

# **The British Economy Between the Wars<sup>1</sup>**

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## **1. Introduction**

The 1920s and 1930s were years of transition, most obviously between the First and Second World Wars. But they were also years of transition between the long 19<sup>th</sup> century, when Britain was the world's leading creditor nation, its leading trading nation, and the producer of a third of the world's manufactured exports, and the years after 1945, when the country was overtaken in terms of per capita incomes, productivity, and growth rates by many of its European competitors. The story of the interwar period is thus the story of how this transformation came about. It is the story of Britain's loss of economic preeminence.

The interwar years were troubled not just for Britain, of course, but for the entire world. Growth slowed in virtually every industrial country. Growth was also slower everywhere than the post-WWII norm. The 1920s were dominated by political disputes and inflations that disrupted economic growth throughout Europe, the 1930s by a business cycle downturn of exception depth and duration, a downturn that came to be known as the Slump in Britain and the Great Depression in the United States. All market economies were affected. Thus, any critique of Britain's economic performance in this period is more compelling if it can be shown that the country performed poorly not just in an absolute sense or in comparison with the golden age of growth after World War II, but also relative to other advanced-industrial economies.

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<sup>1</sup>For the third edition of *The Economic History of Britain Since 1700* (to be edited by Rodrick Floud and Paul Johnson).

Evidence on this question does not speak clearly. Table 1 presents the growth of output per worker, a simple measure of labor productivity, between 1913 and 1950 -- what some authors have called “the transwar period.” Starting in 1913 rather than in 1920 avoids biasing the comparison in Britain’s favor, since other countries suffered more severe disruptions during the Great War and were later to initiate their recoveries, allowing them to grow more quickly insofar as they began behind, at a lower starting point (Aldcroft 1970). Considering 1950 rather than 1945 similarly avoids biasing the comparison in Britain’s favor, since France, Belgium and Germany all suffered relatively severe disruptions in the immediate aftermath of the Second World War. It means that we are comparing output per worker roughly at the time of two cyclical peaks.<sup>2</sup>

In the resulting table, Britain does not stand out. Output per worker rose over this period by 59 per cent. The United States and Canada did better (output per worker in these two countries rose by 77 per cent and 67 per cent), but these were the countries where the destruction of the two wars was least. Similar explanations apply in the cases of Norway, Sweden and Switzerland, three other countries that outperformed Britain as measured here. But -- surprisingly, given the pessimistic interpretation of Britain’s economic performance that is so pervasive in the literature -- output per worker rose over these 37 years faster than in Belgium, faster than in Denmark, faster than in France, faster than in Germany, faster than in Italy, and faster than in the Netherlands. This fact is more striking still insofar as the dates bracketing

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<sup>2</sup>Although whether the peaks in question occurred in 1913 or 1914 and in 1950 or 1951 depends on the country concerned.

these estimates bias the comparison against Britain.<sup>3</sup>

If 1913-50 was a turning point, then, it was not because this was when the British economy began to dramatically underperform its Continental European and North American rivals. Rather, these years were a turning point in the sense that this was when the institutions and policies that conditioned economic performance after the Second World War were put in place, or at least when their seeds were sown. Some of those changes, like the adoption of more flexible and stabilizing monetary and fiscal policies, had favorable effects on the business cycle and therefore, indirectly, on growth. Others, however, limited competition, stifled technical progress, and slowed structural change, creating problems that came home to roost after World War II. At the center of any account of British economic history between the wars, therefore, is the story of how these changes came about.

## **2. Looking Closer**

Before considering that history in more detail, it is worth taking a closer look at our summary measures of economic performance. To this end, Table 1 also presents data for the period from 1913 through 1938, which removes growth during the Second World War, and distinguishes the periods before and after 1929.<sup>4</sup> Evidently, Britain did better during the First and Second World Wars than the European continent, which served as the main theater for

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<sup>3</sup>Alternative measures are somewhat less favorable to the country. When we consider GNP per worker hour rather than per worker, Italy creeps ahead of the UK. When we consider GNP per person, France and Denmark also surpass the UK as a consequence of their relatively low population growth rates. But Table 1 makes the essential point.

<sup>4</sup>Conveniently, 1929 and 1938 are also cyclical peaks.

hostilities. Its performance compares less favorably with Europe's in the 'twenties, when it persistently lagged its Continental rivals, than in the 'thirties, when it closed much of the gap that had opened up in that earlier decade. Figure 1 suggests a number of other respects in which Britain's growth record was distinctive -- for example, the severity of the post-World War I recession and the relatively mild nature of Britain's post-1929 slump. These variations in turn provide pointers to the policies and factors that rendered the economy's performance distinctive.

The growth of output per worker can be decomposed into that part due to the growth of inputs per worker (effectively, the growth of the capital/labor ratio) and that part due to the growth of labor productivity (the share of output growth that cannot be accounted for by the deepening of the capital stock). Table 2 shows that the rate of growth of net nonresidential capital per employed person was above the arithmetic average for the four other countries in the comparison group.<sup>5</sup> This may seem surprising insofar as Britain was hardly a high-investment economy in the 1920s and 1930s -- to the contrary, the failure to sustain a higher investment rate is frequently cited as one of its shortcomings. But the two world wars were less disruptive than on the Continent, and the Depression of the 1930s was shorter and milder. It follows that over the long period considered in Table 2 the per worker nonresidential capital stock grew faster than in these other countries. But since there was no guarantee that Britain would again display respectable rates of capital formation in the future -- and, in fact, a relatively low investment rate turned out to be a chronic problem after the Second World War -- respectable growth rates sustained by better-than-average investment rates are hardly reassuring, especially insofar as the latter reflected not the intrinsic strengths of the British economy but rather the greater

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<sup>5</sup>These are the four countries for which consistent figures are available.

disruptiveness of the two wars on the Continent and the gravity of other countries' macroeconomic blunders.

The other side of this coin is the rate of **total factor productivity (TFP) growth**. (“Other side of the coin” means that since we already know that overall growth in Britain was unexceptional but the contribution of factor accumulation was above average, thus we also know that the contribution of total factor productivity growth must have been below average.) The second column of Table 2 shows the relevant estimates, obtained by subtracting from output growth the contribution not just of the accumulation of nonresidential capital but also the contributions of additional residential capital and of the growth of the labor force. The results reveal that the growth of total factor productivity was scarcely half the arithmetic average for the other countries. Clearly, that shortfall is heavily driven by the exceptional productivity performance of the United States, the country that pioneered the methods of modern mass production in this period. But British industry's failure to emulate the U.S. example is disturbing. TFP growth, and factors like the organization of production that enter into their determination, are the products of deeply embedded socioeconomic structures that develop slowly over time and are resistant to change. This implies that lagging productivity growth was likely to remain a problem after the Second World War.

Statistics like these, while helpful for sketching the outlines of Britain's economic performance between the wars and pointing to their proximate determinants, do not identify its underlying sources. For these we must consider the history.

### **3. Impact of World War I on the British Economy**

On the eve of World War I, Great Britain was the world's leading trading and lending nation. Her merchandise imports and exports were nearly a third larger than Germany's and half again as large as those of the United States. More international trade was invoiced in sterling than in any other currency. Foreign producers and merchants held bank deposits in London to settle their accounts with British importers and exporters and with one another. London's financial district, the City, was the world's leading financial center. Half of all the **foreign currency reserves** of central banks and governments was held in the form of bank deposits and other assets denominated in sterling (Lindert 1969). Britain's stock of overseas investments, valued at as much as £4 billion in 1914, far exceeded that of other nations and loomed large even relative to the country's formidable gross domestic product (£2.3 billion).

Given the country's dependence on international transactions, it is not surprising that the British economy was shaken by World War I. The decline of trade relative to GNP implied profound changes for an economy that exported a third of national product (re-exports included). Declining trade reflected import controls on the Continent and domestic measures designed to redeploy productive capacity to other uses, but it also reflected the special costs and risks of oceanic shipping in a hostile environment. At the same time, the demand for imports in South America and South Asia did not evaporate. As Britain withdrew from these markets, the United States and Japan moved to fill the void. U.S. exports to Latin America rose by more than 75 per cent in 1916, while Japan, building on her expertise in silk production and trade, expanded its textile exports to India, China, the United States and even Britain itself (Clavin 2000, p.10). This "beachhead effect" was not easily reversed; following the conclusion of hostilities, British producers thus found themselves face to face with new competitors.

Another legacy of the war was the impact on Britain's international financial position. Though war debts were less of a burden for Britain than its European Allies (the government having lent on to France and the other Allied powers much of the money it borrowed from the United States), private debts were another matter. A considerable portion of Britain's wartime trade deficit was financed by selling off the foreign securities of British citizens, which the government had requisitioned. Morgan (1952) estimates that perhaps a tenth of British foreign assets was liquidated. This implied roughly a ten per cent decline in interest income from abroad following the war, requiring a corresponding improvement in the balance of trade (absent other changes in the international payments). Given the intensification of American and Japanese competition, this shift proved difficult to achieve.

Compared to the far-reaching nature of these developments, the impact on the gold standard, the institution symbolizing the country's commitment to the international economy, was limited, or so it appeared. Britain was not forced to suspend gold convertibility during the war (although suspension did take place in 1919, requiring years of hard work to restore convertibility at the prewar parity, a task that was finally completed in 1925). With the declaration of war, the exchange rate actually strengthened, as British investors repatriated funds held abroad. But once shipping tonnage was diverted to military uses and U-boat warfare intensified, exports of manufactures fell off, while imports of grain and war materiel from North America rose dramatically. By 1915 sterling had begun to fall against the dollar. But even then the authorities were able to peg the currency at a 10 per cent discount against the dollar, using a combination of moral suasion and intervention in the foreign exchange market (financed by a loan from the United States). There sterling remained for the duration of hostilities.

That sterling could be held fairly stable against the dollar even in these exceptional circumstances encouraged the belief that the prewar parity (the prewar sterling price of gold, and by implication the exchange rate against the dollar) could be restored quickly following the war and that the British economy would have little difficulty in adjusting to the policy. But, as events were to reveal, the wartime stability of the sterling-dollar rate had more to do with U.S. financial support and with restrictions, both formal and informal, on the ability of individuals to engage in foreign-exchange-market transactions than with any intrinsic compatibility of the gold standard with changed economic conditions.

As the battle against Germany widened, the War Office contracted for a growing share of imported supplies, to the point where it controlled 90 per cent of British imports at the end of the war. This expansion of direct government purchases of imported goods may have been temporary (trade was quickly restored to private hands following the war's conclusion), but the expansion of direct government involvement was not. A case in point is the McKenna Duties, import taxes imposed in 1915 on luxury items such as cars, clocks, and musical instruments to prevent the latter from taking up scarce cargo space, which were Britain's first tariffs on imported manufactures in nearly a century and provided a precedent for the Key Industries **Duties** imposed in 1921. In effect, the first step down the road from free trade to protection was taken during the First World War.

In other economic realms, change was dramatic but temporary. By the end of the war the government marketed about 80 per cent of the food consumed at home and controlled the vast majority of consumer prices. But within four years of the conclusion of hostilities the entire control apparatus had been abandoned. As shortages of strategic products became increasingly



pervasive, the government took over management of firms producing munitions, coal and flour. But this too was temporary; wartime control was not the platform for a wave of enterprise nationalization like that which would follow World War II. Thus, when the government asserted its control of the railways, it left their day-to-day operation in private hands, facilitating the process of turning them back to the private sector following the war. The Sankey Commission set up to review the problems of the coal-mining industry in 1919 came down narrowly for nationalization, but its recommendation found little support in government or outside -- aside, that is, from the miners.

Where government's expanding role had a durable impact was in attitudes and policies toward competition. Manufacturers were encouraged to collaborate under the watchful eye of a government whose controls prevented the price mechanism from playing its coordinating role. Producers were encouraged to share expertise and information. As always, collaboration provided a fertile environment for collusion. It led to the formation of trade associations that facilitated the efforts of producers to lobby more effectively for tariff protection, tax concessions, and government support for arrangements that were used to restrict output and "rationalize" production in the 1920s and 1930s.

Among the most dramatic impacts of the war was on labor. This refers not just to the tragic death of more than 600,000 servicemen and the wounding of 1.6 million others, many so seriously that they would never work again, but also to profound changes in work organization. For the first time, scientific management techniques -- time-and-motion studies, for example -- were applied in the effort to maximize efficiency. Machine tools were imported from the United States and installed in factories where they were previously unknown. Automatic welding

spread through the shipyards. As skilled workers were conscripted, unskilled labor was substituted in a process known as “dilution”.<sup>6</sup> The installation of automatic machinery allowed an increasing number of operations to be undertaken by workers with minimal training. In this way, British industry took a first tentative step down the road that led to modern mass production a la the United States.

Whether these new modes of shop-floor organization and their consequences would be accepted by an increasingly assertive labor movement once the latter was freed of wartime restraints was another matter. During the war, workers had been encouraged to join unions as a matter of public policy, in order to give the authorities a body with which to negotiate in the effort to discourage strikes and slowdowns. Trade union membership more than doubled from 4 million in 1913 to more than 8 million in 1919. A third to half of all British workers were covered by collective bargaining in the 1920s, a much larger share than before 1913. Small unions formed larger federations. Joint Industrial Councils were established to negotiate wages industry wide; in 1925 some 3 million workers were covered by their deliberations. Unions and the Parliamentary Labour Party applied pressure to expand the coverage of an unemployment insurance system that had been established on a limited basis before the war. (When established in 1911 the insurance system had covered only seven cyclically-sensitive industries, barely a sixth of the industrial labor force.) Labor pushed for the Trade Boards Act of 1918, which extended the coverage of a set of labor-management councils established in 1909 to set minimum wages and regulate hours and working conditions for “sweated labour” (low-wage

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<sup>6</sup>By raising the demand for unskilled relative to skilled labor these innovations reduced the wage premium commanded by the trained. In turn this encouraged the entry into industrial employment of inexperienced workers, including women and juveniles.

workers, mainly women and juveniles, in tailoring, paper-box making, machine-made lace finishing, and chain making). Whether these interventions enhanced or reduced the efficiency of the British labor market became the subject of contentious debate almost immediately and has remained the subject of enduring scholarly debate.

Given the hardships and suffering endured during the war, the desire to restore normal prewar arrangements was understandable. But this instinct confronted conditions that were very different than in 1913. The country's financial position was weaker: its foreign assets had been run down, while the government's debts had been run up. Competition in Britain's export markets had grown more intense. Levels of unionization had risen. The labor market had grown more structured and, there was reason to think, less flexible. The question was thus whether these new 20<sup>th</sup> century circumstances were compatible with the 19<sup>th</sup> century policy framework that politicians and officials now sought to restore.

#### **4. Reintegration into the World Economy**

There was considerable scope for growth in the early 1920s simply by redeploying resources to peacetime uses. Demobilized soldiers could return to private employment. Resources could be used for building ships rather than sinking them, for producing motor vehicles rather than disabling them. The greater had been the wartime destruction of productive capacity and the diversion of resources from peacetime uses, the greater now was the scope for raising output through repair, reconstruction and reconversion. The rule was that every percentage point by which GNP had fallen between 1913 and 1920 increased the growth rate by 1920 and 1927 by half a percentage point. One obtains this estimate from a regression using the

cross-country data depicted in Figure 2 (the numbers in parentheses are t-statistics):

$$\text{GNP}_{1927}/\text{GNP}_{1920} = 182.23 - 0.52[\text{GNP}_{1920}/\text{GNP}_{1913}] \\ (8.36) \quad (2.30)$$

This is the regression line shown in the figure.<sup>7</sup>

Because wartime destruction was less than elsewhere, it was perhaps natural that the British economy recovered relatively slowly in the 1920s. But Figure 2 also gives reason to think that Britain was exceptional. British growth between 1920 and 1927 was slower than one would predict from the decline in GNP between 1913 and 1920 and the performance of other European countries. The observation for the UK is far below the line that summarizes typical performance, in other words. A dummy variable for Britain, when added to the equation reported above, enters with a coefficient of -22.12 and a t-statistic of 2.09. This means that British GNP rose in these seven years by 22 percentage points less than predicted for a country in its position, and that the difference is statistically significant.<sup>8</sup>

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<sup>7</sup>These results should be taken with a grain of salt, since any error in measuring GNP in 1920 will exaggerate the precision of the estimated negative relationship (because the 1920 value appears both in the denominator of the variable on the left hand side and the numerator of the variable on the right). But there is every indication of a positive relationship between the extent of wartime dislocation and the speed of postwar recovery.

<sup>8</sup>It is hard to argue that this reflects the 1919-21 recession, which was more severe in Britain than elsewhere (as discussed momentarily), or the fact that GDP per capita rose in Britain during the war while falling on the Continent. In 1920, the year chosen for the start of this comparison, GDP per capita was almost exactly back at 1913 levels both in Britain and on the Continent (where the figure for the latter is the unweighted average for 8 countries shown in Figure 1). It is not obvious, in other words, that intervening events bias the comparison one way or the other. It is clear from Figure 1 that Britain still underperforms its European competitors if one starts the comparison in, say, 1921, when the country's postwar recession was over, and extends it through 1929.

Why did Britain lag? Realized levels of output, in interwar Britain as everywhere, reflect the interaction of aggregate supply and demand. On the demand side, the government set the stage for the events that followed but cutting spending by a fully 75 per cent between 1918 and 1920, in an effort to restore its finances and the British economy to a peacetime footing. To stem the inflation that boiled up as price controls were relaxed and pent-up consumption demands were released -- an inflation that jeopardized the goal of restoring the prewar sterling parity at an early date -- the Bank of England raised its **discount rate** from 5 to 6 per cent in November 1919 and then to 7 per cent in April 1920. With both monetary and fiscal policies becoming sharply contractionary, it is no surprise that the economy turned down. In contrast, since many European countries had not yet marshaled the political will to undertake fiscal consolidation and price stabilization, no such negative demand shock was evident on the Continent.

The only surprise about the 1920-1 recession was its severity. Some observers such as Glynn and Booth (1992) argued that the hike in interest rates had burst the unsustainable financial bubble that developed following the armistice. Firms freed to use their wartime profits to invest in additional capacity scrambled to acquire their industrial competitors in what critics saw as an orgy of speculation. These financial excesses raised demand to unsustainable heights, from which it now needed to fall very considerably in order to reach sustainable levels. Those same uneconomical investments saddled firms with weak balance sheets, rendering many of them unwilling or unable to invest. On the "real" (that is to say, nonfinancial) side of the economy, these earlier speculative investments manifested themselves in a problem of chronic excess capacity, particularly in the so-called staple trades where much of the earlier speculative activity had been concentrated. In this view, the postwar recession was unusually deep because

the preceding boom had bequeathed both real and financial burdens.

Other authors, like Dowie (1968) and Broadberry (1986), have emphasized instead developments in the labor market. Labor leaders, demanding a land fit for heroes, pressed for and succeeded in obtaining employers' agreement to a reduction in the length of the average working week from 54 to 47 hours. This was the period when levels of unionization were highest, reflecting organized labor's wartime gains, and when its bargaining power was consequently greatest.

The cut in weekly hours was not matched, however, by a cut in weekly wages. Nor was the increase in effective hourly labor costs offset by any immediate increase in hourly labor productivity. Employers responded by laying off some of their now more expensive employees, thereby adding to the severity of the recession.

If the 1920-21 recession was purely a supply-side phenomenon, then there was no reason to expect the economy to bounce back with special vigor. The current level of output had fallen, and the economy would presumably expand from that lower level at its customary pace; no more and no less. But if the postwar recession also reflected, at least in part, a one-time negative demand shock, then there was reason to hope for unusually rapid growth once normal demand conditions were restored.<sup>9</sup> From this point of view, the failure of the economy to grow more rapidly in the 1920s was particularly disturbing.

The popular explanation for this failure emphasizes the return to gold, together with the decision of the Chancellor, Winston Churchill, to resume at the prewar parity, and the

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<sup>9</sup>The inclusion of "also" in this sentence should indicate that the Dowie-Broadberry and Glynn-Booth interpretations of this period need not be mutually exclusive.

deflationary consequences of the policies needed to bring this about. A significant rise in U.S. prices might have relieved Britain of the need to endure a long and arduous deflation, but the hoped-for U.S. inflation failed to materialize. (There was even a proposal, never implemented, to ship £100 million of gold to the United States in payment of Britain's war debts in an effort to force up American prices.) Instead, the **Federal Reserve System**, anxious to demonstrate its anti-inflationary resolve, sterilized much of the gold that flowed toward the United States as a result of the country's strong competitive position. For four long years through April of 1925, when gold convertibility was finally restored, the Bank of England and the Treasury were thus forced to pursue restrictive monetary and fiscal policies with the goal of pushing down British prices and pushing up sterling to its prewar level of \$4.86.<sup>10</sup> And once the currency had been restored to that level, it was still necessary to keep it there. This meant keeping interest rates high, which increased the burden of servicing the public debt, requiring high taxes that stifled consumption and investment. Thus, in much the same way that demand was curtailed in 1918-20, it remained depressed for much of the subsequent decade.

While this tale of sterling's overvaluation is found in every textbook, among specialists there no longer exists a consensus on by how much -- or even, for that matter, whether -- sterling was overvalued. Keynes' famous conclusion had been that British prices had risen by 10 per cent relative to American prices between 1913 and 1925, thereby pricing British goods out of

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<sup>10</sup>Even before the decision to resume gold convertibility was taken, speculators bid up the currency, aware that the act of Parliament suspending the gold standard would expire in 1925 and that extending it would embarrass the government (Miller and Sutherland 1994). This handicapped British exporters, whose overseas sales stagnated in 1924-5 (coincident with the sharp appreciation of sterling). British exporters' loss of world market share reflected the fact that this strengthening of the currency was not accompanied by a commensurate fall in prices and costs.

international markets. But Moggridge (1969) showed that this calculation hinged on the particular price indices used. (Specifically, Keynes had measured the change in U.S. prices using a retail price index for the State of Massachusetts with some rather unusual properties. Other price indices, by comparison, showed the deterioration in the British position to be less.) Another problem with Keynes' calculation (which, it turns out, biased the conclusion the other way) was that he failed to consider the position of third countries. Britain did not trade exclusively with the United States, and the exports of some of its other partners had been rendered much more competitive by the wartime and postwar depreciation of their currencies. To the extent that the exports of other countries had become more competitive, the deterioration in Britain's relative position was correspondingly greater. Redmond (1984) took this into account by computing real effective exchange rates for a variety of European countries. He found that British prices had been pushed up relative to the prices of Britain's principal trading partners between 1913 and 1925 by 5 to 10 per cent in the case of wholesale prices and by 15 to 20 per cent in the case of retail prices. The wholesale price comparison is probably more relevant, since the components of this index are more heavily traded across borders.

5 to 10 per cent is not a large margin, given the imprecision of such calculations. Can it be confidently asserted, then, that sterling was overvalued, pricing British goods out of international markets? The conclusion is strengthened when one recalls the other factors simultaneously affecting the pattern of trade. Recall that U.S. companies had established footholds in Latin America and elsewhere during the war, creating distribution networks, extending letters of credit, and cultivating customers for the branded, standardized products of America's mass production industries. In order for British products to regain their traditional



market share, their prices now had to fall relative to those charged by the competition, and not just hold steady. Moreover, given the decline in interest income after the war, a stronger balance of trade was required than before, which implied the need for a yet further expansion of exports and a further decline in prices.

The obvious place to look for the effects of an overvalued currency, it follows, is in the behavior of overseas trade. Figure 3 is consistent with the view that British exporters labored under serious handicaps. It shows, not surprisingly, that where merchandise exports had been most severely disrupted by the war, there was the most scope for their subsequent growth. But, again, Britain is an outlier: her exports grew more slowly between 1920 and 1927 than the wartime setback and the average performance of other European countries would predict. A regression using the data in Figure 3 yields the equation:

$$\text{Exports}_{1927}/\text{Exports}_{1920} = 266.25 - 1.11 [\text{Exports}_{1920}/\text{Exports}_{1913}] - 78.54 \text{ UK}$$

(6.07) (2.07) (2.60)

suggesting that British exports grew by 78 percentage points less between 1920 and 1927 than predicted by their wartime shortfall and the performance of other European exporters.

## 5. Declining Industries and Rising Unemployment

A high exchange rate and high costs may not be the only -- or, for that matter, even the principal -- explanation for Britain's disappointing export performance in this period. Another view (see Chapter 5 by Bowden and Higgins) is that the economy suffered from having specialized in the wrong industries, notably coal, iron and steel, textiles, and shipbuilding,

sectors where demand was weak and whose products were consequently in chronic oversupply. These were the sectors in which Britain had invested in the 19<sup>th</sup> century and in which it naturally continued to specialize, but also the sectors where subsequent industrializers found it easiest to compete. Moreover, with the development of new products based on advances in chemical, electrical and mechanical engineering (rayon, radio and the internal combustion engine being three examples), these staple goods commanded a shrinking share of final expenditure. Even had wartime inflation and postwar exchange rates not elevated British costs of production, in other words, there is reason to think that exports of the traditional staples would have remained chronically depressed.

As demand weakened and foreign competition intensified, a market economy should have begun to reallocate resources out of these uses. So it did; employment in chemicals, electrical engineering, vehicles, electricity (including gas and water), silk, rayon, and hosiery expanded by fully a quarter between 1920 and 1929, this in a period when employment in industry and mining was falling by 9 per cent. The share of total employment accounted for by the new industries rose from 11 to 15 per cent between 1920 and 1929, while the share accounted for by **the basic industries** declined from 30 to 25 per cent.

The question is why this transformation did not occur more quickly. Some scholars interpret the resulting rigidities in terms of the handicap of an early start. The skills and the attitudes toward the pace and organization of work of English cotton spinners, Welsh coal miners, and Scottish shipyard workers, imparted by socioeconomic institutions developed for an earlier era, were ill suited to the more technologically-sophisticated new industries of the 1920s and 1930s (Heim 1984). These workers could not move overnight to the growing chemical and

motor-vehicle industries. The old and new industries were located in different places; moving between them required access to information about employment opportunities far away and involved nonnegligible costs (Dimsdale, Nickell and Horsewood 1989a). British financial institutions and markets, developed for an age when the financial needs of industry were modest and the export of capital was big business, were ill suited for underwriting the activities of newborn small firms (a phenomenon contemporaries referred to as **the Macmillan Gap**, echoing the name of the expert committee that emphasized its existence).

The basic industries also had a considerable installed base of old-vintage machinery. So long as this remained viable it posed additional competition for anyone who contemplated investing in more up-to-date equipment. As a result, the knowledge gains from familiarity with the latest technology were correspondingly less. Reflecting the sluggishness of demand and investment, the average vintage of the capital stock was slow to change. This problem was naturally greatest for a country which had made such a large investment in installed base in prior years.

In addition, the basic industries were entrenched interests; the Federation of British Industries (founded in 1916) and the National Confederation of Employers' Organisations (formed in 1919) were well placed to lobby for government subsidies and support. The 1921 Key Industries duties, adopted following the sharp collapse in the value of textile, iron and steel and shipbuilding enterprises, provided limited amounts of tariff protection and, more importantly, held out the promise of more. (They were extended to the motor vehicle and parts industries in 1926.) Policy thus encouraged producers who might have otherwise contemplated exit to hold on in the hope of better times. The Bank of England, not obviously the public

agency best suited to the task, became heavily involved in efforts to encourage cooperation among steel, textile and shipbuilding firms in the orderly elimination of excess capacity, rather than allowing market forces to winnow the weak (Garside and Greaves 1996). Given the Bank's interest in the stability of the financial system, bankruptcies were the last thing it wanted; cotton firms understood this, which relieved them of pressure to pursue painful rationalization measures.

That more workers did not move between the old and new industries seems even more disturbing when so many remained out of work. Recorded unemployment hovered above 10 per cent throughout the 1920s (as described and analyzed further in Chapter 6 by Hatton). While unemployment was not exclusively a British problem, Figure 4 suggests that it was even more widespread than that elsewhere in Europe.<sup>11</sup>

Economic historians agree that unemployment in the 1920s and 1930s reflected the failure of wages to keep pace with the downward march of prices.<sup>12</sup> High real wages were the mirror image of a high exchange rate: in the same way that the latter priced British goods out of international markets, the former priced British workers out of employment.

But while there may be widespread agreement on the existence of this problem, there is no agreement on its causes. Dimsdale (1984) and Newell and Symons (1988), among others,

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<sup>11</sup>Except in 1927, when unemployment on the Continent rose to exceptional heights due to post-stabilization recessions in France and Italy. Note that these comparative unemployment rates must be taken with several grains of salt, since the accuracy with which they measure the phenomenon is questionable (see Baines and Johnson 1999 and Hatton in this volume).

<sup>12</sup>It is no coincidence that studies of this problem proliferated in the 1980s, when unemployment again became a serious problem in Britain and not a few economists diagnosed it in similar terms.

argue that Britain's chronic double digit unemployment stemmed from the high exchange rate, which forced down prices and put intense pressure on the equilibrium level of wages, a harsh adjustment that the institutions of the labor market found it difficult to carry out. Wholesale prices fell by 25 per cent between 1921 and 1929. Given the reluctance of workers to see their pay packets shrink, not even a relatively well-functioning labor market could have easily accommodated this shift. To be sure, half of that deflation occurred at the beginning of this period, when a large part of the wartime inflation was unwound (causing unemployment to shoot up to double digits). But wholesale prices (as measured by the Sauerbeck-Statist index) continued to fall, by a cumulative 13 per cent between 1922 and 1929 -- that is, by almost 2 per cent a year. Economists like Akerlof, Dickens and Perry (2000) argue that a little inflation can play a large role in lubricating the labor market. It follows that deflation in the 1920s, even if modest, could have contributed to the machinery seizing up.

Other like Matthews (1986) and Beenstock and Warburton (1986) insist that the problem stemmed from undue upward pressure on wages and ran from there to higher prices and an overvalued exchange rate. A well-functioning labor market should have had no trouble, they argue, in accommodating the return to gold. But trade unions were more militant than before 1913; they were unwilling to accept a dramatic cut in money wages. With the growth of the Parliamentary Labor Party, they could hope for political support for labor action. Like the coal miners in 1926, they engaged in work stoppages rather than accepting lower wages.

But it is important to recall that the great coal strike of 1926 was in fact a defeat for the miners. They slunk back to work, their wages cut. Episodes like this hardly enhanced the reputation of unions for delivering the goods: the share of workers subject to collective-

bargaining agreements, after rising sharply during World War I, fell back equally sharply in the 1920s. Efforts to discern a connection between the share of the labor force unionized and the inflexibility and/or level of wages have been unavailing (see e.g. Dimsdale, Nickell and Horsewood 1989b).

If there were new obstacles to wage adjustment, then, they presumably lay elsewhere. The obvious candidate is Britain's unemployment insurance system, established before the war but greatly extended following its conclusion. In the 1920s the ratio of average weekly benefits to average weekly wages hovered around 50 per cent, arguably encouraging leisurely job search. Payments were independent of wages; thus, workers in low wage industries were supported generously when out of work, with benefits that might rise to 80 or even 90 per cent of their previous wages. Benjamin and Kochin (1979) argued that this one factor by itself could explain the high level of British unemployment in the 1920s and 1930s. They based their conclusion on the observation that there was a significant time-series correlation between the replacement rate (the ratio of average benefits to average wages) and unemployment between 1920 and 1938.

A large literature arose in response to these results. Omerod and Worswick (1982) questioned the direction of causality: unemployment could be positively correlated with the replacement rate even if it was simply a reflection of weak domestic demand (since weaker demand for labor would put downward pressure on wages and therefore raise the replacement rate). Hatton (1985) showed that the mechanism posited by Benjamin and Kochin -- more time spent in search, reflecting the benefit-induced rise in the reservation wage -- did not find reflection, as it should have, in a positive relationship between the ratio of unfilled vacancies to unemployed workers on the one hand and the ratio of benefits to wages on the other.

Eichengreen (1987) showed that data for individual workers suggest a weaker impact of benefits on unemployment.

All this suggests that the unemployment insurance system was only part of the story. As Loungani (1991) shows, the benefit/wage ratio by itself can “explain” only 16 per cent of the variance of interwar unemployment (and this leaving aside questions about the direction of causality). Clarke’s (1996, p.153) conclusion seems judicious, that “There is no reason to suppose that large numbers of people started living off the state as a preferred way of life, though there is evidence that clients maximized the support they could obtain from the competing agencies...”

## **6. Monetary Policy in Slump and Recovery**

Also important for the evolution of output and employment, this broader perspective suggests, were shocks to aggregate supply and demand. The principal negative supply shock, as we have seen, occurred in the early 1920s, when there was a 13 per cent fall in the normal working week without any compensating adjustment in the weekly wage. The most powerful shock to aggregate demand was the slump that set in starting in 1929. That slump was global; it did not originate in Britain. The UK was not among the countries where financial excesses had run out of control in the 1920s and where the tighter monetary policy initiated by the Federal Reserve System in 1928 found a significant bubble to prick. Britain was less dependent on capital exports from the United States than were Argentina, Australia, Brazil, Poland, and Germany. It was not as sensitive to Federal Reserve policy as the United States. But the weakness of the balance of payments left no room for an outflow of financial capital.

Consequently, the Bank of England had no choice but to follow the Fed when U.S. monetary policy makers began raising interest rates in response to what they perceived as speculative excesses on Wall Street. Tighter money of course did nothing to sustain Britain's fragile expansion.

Figure 5 shows that industrial production fell more quickly than in the rest of Europe between 1929 and 1930 but more slowly between 1930 and 1931. The behavior of exports suggests that the early decline of British industrial output reflected the deterioration of conditions in important British export markets such as Australia, Argentina, Brazil, and the United States. But all differences between Britain and the rest of Europe before 1932 pale in comparison to those which opened up subsequently. British industrial production stabilized in 1932 while continuing to fall precipitously -- by 10 per cent in a single year -- on the Continent. The stabilizing impulse came not from conditions abroad but from policy at home, specifically from the country's abandonment of the gold standard in September 1931 and from the changes in policy -- mainly a sharp reduction in the Bank of England's discount rate -- facilitated by this event (Figure 6).

The decision to stop defending the sterling parity in 1931 is the most closely studied policy decision of the interwar years -- along of course with Churchill's decision to restore that parity in 1925. From the perspective of investors, it was not obvious that Britain should be the first European country to throw in this towel. She had not been among those countries with an overheated economy in the 1920s; consequently there were fewer accumulated excesses to complicate the maintenance of financial stability. As we have seen, the downturn was not more severe than elsewhere; if anything, the opposite was true. The financial system was in



reasonably good shape -- British banks had more foreign assets than liabilities, in contrast to banks in Germany and the rest of Central Europe.

To be sure, there were other problems, such as the decline in the dividends paid by foreign companies and in the interest paid by foreign governments on monies borrowed previously on the London market, which led to a deterioration in current account of the balance of payments (Moggridge 1970). But Britain's singular weakness was her high level of unemployment, which created a reluctance on the part of the politicians to defend the exchange rate using policies that might imply further increases (which would have undermined the position of the Labour government but cutting into its working-class support). The policies in question were high interest rates and cuts in public expenditure, which threatened to exacerbate unemployment. Knowing that the government had little stomach for such measures, investors began selling sterling out from under them, and the authorities, as expected, showed themselves to be either unable or unwilling to respond (Eichengreen and Jeanne 2000). It took a National Government formed on August 24<sup>th</sup>, dominated by Conservatives but led by the holdover Labour Premier Ramsay MacDonald, to push through limited cuts in unemployment benefit and public-sector salaries, but even these were too much for the affected to bear (leading to the famous "mutiny" of seamen at the naval base at Invergordon). Confidence, rather than being rebuilt, was dashed. With the Bank of England's reserves approaching exhaustion, the decision was taken to abandon the sterling parity on September 19<sup>th</sup>.

This was arguably the most important economic policy decision of the 1930s. What is surprising, in retrospect, is that the Bank of England and the government did not do more to defend the sterling parity in which they were so heavily invested. An increase in the Bank's

discount rate was considered on 16 July but rejected. The rate was raised by one point to 3.5 per cent on 23 July and but another point a week later. But, remarkably, this was the last increase prior to the suspension of gold convertibility in mid-September. For its part, the Labour Government pushed through modest budgetary economies, but it was unable to agree on significant cuts in unemployment benefit, ultimately resigning over the issue. Its effort was modest by the standards of, say, France, where the economy was put through a deflationary wringer for five additional years in a desperate effort to preserve the gold standard.

This comparative perspective helps one to understand why the Bank of England and the British government responded as they did. Open unemployment was much higher in Britain; unlike France, there was virtually no agricultural sector for jobless workers to retreat to. Interest rates hikes and cuts in public spending that further weakened domestic demand thus threatened to aggravate an already intolerable problem. “At the onset of the Great Depression,” Janeway (1995-6, p.255) writes, “Britain had already suffered nearly a decade of unemployment in excess of one million insured workers. This was the central economic fact that constrained monetary policy throughout the period.”

Not just the Bank of England but the British government was constrained. The government in office from 1929 through mid-1931 was beholden to labor; its French counterpart had a more diversified constituency. Writing of the political impact of high unemployment, Fraser (1933, p.113) observed that “A democratic government cannot shut its eyes to such things, and, consciously or unconsciously, the British Government were influenced by them, and so they chose the policy that would minimize social unrest.”

Finally, in Britain, unlike France and other European countries, there was no searing

experience with high inflation in the 1920s to look back upon. To be sure, there were fears that cutting the golden anchor might auger runaway inflation, but these were less immediate, and hence less of a deterrent, than on the Continent where there had been first-hand experience with high inflation.

In the three months following its departure from gold, sterling fell from 4.86 to around 3.40 against the U.S. dollar. While the currency's decline enhanced the competitiveness of British goods, the positive effects were limited, given that international markets were not exactly firing on all cylinders. At least British exports stabilized in 1932, as Figure 7 shows, while continuing to fall elsewhere at an alarming rate. This much is explained by the depreciation of sterling.

But what went down could also go up: sterling appreciated on an effective basis starting in 1933 as a result of depreciation abroad (mainly depreciation of the U.S. dollar), reversing out the preceding competitiveness gains. Whether they were completely or only partially neutralized depends on whether one prefers the effective exchange rate index of Dimsdale (1981) or Redmond (1984), which differ by their choice of trade and country weights. Either way, the question becomes how British exports could continue to expand through 1936 despite their continued stagnation on the Continent.

The answer lies in the relatively early and robust recovery of the British economy, powered by a more accommodating monetary policy (Dimsdale 1984, Worwick 1984). The Bank of England responded to the removal of the gold-standard constraints by cutting interest rates to 2 per cent and keeping them there. The banks were helped by this decline in funding costs. Since their liabilities were denominated in sterling, their balance sheets were not

compromised by depreciation of sterling, in contrast to the situation in other countries (Grossman 1994). With no bank failures to destroy the value of financial assets, consumption remained stable by international standards (Richardson 1967, Broadberry 1988). Bond yields were also pushed down, enabling the government in the summer of 1932 to convert the 5 per cent War Loan to an issue yielding a more economical 3.5 per cent, in turn allowing its limited fiscal resources to be redeployed to other uses like support for the unemployed and salaries for public servants which had a more immediate impact on aggregate demand.

**Cheap money**, as this policy came to be known, thus supported domestic demand, the demand for interest-sensitive consumer durables and housing services in particular. Average monthly mortgage payments on new homes declined by 9 per cent between 1931 and 1933. Residential construction stabilized and recovered robustly. The increase in house building accounted for 17 per cent of the increase in GNP between 1932 and 1934. Together with the associated sectors (those producing bricks, tiles, pipes and other construction materials), it accounted for 30 per cent of the increase in employment in the first three years of recovery. The impact of the housing boom did not stop there; residential construction stimulated the demand for the products of industries producing everything from electric irons to radios. Broadberry (1987) finds that cheap money accounted for roughly half of the cumulative increase in housing investment, with rising incomes and falling construction costs accounting for the remainder. Bowden (1988) finds similar effects of cheap money on the demand for and production of consumer durables.

As activity recovered, led by the construction sector, so did the demand for imports (Figure 8). And, as Britain's productive capacity came back on line, more traded goods were

produced and exported to pay for raw material and consumer goods imports demanded by firms and households. But fewer than one in ten of all new jobs was in an export-linked sector. This is all by way of saying that economic recovery in the 1930s was led by domestic demand and that the recovery of exports was a corollary. Other countries that abandoned the gold standard in the early 1930s recovered from the depression in similar fashion: the rate of growth was similar to Britain's, the role of cheap money was similar, and the dominance of domestic demand was similar. In contrast, the economies of the gold bloc (France, Belgium, the Netherlands, Switzerland) continued to stagnate under the burden of high exchange rates and high interest rates (Figure 9).

## 7. Fiscal Policy

Compared to cheap money, fiscal policy played little role in the recovery. This may come as a surprise to students of Keynesian economics, who are taught that fiscal policy is particularly effective for fighting depressions and that Keynes' followers had demonstrated this in the 1930s. To be sure, Keynes and others had elaborated the case for a **countercyclical fiscal policy** to both the Macmillan Committee investigating the connections between trade and industry and the **Economic Advisory Council** advising the Government. But there remained obstacles to its implementation. Adherents to the "Treasury view" warned that an increase in deficit spending might raise questions about the prudence of a government with a history of budgetary problems and thereby undermine confidence and investment. A £500 million increase in government spending, which Thomas (1976) and Dimsdale and Horsewood (1995) estimate would have been required to put even a tenth of the unemployed back to work, would have

radically transformed a central government budget amounting to less than twice that amount, even if the additional spending had been spread out over a number of years.<sup>13</sup> Middleton (1985) exaggerates when he writes that such a program would have required the socialization of investment and the nationalization of industry, but he is right that it would have represented a very significant expansion of the role of government in the economy, something that did not yet command public support.

Although the budget swung from a surplus of 0.4 per cent of GNP in 1929/30 to a deficit of 1.3 per cent of GDP in 1932/3, the **constant employment budget** (which corrects the actual budget for changes induced by the business cycle) in fact strengthened rather than weakening -- from a surplus 0.4 per cent of GDP in 1929/30 to a surplus 3.0 per cent of GDP in 1932/3 (Middleton 1981) -- as the authorities raised taxes and cut spending in a desperate attempt to keep the deficit from widening further. Only in 1936-7 did the constant employment surplus decline significantly. This reflected not any putative influence of the Keynesian Revolution on economic policy but diplomatic and military storm clouds. Defense spending rose from 2.7 per cent of GDP in fiscal year 1935/6 to 7.7 per cent in 1938/9. A radical break with traditional fiscal policy had finally taken place but without forcing the socialization of the British economy or undermining investor confidence, due more to Mr. Hitler than Mr. Keynes. Thomas (1983)

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<sup>13</sup>Matthews (1989) argues that a public spending program of this magnitude would have put a much larger number of the unemployed back to work but via a mechanism that most economists would regard as fantastic. He assumes that the fiscal expansion would have been financed by printing money -- hardly plausible behavior for a central bank constrained to defend a fixed exchange rate for the first three years of the period under consideration -- and that increased deficit spending would have induced an outward shift in labor supply by pushing up prices and reducing the real value of unemployment benefits, not a mechanism that most economists would regard as the major transmission channel for fiscal policy.

shows that spending on rearmament stimulated output and employment not just in defense-related industries such as iron, steel and engineering but economy wide. He estimates that it created 445,000 jobs already in 1935, reabsorbing some 15 per cent of the unemployed, and that by 1938 the number of jobs so created had risen to 1.5 million. Together with the monetary flexibility that a floating exchange rate conferred, rearmament spending mitigated the severity of the 1937-38 downturn, which proved modest by the standards of both 1920-21 and 1930-31. Note the contrast with the rest of Europe, in Figure 1. While rearmament spending was well underway in Germany, with analogous macroeconomic effects (Silverman 1985), the same was yet true in few other European countries.

## **8. Protection and Competition**

The other innovation in fiscal policy was the tariff. No one suffered more from the slump than producers of internationally traded goods; by the early 1930s producers in a variety of other sectors had joined the basic industries in blaming import competition for their plight. The political setback suffered by the Labour Party, which had the bad luck of occupying Downing Street when the 1931 financial crisis struck, allowed the Conservatives to finally push through the general tariff they had long espoused. It was shepherded in by a new Chancellor of the Exchequer, Neville Chamberlain, son of the long-time Conservative champion of protection. Adopted in 1932, **the General Tariff** applied a 10 per cent tax to imports, exempting only raw materials, and established an **Import Duties Advisory Committee** to consider applications for higher rates. To prevent the tariff from disrupting relations with the Commonwealth countries, the government met with their representatives in Ottawa and negotiated an agreement to extend

preferential treatment to their exports in return for concessions on their treatment of British goods.

Most historians are skeptical that the tariff was a major factor in recovery. To the extent that it strengthened the balance of trade, the tariff would have induced an appreciation of sterling, since the exchange rate was now floating. That stronger exchange rate would have neutralized any tendency for the tariff to switch expenditure toward domestic goods.

To be sure, sterling's float was less than free. An Exchange Equalization Account was established to intervene in the foreign exchange market and prevent sterling from appreciating excessively. Given this, most observers agree that the tariff pushed up prices, which was helpful in a period when prices worldwide were collapsing. Higher prices stimulated aggregate supply and were good for profitability. As a result, there was probably some modestly positive macroeconomic effect.

Still, the impact was almost certainly small; with unemployment in excess of 20 per cent of the labor force, a modest increase in the relative price of imported goods could not solve the underlying problem. Foreman-Peck (1981) estimates that the tariff raised British output by 3 per cent; Okun's Law suggests that this might have reduced the unemployment rate by 1 1/2 percentage points. Kitson and Solomou (1990) argue that the tariff may have had a larger impact insofar as it shifted resources toward sectors characterized by economies of scale and consequently gave a relatively powerful boost to output and productivity. Other historians remain more skeptical.

Where the tariff may have mattered most was in slowing the transfer of resources to new uses and creating a cozy environment sheltered from the chill winds of competition. In both the



1920s and 1930s, the rate of change of the sectoral allocation of resources (as measured by Matthews, Feinstein and Odling-Smee 1982) was considerably slower than it would become after World War II. To be sure, employment in the staple trades, which felt the pressure of import competition most intensely and received the most generous tariff protection, continued to fall in the 1930s (by almost a quarter in the nine years ending in 1938). But it would have fallen even faster in the absence of the tariff. Employment in the new industries continued to rise (by more than a quarter over the same nine-year period), but it would have risen even faster in the absence of the tariff. One indication of the limited pace of adjustment is that on the eve of World War II the number of workers employed in the new industries still only barely surpassed the number working in the staple trades.

The effects of this delayed transformation were not immediately catastrophic; there remained efficiency gains to be ground out of the basic industries by raising capital/labor ratios. For instance, 61 per cent of all coal was cut by machinery by 1939, while 54 per cent was mechanically conveyed, up from just 8 and 2 per cent respectively in 1913. As a result, output per man-shift rose by 14 per cent (Court 1945). Increases in labor productivity of 1/2 per cent a year were hardly grounds for self-congratulation, but they were enough to keep most British coal mines in business. Moreover, given the unemployment and idle capacity with which the economy entered the 1930s, there was an argument for any policy that might put under-utilized resources to work and at any task, not just those with the brightest prospects. And, yet, with benefit of hindsight it can be argued that Britain would have been better off after World War II had she been faster to reallocate resources to sectors that were technologically more dynamic and where demand was more buoyant -- and had she not hindered the process in the 1930s by

imposing a tariff. The fact that countries where pre-1945 economic arrangements were more extensively disrupted by the Second World War grew faster and more persistently in its aftermath is consistent with this view.

The effects of the tariff were more pernicious to the extent that they interacted with other policies of encouraging industrial consolidation and concentration. Looking to the experience of the United States, officials and industrialists concluded that the **economies of scale** associated with large firm size were the key to raising efficiency. This belief had already led to a first wave of mergers already during World War I and the 1920s, the most spectacular being the creation of ICI, the British chemicals giant, in 1926. Following this lead, large enterprises appeared in a variety of industries including motor vehicles, retailing, and electrical engineering (Hannah 1983).

This process of merger and amalgamation accelerated sharply in the 1930s due to government intervention. The state's involvement reflected experience during World War I, when intervention had coincided with (contemporaries would have said "produced") considerable productivity growth. Subsequent interventions in the affairs of industry by the Treasury and the Bank of England were inspired by this episode and reflected the perception that the economic crisis of the 1930s was an emergency tantamount to war. The shipbuilding industry, with government encouragement, established the National Shipbuilders' Security Ltd to buy poorly equipped, outdated yards. The British Iron and Steel Federation worked hand in glove, or hand in pocket, with the state to merge complementary firms and regulate the supply of raw materials. State control went furthest in the Coal Mines Act of 1930, which gave workers shorter hours in return for their acceding to the **cartelization** of production and empowered the

government to compel the amalgamation of competing firms.

If economies of scale were the promise held out consolidation, high levels of industrial concentration were the danger. Sheltered from import competition, a handful of firms commanding the lion's share of the domestic market could raise prices at will. They could reach market-sharing agreements (a practice encouraged by the government as a way of facilitating orderly competition), which removed the incentive to develop and adopt new technologies and to otherwise reduce costs in the effort to gain market share. They could threaten a price war against firms tempted to invest in new technologies or to undercut cartel prices. The tendency for the tariff to inhibit competition was reinforced by the practice of the Import Duties Advisory Committee, the body that set rates, to extend more generous protection to industries that demonstrated a willingness to reduce excess capacity through merger and consolidation. The idea may have been to encourage British producers to reduce costs, but the effect was to enable them to raise mark-ups.

In contrast to the situation in the United States, collusion by producers was not restrained by a modern anti-trust act until the second half of the 1950s. This allowed as much as half of manufactured output to be produced by cartel members in the mid-1930s (Crafts 1999), leading one contemporary to pessimistically observe that "as a feature of industrial and commercial organization free competition has nearly disappeared from the British scene" (Lucas 1937, p.64).

The results are not hard to see. In the 1930s the inter-industry correlation between mergers and productivity growth was negative, not positive as the mergers-as-a-response-to-scale-economies hypothesis would lead one to predict. This is unsurprising insofar as measures

to limit competition were felt most strongly in sectors such as food, drink, tobacco and textiles, where scale economies were hardly pronounced. Broadberry and Crafts (1990a, 1990b) find that more concentrated industries had larger productivity gaps vis-a-vis their American counterparts. The shortfall was largest in long-established sectors like hosiery and lace, railway rolling stock, iron and steel, leather, china, glass and clothing that enjoyed the most generous effective rates of tariff protection.

Policy toward these sectors, these authors conclude, permitted the preservation of inefficient firms, incompetent managers, and anachronistic practices (Gourvish 1987). In an environment sheltered from competition, with rents available even to inefficient firms, there was less pressure to replace poor managers. The persistence of family control and, in the case of joint-stock companies, the disbursal of shareholdings (reflecting the divorce of banks from industry) rendered the hostile takeover as a source of market discipline virtually unknown. All this limited the incentive to invest in the capital-intensive manufacturing techniques pioneered by large American corporations, to reorganize factory layout to permit use of the electric unit drive, to reorganize the firm along multidivisional lines, and to invest in R&D. To be sure, this cozy collusive environment is not the entire explanation for the reluctance of British firms to invest in American-style mass production methods; also important, as Broadberry (1997) has emphasized, was the relatively small size of final-goods markets, which made it difficult to exploit economies of scale. But here too policy mattered; the policy of imperial preference pursued after Ottawa linked Britain's sales to slowly growing Commonwealth markets, a problem that became increasingly evident after World War II.

Also weakened was the incentive to rationalize labor relations and for firms to install new

technologies over the objections of workers. Lazonick (1981) and McKinlay and Zeitlin (1989) show that cotton textile and engineering firms continued to use labor-intensive low-speed techniques in order to avoid incurring high capital costs and incurring the wrath of their workers. The reluctance to install new technologies was evident even in new industries such as motor vehicles; Lewchuk (1987) shows that British vehicle producers shunned Henry Ford's capital-intensive mass production methods in order to limit their vulnerability to slowdowns, something which they could afford as a result of the protection afforded by the tariff and an **oligopoly** dominated by Morris Motors. Admittedly, high levels of unemployment, by eroding the bargaining power of unions, may have enhanced the ability of firms to push for organizational and technical change, but the rise of cartelization and protection diluted the incentives for doing so.

This litany of woes runs the risk of overstating the case. By the end of the 1930s some 250 British firms had adopted modern techniques of managerial control (including the multi-divisional form). Modern cost accounting had been installed, and top management was being professionalized. Spending on research and development tripled over the course of the decade. New products and processes proliferated, fueling hopes of the emergence of a "development bloc" of modern industries. But quantitative analyses of British productivity are damning. Rostas's (1948) pioneering study found that net output per worker in manufacturing in the UK in the second half of the 1930s was 11 per cent higher in Germany. Germany may have suffered from some of the same collusive practices as Britain, but she nonetheless had an advantage in heavy industry where plant size was larger (Broadberry and Fremdling 1990). And worker productivity was an astounding 125 per cent higher in the United States. These discrepancies

would have been less disturbing had the gap closed quickly after World War II. But in the late 1940s U.S. labor productivity was still 150 per cent higher in heavy industry and 67 per cent higher in light industry (Frankel 1957, Broadberry and Crafts 1990c), and Britain did little to narrow the gap over the three subsequent decades. Evidently, the problems that developed in the interwar period proved remarkably persistent.

Thus, the interwar period had conflicting implications for short-run macroeconomic stabilization and long-term growth. This was true in particular of the policies pursued in the 1930s, which developed out of the expanding role of government in the economy during the Great War and in the decade that followed. In a strongly deflationary environment like that of the 1930s, anything that pushed up prices and boosted demand was good for employment, profitability, and financial stability. This included cheap money, the tariff, and even inducements to industrial collusion that prevented disastrous bankruptcies and disorderly exit that might have destabilized financial markets. But by creating an anti-competitive environment and reducing the incentive for firms to make hard choices, these same policies slowed the pace of structural and organizational change, which prepared Britain poorly for participation in the more intensely competitive world economy that emerged after World War II. The same policies that helped with the immediate economic crisis thus positioned Britain poorly to compete in the long run.

## Statistical Appendix

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The data underlying Figures 2 and 3 come from Maddison (1982). The one exception is GDP figures for Britain; these are Feinstein's revised estimates as reported in Mitchell (1988). Most other data were drawn from League of Nations publications which collected figures published by national statistical offices. All industrial production indices used in this chapter, for example, were taken from the League of Nations' *Monthly Statistical Bulletin* and *Statistical Year-Book*. Data on the volume of merchandise imports and exports were taken from the League's *International Trade and Balance of Payments* and *Memoranda on Balance of Payments and Foreign Trade Balances*, except for export and import volumes for Britain, which are from Mitchell (1988). These publications list the value as well as the volume of imports and exports; the ratio of value to volume was the implicit price deflator used to compute the international terms of trade. Central bank discount rates came from the *Year-Book* and the *Monthly Statistical Bulletin*. Contemporary unemployment statistics are from Eichengreen and Hatton (1985).

Since many national statistical offices were only set up in this period, there are significant gaps in the material available to historians. The strategy followed in constructing the figures here was to include only countries for which continuous series could be constructed. The main omissions are Germany and Austria in the early 1920s, for which estimates of economic activity and its components are difficult to reconstruct in the period of the hyper-inflation. In many cases two graphs were drawn, one starting in 1921 but omitting Germany and Austria, another starting in 1925. I have used the first such figure where the early 1920s features prominently in the discussion, the second where the experience of Germany and Austria seems particularly relevant.

The following table denotes with an asterisk countries that are included in each figure.

Appendix table 1

	Figure Number								
	1	2	3	4	5	6	7	8	9
<b>France</b>	*	*	*	*	*	*	*	*	*
<b>Germany</b>	*	*	*	*	*	*	*	*	*
<b>Italy</b>	*	*	*	*		*	*	*	*
<b>Denmark</b>	*	*	*	*	*	*	*	*	*
<b>Norway</b>	*	*	*	*	*	*	*	*	*
<b>Finland</b>	*	*	*		*	*	*	*	*
<b>Sweden</b>	*	*	*	*	*	*	*	*	*
<b>Switzerland</b>				*	*	*	*	*	
<b>Austria</b>		*		*					*
<b>Netherlands</b>	*	*	*	*	*	*	*	*	*
<b>Belgium</b>		*		*	*	*	*	*	*

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## Glossary

**Basic industries.** The industries of the first industrial revolution: coal, cotton, woolens and worsteds, shipbuilding, and iron and steel.

**Cartelization.** The practice of forming independent enterprises into a group with the goal of limiting competition.

**Cheap money.** Contemporary name for the low interest rate policy of the Bank of England following the abandonment of the gold standard and the depreciation of sterling in 1931.

**Constant employment budget.** The budget deficit or surplus that would have obtained had the level of employment not changed owing to the business cycle but fiscal policy had remained otherwise the same.

**Countercyclical fiscal policy.** A fiscal policy that becomes more (less) stimulative as the economy weakens (strengthens).

**Economic Advisory Council.** Created by the Labour Government in January 1930, it consisted of politicians and businessmen, supported by a five person staff.

**Economies of scale.** Efficiencies and cost savings achieved by expanding the scale or volume of production.

**Foreign currency reserves.** The central bank and government's holdings of claims on foreign governments (typically foreign-currency-denominated bills and bonds).

**General Tariff.** The ten per cent minimum ad valorem tariff placed on all imports other than food and selected raw materials starting in 1932.

**Import Duties Advisory Committee.** The body recommending alterations in the level of tariffs on various categories of imports in the 1930s.

**Macmillan Gap.** The idea, developed in expert testimony heard by the Macmillan Committee (formally, the Committee on Finance and Industry, which reported in 1931), that small firms found it difficult to get access to external finance.

**Oligopoly.** A small group of producers that acts collusively to restrict output and raise prices.

**Total factor productivity.** The productivity of an income-share-weighted average of inputs (of capital, labor and land) into production.

**Trade Boards Act.** A 1909 Act of Parliament creating labor-management councils to set minimum wages for low-paid workers (principally women and juveniles). Extended to other

low-paid trades in 1918.

**Table 1**  
**Output Per Worker (Normalized to 100 in 1913)**

	<b>Belg</b>	<b>Den</b>	<b>France</b>	<b>Germany</b>	<b>Italy</b>	<b>Holland</b>	<b>Norway</b>	<b>Sweden</b>	<b>Switz</b>	<b>UK</b>	<u><b>Memo Item</b></u>	
											<b>Canada</b>	<b>US</b>
1913	100	100	100	100	100	100	100	100	100	100	100	100
1929	199	116	137	96	126	130	141	102	147	122	112	147
1938	124	119	126	122	145	125	159	128	156	144	104	136
1950	150	146	146	124	153	134	191	171	175	159	167	177

Source: Maddison (1995), Table 2-7(a).

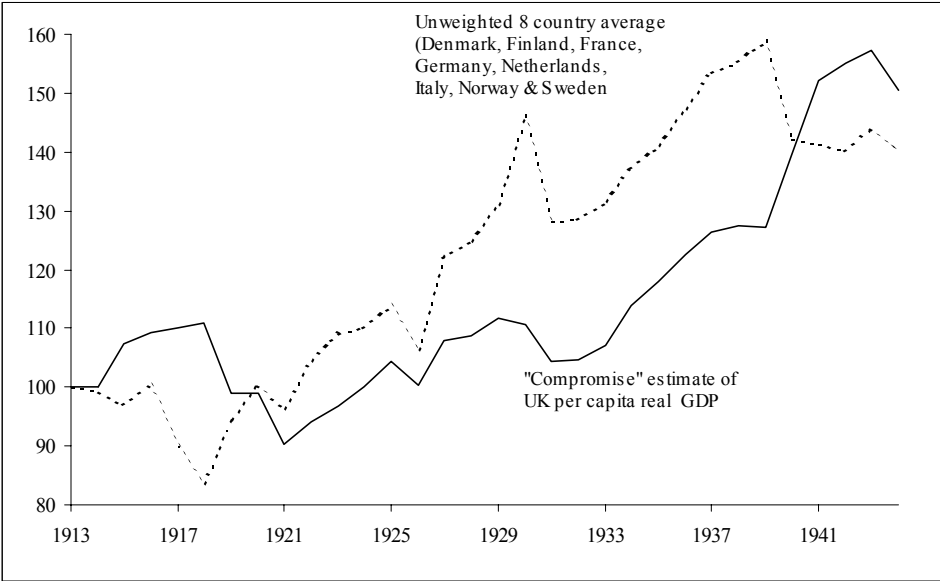
**Table 2**  
**Annual Average Rate of Growth of Net Nonresidential Capital Stock per Person Employed**  
**and Total Factor Productivity, 1913-1950**

	Nonresidential Capital	Productivity
France	1.18	0.67
Germany	0.51	0.28
Netherlands	0.88	0.34
US	0.42	1.26
UK	1.04	0.35
Average excluding UK	0.75	0.64

Source: Derived from Maddison (1991).



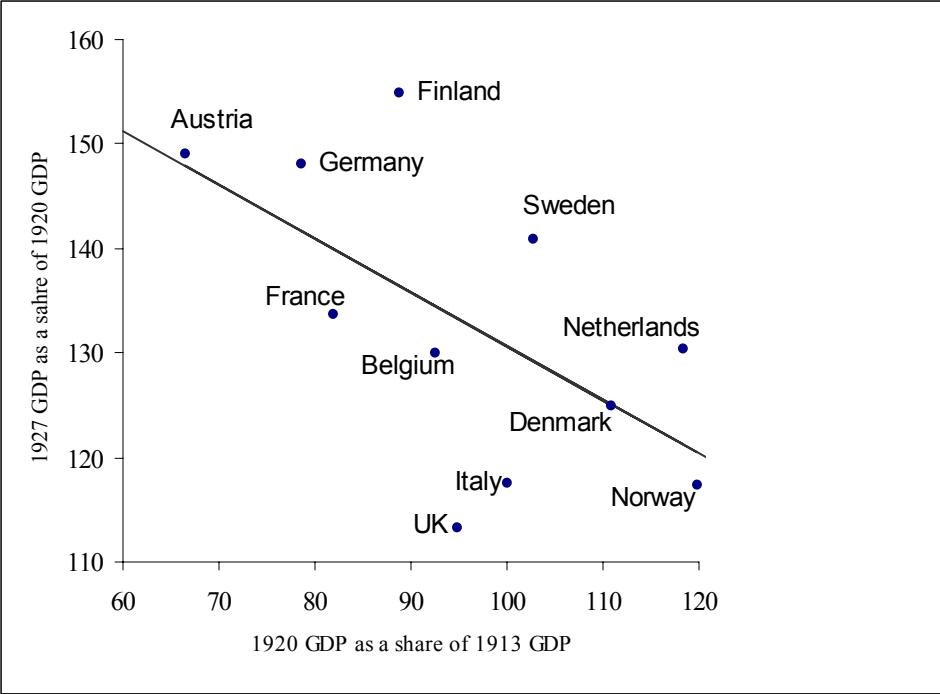
**Figure 1: Per capita GDP for eight European countries and the UK, 1913-1944**



*Note:* 1913=100.

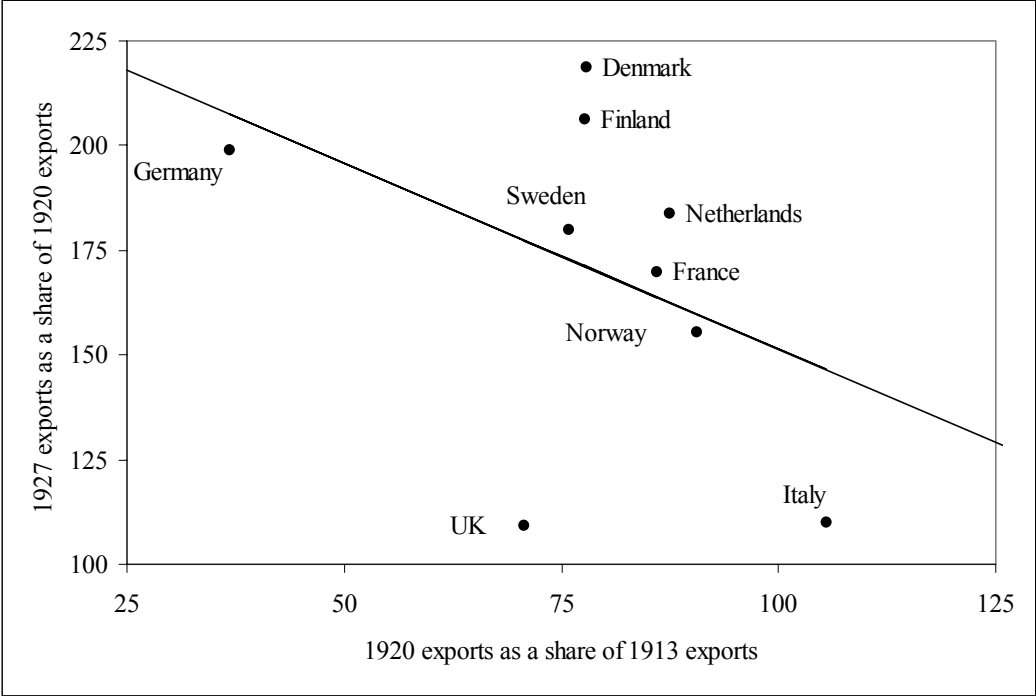
*Sources:* Maddison (1982) and Mitchell (1988).

**Figure 2: Postwar growth and the wartime setback, 1913, 1920 and 1927**



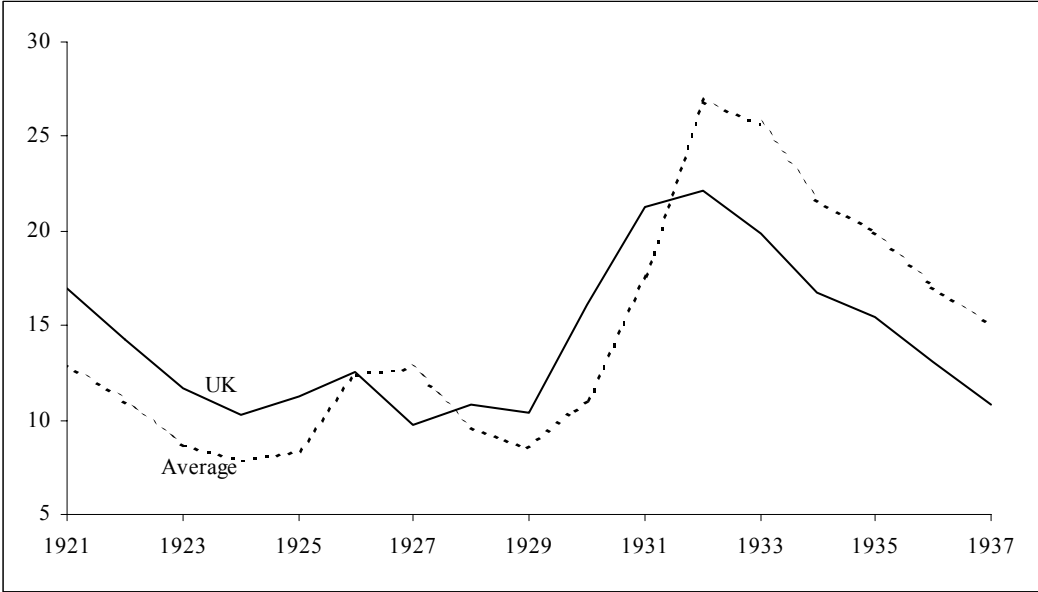
Source: See Appendix.

**Figure 3: Exports as a share of GNP in Britain and Europe, 1920 and 1927**



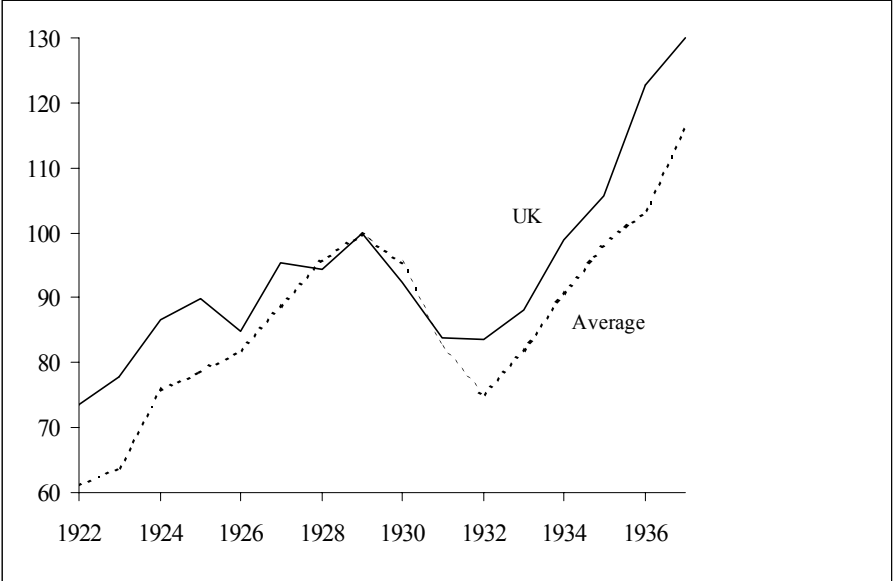
Source: See Appendix.

**Figure 4: Unemployment rate in industry in Britain and Europe, 1921-37**



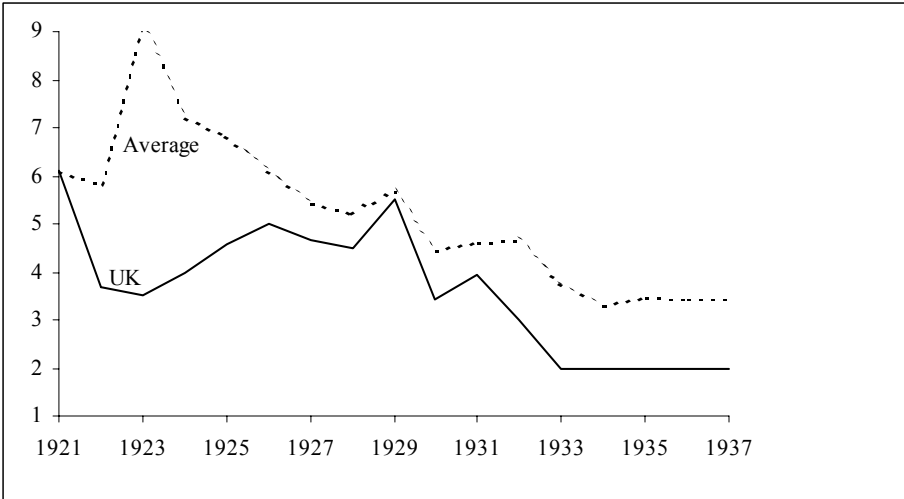
Source: See Appendix.

**Figure 5: Industrial production in Britain and Europe, 1922-1937**



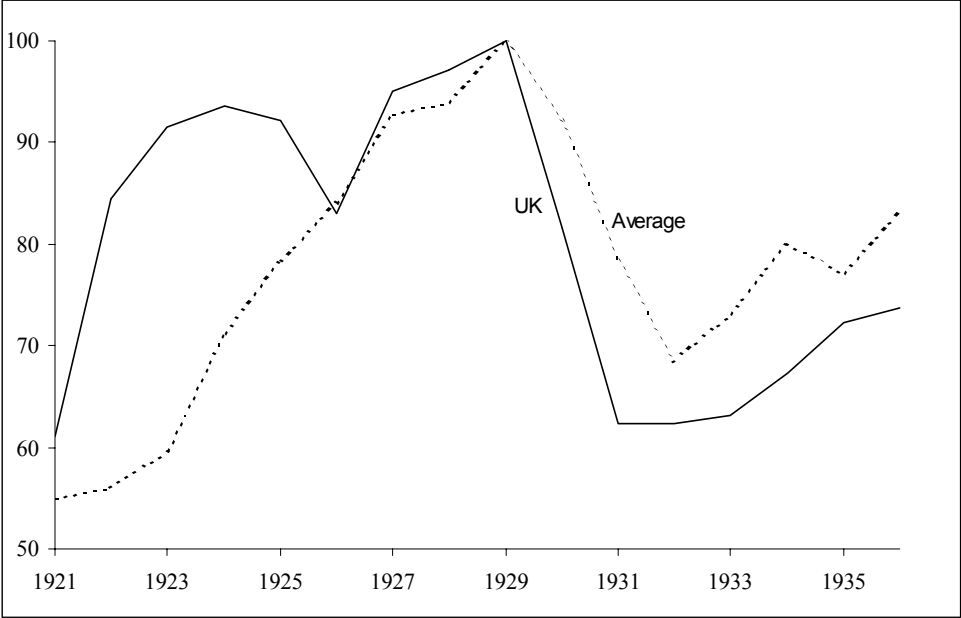
Source: See Appendix.

**Figure 6: Central bank discount rates, 1921-37**



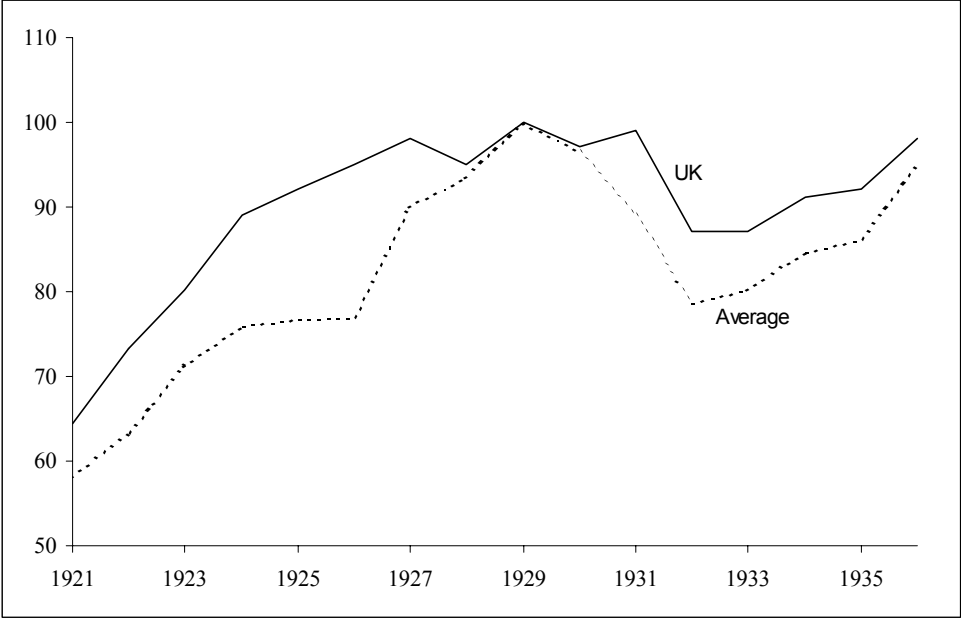
Source: See Appendix.

**Figure 7: Volume of British and European exports, 1921-36**



Source: Appendix.

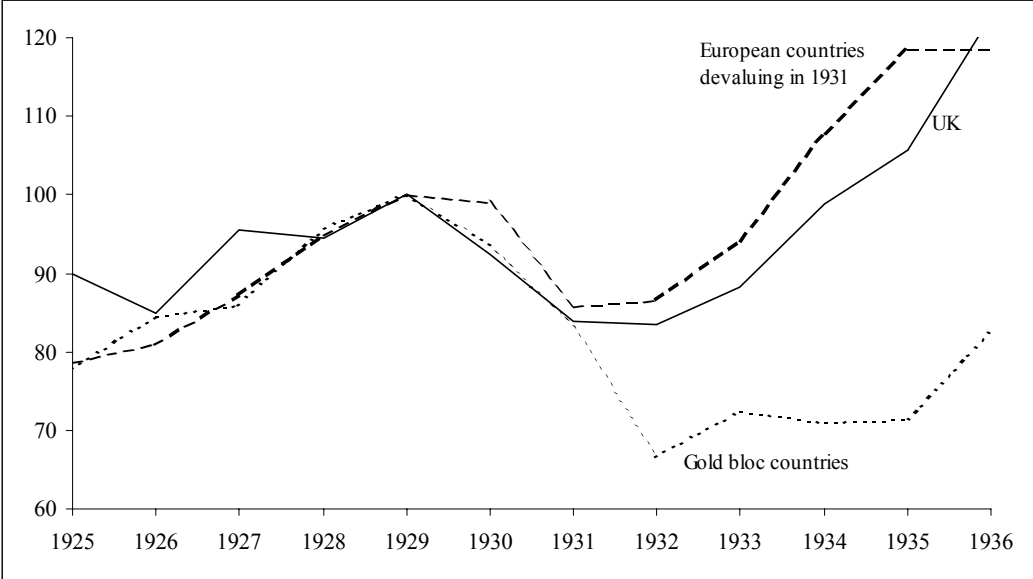
**Figure 8: Volume of British and European imports, 1921-36**



Source: Appendix.



**Figure 9: Industrial production of gold and non-gold countries, 1925-36**



Source: See Appendix.