

At some point before the First World War Britain lost its pre-eminent position as the workshop of the world. Output ceased to grow as rapidly as it had in the past, and Britain started the long process of decline relative to other countries. Exactly when did this occur and why did it happen? In this article Professor Charles Feinstein considers the most recent evidence on the nature and timing of these aspects of British economic growth, and discusses some of the possible explanations.

Slowing Down and Falling Behind

By the end of the nineteenth century many people in Britain had become aware that their country had gradually slipped from the position of unrivalled economic supremacy which it had enjoyed for over a hundred years. The most obvious sign of difficult times occurred in the Great Depression of the mid-1880s, after more than a decade of steeply falling prices had caused both a sharp decline in incomes from arable farming and reduced profits for many manufacturers. The collapse of arable farming in the face of growing supplies of cheap imports hit both farmers and landowners very hard, and this sector of agriculture never recovered its former prosperity. But for the rest of the economy the fall in prices was only a temporary and, in many respects, a secondary problem. Indeed, for the majority of wage-earners it was actually very beneficial, since falling prices increased the purchasing power of their meagre earnings.

The more fundamental issues concerned the performance of real economy, what was happening to the physical quantities of goods made in Britain and sold at home and abroad. The volume of output and of exports continued to grow even while prices were falling, but nevertheless there were awkward questions to be considered. Was the output of Britain's factories and mines still increasing at a pace as rapid as in the first half of the century? Or was the economy beginning to age, to slow down? Was industry continuing to improve the methods it used, to introduce new products and new processes, or were there increasing signs that too many firms were too often content to carry on with old methods? Was tradition and habit more in evidence among both managers and workers than enterprise and innovation? Above all, were foreigners starting to overtake Britain? Did they have better equipment, more labour-saving spindles, more coal-cutting machines, bigger blast furnaces? Were they now ahead of Britain in developing superior ways of organising production, including large-scale units, the use of inter-changeable parts and standardisation of output?

Contemporaries relied for their answers on the official statistics of imports and exports; and on their own enquiries and observations. Several made anxious visits to the continent and the United States to compare production techniques and labour costs. Historians can supplement this record by reference to the indicators of output and productivity which have been developed by modern national income statisticians. Two crucial aspects call for discussion. We look first at the question whether the British economy was slowing down relative to its own past performance. Then we turn to the question of whether it was growing more slowly than the latecomers to industrialisation, notably Germany and the United States. Either or both might be true. If so, we need to determine as best we can when these trends began and to discuss what caused them.

Slowing down?

We begin by looking at the output of goods and services across the whole economy, as measured by gross domestic product (GDP) and we take *real GDP per worker* as our best overall guide to economic performance. By measuring output in real terms we eliminate the effects of changing prices, for example,

the steep fall from 1873-96 and the subsequent increase. By measuring output per worker (productivity) we eliminate the part of increased output achieved simply by employing extra workers. We thus have a broad measure of the efficiency with which the economy was operating. Reasonably reliable statistics of GDP per worker are available on an annual basis from 1856, and from these we can calculate the annual percentage rate of growth (i.e. the compound rate at which GDP per worker increased over the period). The results are shown in the first three columns of Table 1. In the fourth column we add a further series, also for real output per worker, but restricted to cover only the industrial sector (i.e. excluding agriculture, transport, distribution and other services). For the purpose of calculating the growth rates the data are grouped in two 'long swings', the first running from 1856 to 1882, the second from 1882 to 1913. Each of these in turn subdivides into two shorter phases: an upswing of one or two cycles with more rapid growth, followed by a downswing with slower growth.

There is, unfortunately, a series of problems which complicates the interpretation of this quantitative record, and we must consider this before we examine the results. It arises from an embarrassment of riches: we have not one, but three, estimates of GDP. The first (see col. 1) is compiled by adding together data on wages, profits, rents, and other incomes, and correcting for price changes. The second (col. 2) is from data on final expenditure at constant prices on goods and services for consumption (including current expenditure by central and local government), capital formation, and exports less imports. The third (col. 3) is obtained from physical indicators of production of all categories of goods and services. The estimates used in Table I are the most recent available, and incorporate a number of revisions to earlier series. If the statistical information at our disposal was perfect all three measures should give the identical result. Unfortunately, this is not always the case and, as we see below, there are a number of significant discrepancies between the three series.

Scrutiny of the figures in Table I shows that all three series agree that the rate of growth over the full period 1856-1913 was about 1 percent per annum; and all three also agree that there was some falling away in the second long swing: from about 1.2 to 0.8 percent per annum. However, when the four shorter phases are examined in the bottom panel of the table there are striking discrepancies. In particular, the income and expenditure estimates show a revival of growth rates between 1882 and 1899, followed by a very sharp deceleration to a nearly stagnant position from 1899 to 1913. By contrast, the output estimate in col. 3 shows a slow but sustained fall after 1881 (see figure 1). Furthermore, when the calculation is confined to the industrial sector the decline is shown to have started even earlier (col. 4), and there is a steady deceleration after 1873.

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Table I

GROWTH OF REAL OUTPUT PER WORKER, 1856-1913 (Annual percentage growth rates)				
	Income data (1)	Expenditure data (2)	Output data (3)	Industrial production (4)
<i>Whole period:</i>				
1856-1913	1.0	1.0	0.95	1.15
<i>Two long swings:</i>				
1856-1882	1.2	1.3	1.15	1.5
1882-1913	0.9	0.8	0.8	0.8
<i>Four phases:</i>				
1856-1873	1.3	1.4	1.1	1.6
1873-1882	0.9	1.0	1.2	1.4
1882-1899	1.4	1.2	0.8	0.9
1899-1913	0.3	0.3	0.7	0.7

Source: Feinstein [3].

A possible resolution of the conflict

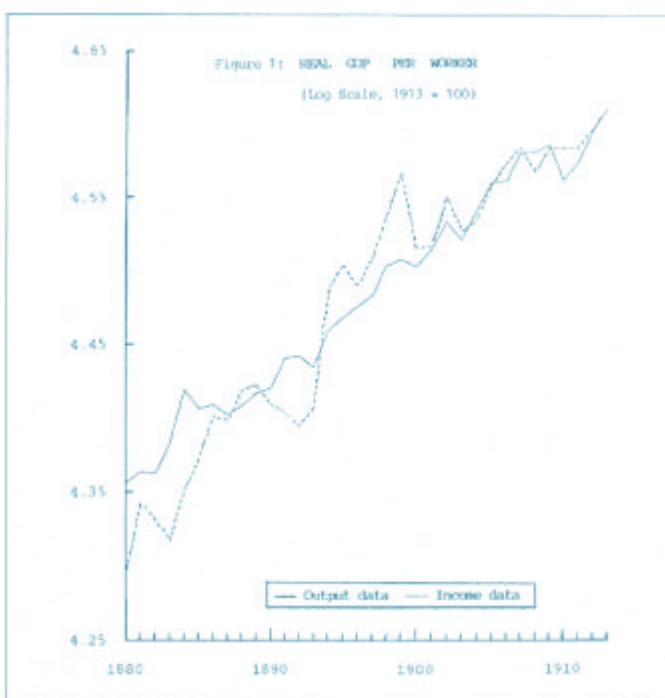
just as the historian who relies on qualitative evidence often finds that two witnesses to an episode give conflicting accounts of what happened, so here the quantitative historian is offered two very different results. According to one set of estimates (cols. 1 and 2) productivity growth flagged in the 1870s, but revived strongly for the last two decades of the century, and it was only in the Edwardian period that there was a dramatic deterioration - what has been called the climacteric. According to the other estimates (cols. 3 and 4) the check to growth occurred much earlier, and was both more continuous and more gentle. This discrepancy has been the source of much confusion in the literature. Some writers [for example, 5] have used only the output data and have analysed the growth of the British economy around a story of deceleration after 1873. Other [for example, 6, 7] have relied primarily on the income or the expenditure data, and have accordingly argued for a check to growth only after the turn of the century. If we cannot be sure about either the timing or the extent of the break in growth it is difficult to have a sensible discussion of its causes.

In a forthcoming article [Feinstein, 3] I have tried to make some progress towards a resolution of this dilemma. The basis for this is the behaviour of the average real wage per worker, a major component of the income estimate of real GDP per worker. In the article I first assess the reliability of the data on average real incomes, and demonstrate that some revisions are required, but even after there are made the estimates show a significant worsening in the position after the turn of the century. The proposition that there was indeed a dramatic change in trend in this period is supported in my view by the fact that the final years of Edwardian era also witnessed an abnormally high level of industrial unrest. There were major disputes in a wide range of industries, and from 1908 to 1914 the number of working days lost through strikes was running at an average level of almost 14 million per year, compared to the preceding rate of only two to three million per year. It was widely believed at the time that one of the major reasons for this unrest was the fact that real wages had fallen as money wages failed to keep pace with the cost of living.

The article then considers various possible explanations for this check to the growth of real wages. These include a redistribution of income to capital at the expense of labour, a rise in prices with money wages lagging behind, an adverse movement in the terms of trade on which exports were exchanged for imports, and a concurrent check to the growth of productivity. The conclusion which emerges is that the first three of these explanations are incompatible with the existing statistical and other evidence, and we are thus left with the productivity climacteric. In other words, the real income of both labour and capital did badly in the Edwardian period

because the economy was no longer able to generate more rapid growth of income.

If this is correct it must cast doubt on the very different picture suggested by the output data, and the article concludes by putting forward a very tentative hypothesis to explain this. The suggestion is that the output estimates understate both the rise in activity in cyclical upswings, and the fall in activity in cyclical downswings. The contrast between the income and output estimates of GDP per worker can be seen in Figure 1: the former shows much larger fluctuations than the latter, notably in the depression of the early 1880s and in the boom at the end of the 1890s. It is possible to suggest a number of factors which might account for this characteristic of the output series. One important possibility is that many of the indicators on which the output index is based are in fact estimates of raw material inputs, not measures of output. For example, output of cotton or woollen cloth is measured by the corresponding supplies of yam, because contemporary statisticians have left us figures for the yam but not for the cloth. Similarly, output of machinery is measured by inputs of iron and steel, flour by supplies of wheat, furniture by imports of timber. The problem is that these and many other series make no adjustment for changes in the level of stocks held in ports and warehouses. They are thus likely to understate output in boom years if stocks of inputs were run down to meet unexpectedly large demands for the materials. Equally, they may overestimate output in depression years if unwanted materials were added to stocks. Since there is very little information about stocks it will be extremely difficult to check this hypothesis, but that is a task which should now receive urgent attention. Until that is done, the extent and timing of the retardation of British economic growth will remain uncertain.



Why was Britain falling behind?

There is very much less doubt about the decline in Britain's performance relative to other countries in the late nineteenth century. Over the period 1873-1913, when Britain's productivity growth rate was about 1 per cent per annum other countries, including the United States, France, Germany, Sweden, and Japan, all managed to increase their growth rates to between 1.5 and 2 per cent per annum. This weakening of Britain's relative superiority was also evident in many other indicators of performance. The equipment installed in many mills and factories was less advanced than that available in the best foreign plants; there was less standardization of output to get the advantage of long runs at lower costs, less modernization of managerial techniques; slower progress in the development of

the new industries: motor vehicles, chemicals and electricity; and less effective salesmanship. Above all, the loss of pre-eminence was brought home to contemporaries by the trends unmistakably visible in the trade statistics. In the face of fierce competition Britain was losing ground in foreign markets, not only in industrializing countries themselves, but also in third countries, especially in South America and Europe. Worse still, foreigners were gaining a steadily increasing share of Britain's own home market, particularly for the more advanced products like steel, machinery and electrical apparatus.

Explanations for this relative decline have ranged over a wide field. Many writers have emphasised the slower overall growth of *demand* for British products, caused by the loss of her position as the workshop of the world. Others have selected specific aspects of the *supply* of the various factors of production. Suggested causes of this type include the inferior quality of British workers and inadequate attention to industrial science; and restrictive practices on the part of the trade unions. A third school has argued that Britain's relative decline was largely inevitable, and that the explanation lies in the process of *catching-up*. It was not that Britain was doing badly, but rather that the latecomers were catching up, and were able to do so because of the advantages they enjoyed precisely because they *were* more backward than Britain. In this short article short article it is impossible to consider all of these possibilities, but I will single out two of the key issues for discussion: the slowdown in demand and the quality of entrepreneurship.

Slower growth of demand

For many scholars the starting point for the explanation of why Britain was slowing down and falling behind is to be found in the rise of foreign competition and the consequent slackening in the rate of growth of demand. In Arthur Lewis's words: 'The principal reason for the relative stagnation of British industry was that Britain had ceased to be the workshop of the world'

With exports of manufactures growing more slowly and imports rising, there was a sharp decline in the rate of growth of net exports (see Table 2) and thus in the overall demand for UK manufactures. To a very large extent this was an inevitable development. Britain's early start had given it a rich monopoly in the supply of manufactured goods, from cotton piece goods and ceramics to iron rails and machinery. But this was an artificial position for a small country, and it could not be sustained. Once other countries had reached a certain stage in their own development, they would acquire the ability to produce these goods for themselves, and if they could not at first compete with more efficient firms in Britain they showed no

GROWTH OF VOLUME OF UK EXPORTS, 1830-1913
(Annual percentage growth rates)

	1830-57	1857-73	1873-99	1899-1913
1. Total exports	5.6	3.1	1.9	3.0
2. Exports of manufactures	5.6	3.1	1.6	2.7
<i>of which</i>				
3. Cotton textiles	5.1	3.0	1.7	1.6
4. Other textiles	5.7	3.1	-0.4	1.5
5. Metals, machinery, etc.	6.7	2.3	2.9	3.4
6. Exports of coal	10.1	3.8	4.8	4.2
7. Exports less imports of manufactures	5.7	2.4	0.6	2.9

Source: [8].

hesitation in erecting high tariff barriers to protect their infant industries. In the first half of the century Britain's exports had expanded at an exceptionally rapid rate, and the country flourished on the back of export-led growth. In the second half of the century that process came to an end, and was replaced by what might be called export-retarded growth.

One leading writer has recently thrown down a strong challenge to this approach, denying that there was any limit to growth from the demand side [6]. His argument is that if demand was falling progressively below the productive capacity of the economy, there would automatically be a widening gap between potential supply and actual demand. This would inevitably be reflected in a growing lack of employment for productive resources. It is not possible to measure the extent of idle capital, but figures are available for unemployed labour. These fluctuate with the trade cycle but the average level does not show any tendency to increase over the period. McCloskey concluded from this that there was no increase in the degree of underutilisation of resources, and therefore dismisses the idea that a growing lack of demand created a limit to growth.

This assumes, however, that lack of demand for labour will only show itself in formal unemployment. In fact there are other several forms it could take. These include increased emigration; withdrawal from the labour force - for example, by married women or older men - who would otherwise continue to offer themselves for work; and movement into low-productivity occupations which would otherwise find it much more difficult to recruit labour. Over 4 million emigrants left the UK between 1870 and 1913, and some 2 million men and women were occupied in domestic service. In these circumstances it does not seem plausible to argue that the potential supply of labour was fully employed. There is, therefore, no obligation *on tiiese grounds* to rule out the proposition that a slowdown in the rate of growth of demand acted as an effective constraint on economic growth.

However, even if McCloskey's case is rejected, there are other problems with the demand-side explanation. It does not account for the slowdown in productivity growth in the cotton industry. The main explanation for this is clearly the working out of the effects of the revolutionary improvements made when manual labour was replaced by steam power. This process was completed in weaving by the 1850s, (with catastrophic results for the handloom weavers) and in spinning by the 1860s. No subsequent advances in technology could have had a comparable impact on productivity, and thus growth rates were bound to fall. In addition, foreign competition cannot directly explain the slow rise of the new industries, since they had never enjoyed a preceding period of export-led growth. There is also the awkward fact (see Table 2) that exports revived strongly in the Edwardian period, precisely when - on the earlier analysis - the slowdown in productivity growth was most acute.

Slower growth of demand as a consequence of the inevitable industrialisation of other countries may thus account for some part of the deceleration in Britain's productivity growth, particularly in some of the metal and engineering industries, but it cannot be the whole of the explanation. We turn finally to the supply side.

Entrepreneurial failure

The views of economic historians on the possible responsibility of entrepreneurs for Britain's relative decline have gone through many permutations. In the early stages of the postwar debate the most common view was that this was indeed the major source of weakness. This outlook was pungently stated by Landes [4]:

'Thus the Britain of the late nineteenth century basked complacently in the sunset of economic hegemony ... now it was the turn of the third generation, the children of affluence, tired of the tedium of trade and flushed with the bucolic aspirations of the country gentleman. [they] went through the motions of entrepreneurship between the long weekends; they worked at play and played at work'.

In the 1960s this view was challenged by a new group of scholars who took their starting point from orthodox (neoclassical) economics. In a series of important studies they looked at some of the most prominent examples of alleged entrepreneurial failure. These included the slowness to replace inule spindles by rings, and the neglect of the basic process of steelmaking, using the ample deposits of phosphoric iron ores available in Lincolnshire. By careful analysis of the costs of the raw materials and factor supplies available to Victorian businessmen they were able to show that the decisions which had been made were rational, i.e. the entrepreneurs has successfully adopted policies which minimized costs and/or maximized profits. The leading exponents of this school believed that they had rescued the reputation of Victorian entrepreneurs, and called their study: 'From Damnation to Redemption'. [6]

For a time this prevailed as the last word on the role of the entrepreneurs and then it came under attack [1]. Its opponents started by making the key point that it was essential to distinguish between management and entrepreneurship. The *manager's* task was to make rational decisions within an existing framework of markets and productive techniques. The *entrepreneur's* task was quite different. A successful entrepreneur was someone who could make changes in that framework, for example, by finding new goods to make, or new ways to produce or sell the product, or new structures for the firm or the industry. The test for a manager might be rationality, but for an entrepreneur it was innovation. The good manager made rational decisions subject to existing constraints. The dynamic entrepreneur changed those constraints.

Lazonick and other supporters of this approach produced a series of case studies which sought to show that *on this definition* Britain had suffered from entrepreneurial weakness, beginning in the Victorian period and continuing into the twentieth century. [11 Their explanation for this was not cultural and social, not innate conservatism or bucolic aspiration, but rather rigidities in economic and social institutions. They found numerous examples of this, from education and industrial relations, to capital markets and the role of the state. It was entrenched institutional structures which held back the transformation of Britain's productive system.

In particular, they emphasised the failure of Britain's entrepreneurs to create large-scale modern corporations in order to make the transition from competitive to corporate capitalism, on the lines pioneered in the United States. Within the former, large number of small firms relied on the 'invisible hand' of the market as the basis for their crucial decisions about what to produce and how to produce it. Within the latter, this was replaced by the 'visible hand' of corporate bureaucratic management. In their view this development was impeded by the vested interests of Britain's small family firms.

Lazonick's claim was that if this transformation could have been achieved, it would have yielded many substantial advantages. Large corporations would have encouraged the development of more professional forms of managerial specialization and co-ordination, not adopted in the UK until the 1930s. They would have increased the power and influence of industry relative to the City of London. They would have had a better appreciation of the need for appropriately trained managerial and technical personnel. They would have created

economics of scale in production. By internalizing the benefits of change they would have overcome the obstacles which separate small-scale firms experienced. For example, integrated cotton firms, undertaking both spinning and weaving, would have seen the benefits of producing yarn of the quality required to make profitable the introduction of automatic looms. They would have had the ability and the determination to take back control of the work process from the shop floor and the trade unions, and so overcome the obstacles to optimum utilization of capital-intensive technology created by restrictive practices.

This approach is thus very wide-ranging and embraces many aspects of Britain's social and economic structure. The distinction between rational managers and dynamic entrepreneurs is a good one and should never be forgotten. However, it is still too soon to judge whether the institutional analysis of Britain's economic problems will prove more durable than those it has sought to supercede. For example, the evidence does not immediately suggest that integrated cotton firms undertaking both spinning and weaving were more successful than specialized firms. In another industry, coal-mining, Supple [9] has questioned whether there were large and unexploited gains to be made by merging existing firms or mines; and a recent attempt to test the hypothesis that entrepreneurial weakness consisted primarily of the failure to create large-scale corporations has not found in its favour [2]. Furthermore, it is not at all obvious that the relative success of Germany or the United States in the late nineteenth century can be satisfactorily explained by these factors.

This review of the debate on retardation thus ends with many unanswered questions. There is still uncertainty about both the timing and the causes of the process. Much remains to be done before we can be confident that we have a proper understanding of the reasons for Britain's relative decline. The fact that a process which started in the late nineteenth century, has persisted – and indeed accelerated – through the twentieth century, must give added urgency and importance to this historical investigation.

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