of Discovery led to a significant once-off decline in intercontinental price differentials. Alas, such evidence has not yet been produced.

<sup>7</sup> For the source of these statistics, see O'Rourke (2002).

<sup>8</sup> Freight rates from 1869 to 1936 are from Isserlis (1938); from 1948 to 1966 the official freight rates given in Mitchell (1988) are used. The two indices are spliced using the calculation, cited in Mitchell (1988, p. 531), that nominal freight rates in 1948 were 3.3 times higher than those in 1938; and the assumption that nominal freight rates rose slightly between 1936 and 1938, in the same proportion as did wholesale prices generally.

<sup>9</sup> The fact that the Peace of Westphalia, associated with the ending of yet another 30-year war, was also associated with institutional innovation (the development of the modern European state system: see Kohen, ch. 4 in this volume), and with an improvement in outcomes (a decline in religious warfare, and a certain growth of religious tolerance), might lead one to speculate about a 150-year European cycle of systemic crisis, followed by systemic reform. But one should probably not exaggerate.

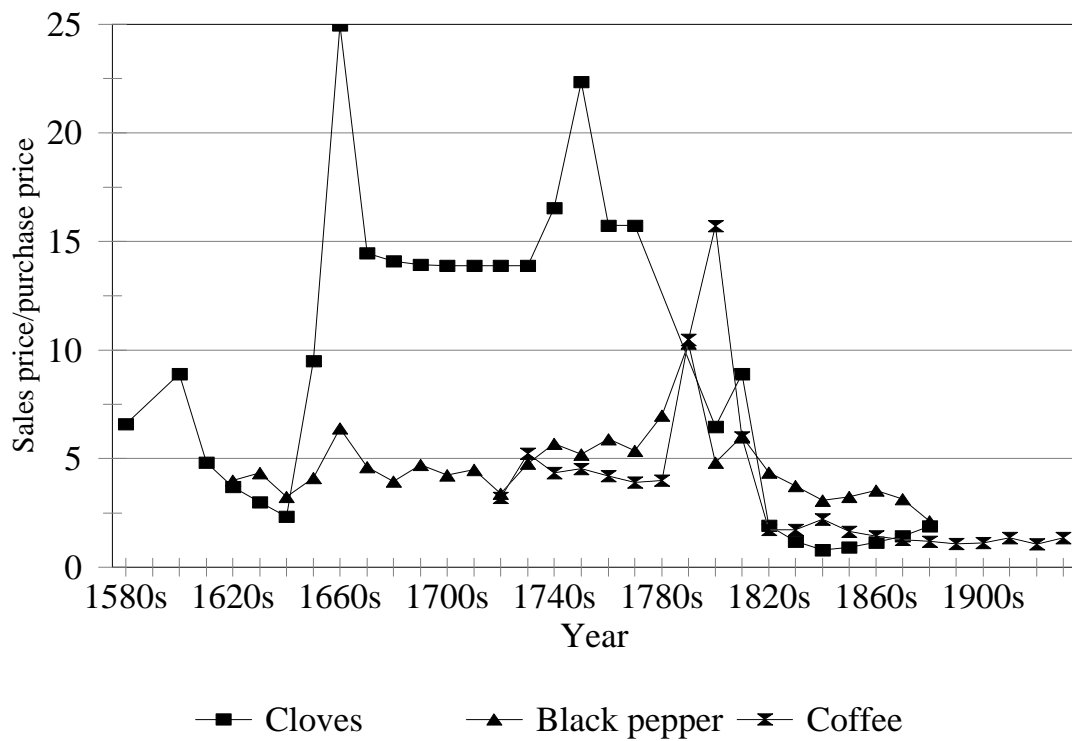
## References

- Bairoch, P. (1989). 'European Trade Policy, 1815-1914', in P. Mathias and S. Pollard (eds.), *The Cambridge Economic History of Europe Volume VIII*. Cambridge: Cambridge University Press.
- Baldwin, R. E. and Martin, P. (1999). 'Two Waves of Globalization: Superficial Similarities, Fundamental Differences', in H. Siebert (ed.), *Globalisation and Labour*. Tübingen: J.C.B. Mohr for Kiel Institute of World Economics.
- Bordo, M. D., Eichengreen, B. and Kim, J. (1998). 'Was There Really an Earlier Period of International Financial Integration Comparable to Today?', in *The Implications of Globalization of Financial Markets*. Seoul: Bank of Korea.
- CEPR. (2002). *International Economic Integration, Sustainable Development and Inequality*. A study commissioned from the Centre for Economic Policy Research by the Group of Policy Advisors to the President of the European Commission, December 2001. London: CEPR, forthcoming 2002.
- Chiswick, B. and Hatton, T. J. (2001). 'International Migration and the Integration of Labor Markets'. Paper presented at the *NBER Globalization in Historical Perspective* conference, Santa Barbara, CA, May 3-6, 2001.
- Crouzet, F. (1964). 'Wars, Blockade, and Economic Change in Europe, 1792-1815'. *Journal of Economic History* 24: 567-588.
- Eltis, D. (1983). 'Free and Coerced Transatlantic Migrations: Some Comparisons'. *American Historical Review* 88: 251-80.
- Feenstra, R. (1998). 'Integration of Trade and Disintegration of Production in the Global Economy'. *Journal of Economic Perspectives* 12: 31-50.
- Findlay, R. and O'Rourke, K. H. (2001). 'Commodity Market Integration 1500-2000'. *NBER Working Paper* 8579. Cambridge, MA: NBER.
- Garbade, K. D. and Silber W. L. (1978). 'Technology, Communication and the Performance of Financial Markets: 1840-1975'. *Journal of Finance* 33: 819-32.
- Harley, C. K. (1988). 'Ocean Freight Rates and Productivity, 1740-1913: The Primacy of Mechanical Invention Reaffirmed'. *Journal of Economic History* 48: 851-76.

- Hatton, T.J. and J.G. Williamson. (1998). *The Age of Mass Migration: An Economic Analysis*. New York: Oxford University Press.
- Hummels, D. (1999). 'Have International Transportation Costs Declined?' Mimeo, Purdue University.
- Hummels, D. (2001). 'Time as a Trade Barrier'. Mimeo, Purdue University.
- Isserlis, L. (1938). 'Tramp Shipping Cargoes and Freights'. *Journal of the Royal Statistical Society* 101: 304-417.
- Lothian, J.R. (2000). 'Capital Market Integration and Exchange Rate Regimes in Historical Perspective', in I. Hasan and W.C. Hunter (eds.), *Research in Banking and Finance 1*. New York: Elsevier.
- (2001). 'Financial Integration Over the Past Three Centuries'. *Independent Institute Working Paper 26*. Oakland, CA: Independent Institute.
- Maddison, A. (1995). *Monitoring the World Economy 1820-1992*. Paris: OECD.
- Mitchell, B. R. (1988). *British Historical Statistics*. Cambridge: Cambridge University Press.
- Obstfeld, M. and Taylor, A. M. (1998). 'The Great Depression as a Watershed: International Capital Mobility in the Long Run', in M. D. Bordo, C. D. Goldin and E. N. White (eds.), *The Defining Moment: The Great Depression and the American Economy in the Twentieth Century*. Chicago: University of Chicago Press.
- (2001). 'Globalization and Capital Markets'. Paper presented at the *NBER Globalization in Historical Perspective* conference, Santa Barbara, CA, May 3-6, 2001.
- O'Rourke, K. H. (1997). 'The European Grain Invasion, 1870-1913'. *Journal of Economic History* 57: 775-801.
- (2002). 'Globalization and Inequality: Historical Trends'. *Annual World Bank Conference on Development Economics 2001*, forthcoming.
- O'Rourke, K. H. and Williamson, J. G. (1999). *Globalization and History: The Evolution of a Nineteenth-Century Atlantic Economy*. Cambridge, MA: MIT Press.
- (2002a). 'After Columbus: Explaining the Global Trade Boom 1500-1800'. *Journal of Economic History*, forthcoming.
- (2002b). 'The Heckscher-Ohlin Model Between 1400 and 2000: When It Explained Factor Price Convergence, When It Did Not, and Why', in R. Findlay, L. Jonung and

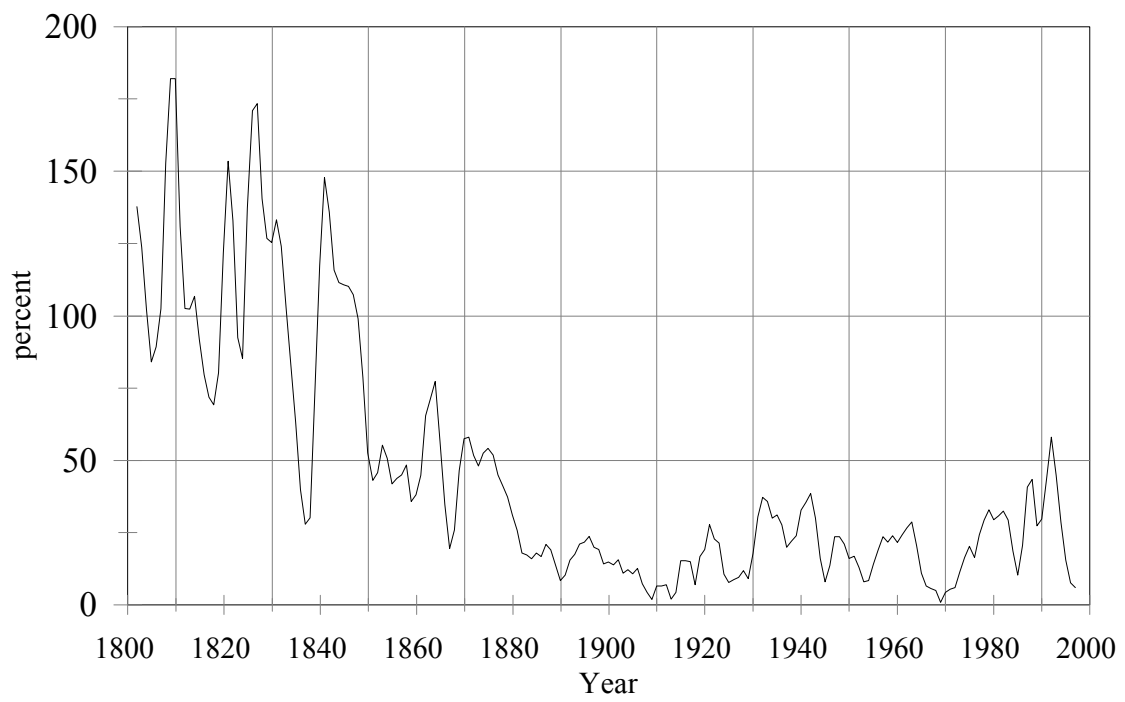
- M. Lundahl (eds.), *Bertil Ohlin: A Centennial Celebration 1899-1999*. Cambridge, MA: MIT Press, forthcoming.
- Polanyi, K. (1944). *The Great Transformation*. New York: Rinehart.
- Schroeder, P. W. (1992). 'Did the Vienna Settlement Rest on a Balance of Power?' *American Historical Review* 97: 683-706.
- (1994). *The Transformation of European Politics 1763-1848*. Oxford: Clarendon Press.
- Timmer, A. and Williamson, J. G. (1998). 'Immigration Policy Prior to the Thirties: Labor Markets, Policy Interactions and Globalization Backlash'. *Population and Development Review* 24: 739-71.
- Twomey, M. (2000). *A Century of Foreign Investment in the Third World*. London: Routledge.
- U. S. Department of Commerce. (1975). *Historical Statistics of the United States: Colonial Times to 1970, Part 2*. Washington, D.C.: USGPO.
- Yeats, A. (1998). 'Just How Big is Global Production Sharing?' *World Bank Policy Research Paper* 1871. Washington, D.C.: World Bank.
- Zlotnik, H. (1999). 'Trends of International Migration Since 1965: What Existing Data Reveal'. *International Migration* 37: 21-61.

**Figure 1. Spice and coffee markups:  
Amsterdam vs. Southeast Asia 1580-1939**



Source: O'Rourke and Williamson (2002a).

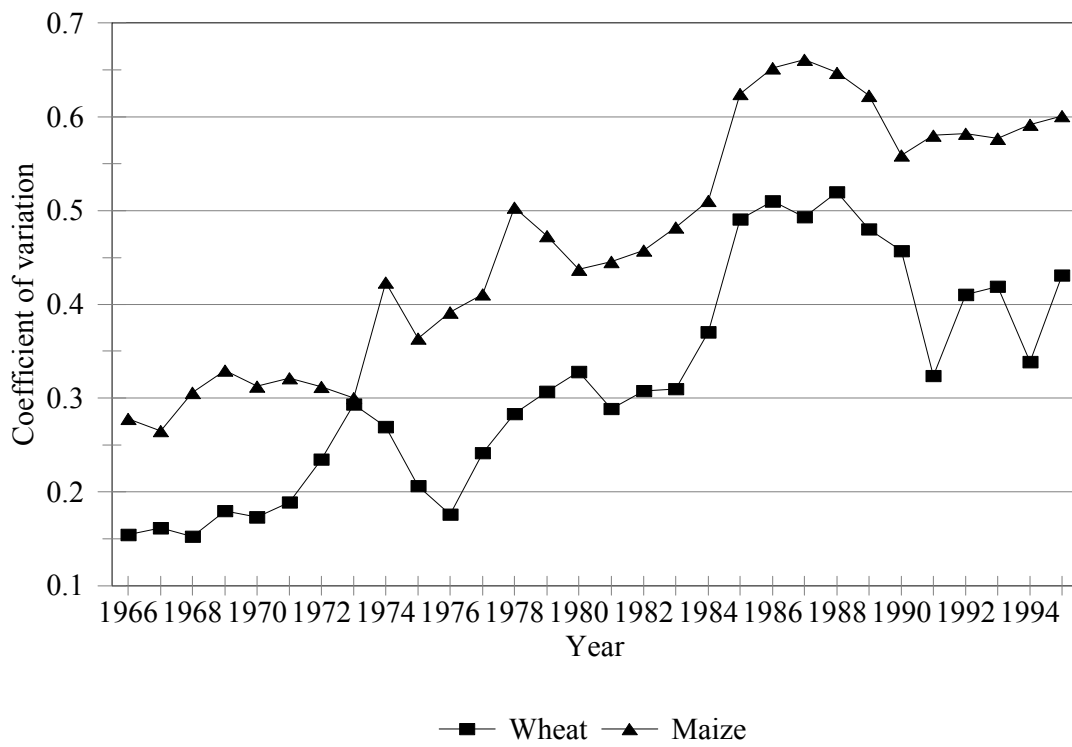
**Fig. 2.GB-US wheat price gaps**  
%,absolute value, 3-yr. moving average



Source: see endnote 1.

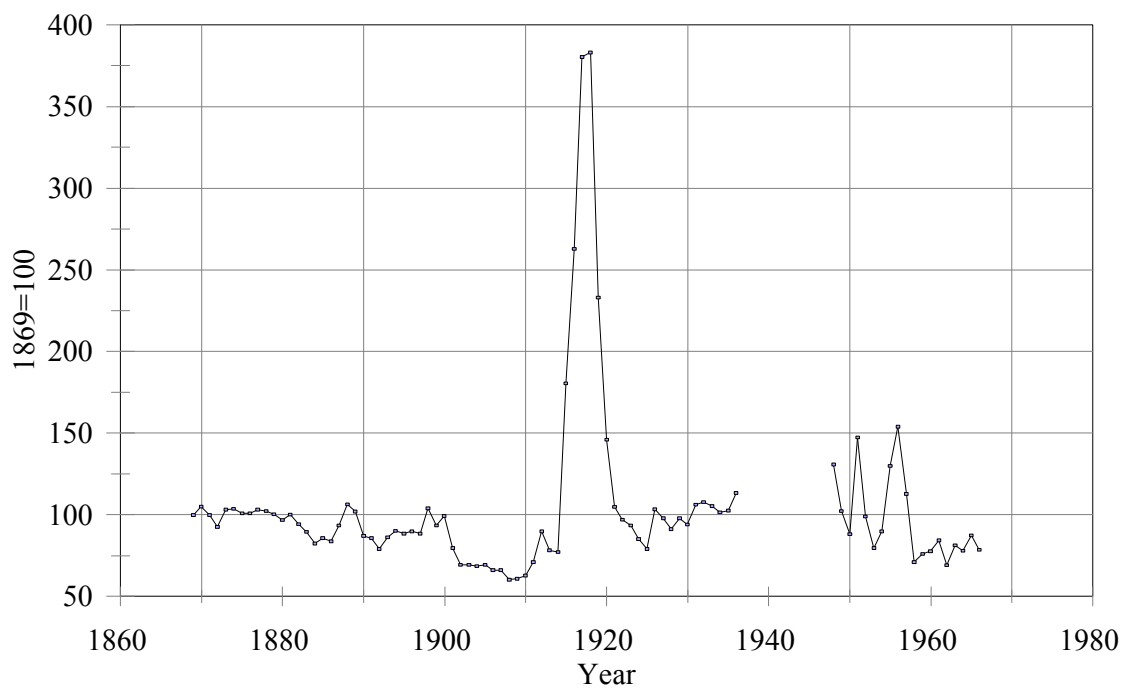


**Figure 3. International grain prices**  
Coefficient of variation



Source: see text.

**Figure 4. Deflated UK freight rates**  
1869-1966 (1869=100)



Source: see endnote 8.

International economic integration

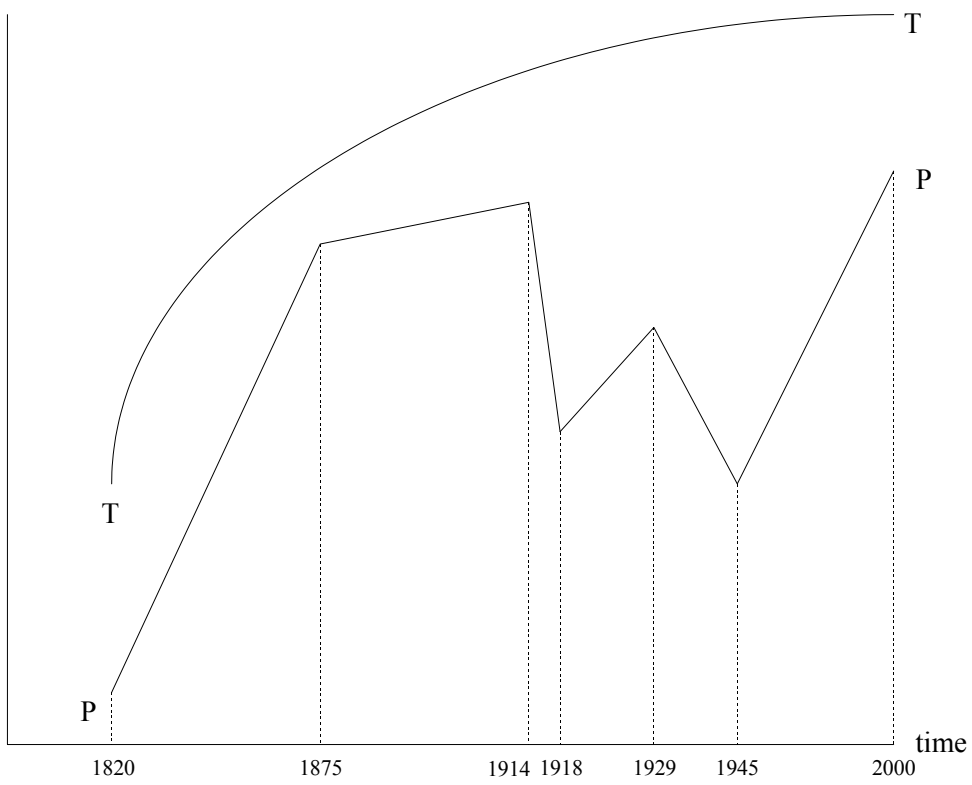


Figure 5. A very brief history of globalization