PART I

Introduction

1

British economic growth in long-term perspective

I

There has been a sustained and almost pathological interest in recent years in the problems of the British economy, ranging from television programmes and popular writing to academic debate. Recent analyses have extended the search for explanations of the current malaise beyond the limited perspective of the recent past, within which political comment and economic analysis are often confined, to investigate development in the longer term and to seek the origins of contemporary difficulties in earlier times. Thus in conventional academic investigations, Kirby (1981) and Wiener (1981) sought explanations within the past century while, at a more popular level, television series and books by Eatwell (1982) and Dahrendorf (1982) traced the skein of cause and effect back to the eighteenth century and early industrialization.

There are very good grounds for adopting a long-term perspective since few if any economic problems, or for that matter economic successes, are instantly manifest. The purpose of this study is to provide a coherent and comprehensive explanation of the economic development of the British economy from the early eighteenth century to the present day. Several reasons suggest and warrant such a study. The British economic experience is worthy of examination in its own right, as indeed is any other historical investigation. But Britain played a unique and central role in world economic development, especially before 1914, so that the British experience and contribution is important in that wider context. Furthermore, current problems can be understood only imperfectly without an awareness of the nature of this earlier phase of development. One further reason may be suggested, and it is the one which primarily stimulated this study. There has been much interest in this subject such that its literature has greatly increased in both volume and quality in recent years. As a result, much new information and many reassessments have emerged. The traditional thesis that the Industrial Revolution was the origin and essence of modern

economic growth has remained dominant in British historiography for over a century. Interpretations have been shaped to conform to the precepts of this model, and specialized studies commissioned and pursued in accordance with its basic assumptions. It has passed into popular consciousness and common speech as a term, an image and an explanation of the past. This long and established tradition has not survived without question or challenge, as a variety of scholarly works written during the past century can testify, but it has retained the ascendant position in explanations. The appearance of much new work suggests that the time is ripe for a review of the conventional wisdom and its underlying thesis, and a reassessment of the past development and the current problems of the British economy.

II

Before embarking on an explanation of the process of economic development during the past three centuries, it is necessary to describe in outline the main characteristics of that development. As a result of the statistical work of many scholars in recent years, it is possible to describe the main parameters of that growth with considerable confidence. There is a substantial degree of agreement amongst the majority of reconstructive studies. It can reasonably be claimed that current estimates of long-term growth are set within fairly limited bounds of error. While such estimates cannot be taken as entirely certain in detail, a state of affairs which will probably always endure, further improvement and embellishment seems likely to produce modification of these estimates rather than a complete refutation of them. They are unlikely to be replaced by a completely different set of data proposing totally different hypotheses.

The main indicator of long-term growth is the rate of growth of Gross Domestic Product (GDP). The data indicate a modest rate of growth during the eighteenth century, increasing from just under one per cent to just over it (Table 1.1). Thereafter, except for the disruptive effect of wartime, growth remained fairly steady at around two per cent per annum. 'It is almost as if the range of 2 to 2½ per cent per annum had been meted out to the British economy by divine grace – or, in the eyes of many critics, by divine retribution' (Von Tunzelmann 241). There were two phases of rather higher growth, during the first seven decades of the nineteenth century and the interwar years and in the great, but brief, boom from 1951–73. There is some lack of agreement about the timing of the earlier phase of high growth, as can be seen from the estimates for the growth of GDP for the period 1801–31 derived respectively by Crafts (2.0 per cent) and Feinstein (2.7 per cent) using different methods (Table 1.1). But the majority of commentators

Table 1.1 *British economic growth rates (per cent per annum)*

	GDP	GDP/head	Labour	Capital	Total factor productivity
1700–60	0.7	0.3	0.4	0.7	0.2
1760–80	0.7	0.0	0.7	0.8	0.1
1780–1801	1.3	0.4	1.0	1.2	0.4
1801–31	2.0	0.5	1.4	1.5	0.7
1761–1800	1.1	0.3	0.8	1.0	0.2
1801–30	2.7	1.3	1.4	1.4	1.3
1831–60	2.5	1.1	1.4	2.0	0.8
1856–73	2.2	1.4	0.0	1.7	1.5
1873–1913	1.8	0.9	0.9	1.8	0.6
1913–24	−0.1	−0.6	−2.3	0.2	1.3
1924–37	2.2	1.8	1.5	2.0	0.6
1937–51	1.8	1.3	0.1	1.3	1.4
1951–73	2.8	2.3	−0.5	3.9	2.2
1973–79	1.3	1.3	−0.1	3.5	0.5
1979–83	0.1	0.1	−2.0	1.5	1.2

Notes: Data relate to Great Britain up to 1860, to the United Kingdom thereafter. The post-1856 data for labour relate to man-hours.

Sources: N. F. R. Crafts, 'British economic growth 1700–1831: a review of the evidence'. *Economic History Review*, 2nd series, 36 (1983) pp. 187, 196 (rows 1–4).

C. H. Feinstein, 'Capital formation in Great Britain' in P. Mathias and M. M. Postan (eds.), *Cambridge Economic History of Europe*, vol. VII pt I (Cambridge 1978) p. 84 (rows 5–7).

R. C. O. Matthews, C. H. Feinstein and J. C. Odling-Smee, *British Economic Growth 1856–1973* (Oxford 1982) pp. 208, 210, 498 (rows 8–13).

Central Statistical Office, *United Kingdom National Accounts* (1984) Tables 1.17, 3.13, 11.7 (rows 14–15).

Central Statistical Office, *Annual Abstract of Statistics* (1984) p. 127.

now seem to assign the greater part of growth in this period to the years after the end of the Napoleonic Wars in 1815 (Maddison 45; Harley 1982: 286).

A better indicator of the advance of economic development is GDP per head of population (Table 1.1). Population grew at a modest rate through the eighteenth and nineteenth centuries in Britain, at rather less than one per cent annually, and at less than half of one per cent annually through that part of the twentieth century which has now passed. Population growth was sufficient to sustain the growth process, but was not so great as to swamp it in the way Malthus feared. But this modest increase in population growth meant that, in the eighteenth and nineteenth centuries, the growth of GDP per head was for most of the time at least one per cent lower than the rate of growth of GDP. Growth per head was thus under half of one per cent annually throughout the eighteenth century and averaged between one and

one and a half per cent through the nineteenth century. The rate of growth per head attained by the British economy before 1815 amounted to only 10 per cent of the growth rate achieved by the poorer countries of the world in the 1970s (Williamson 1984: 688).

During the peacetime periods of the twentieth century it reached rather higher rates of increase. A very similar pattern of long-term growth is suggested in Rostow's estimates for Gross National Product (GNP), which also show a marked acceleration in the twentieth century especially after the Second World War (Rostow 1978a: 72–9).

The slowness of British economic growth in the long run is emphasized when seen in the context of the growth of the other major industrial nations. Maddison's estimates confirm the pattern and suggest that the rate of growth of GDP per head in Britain was the slowest of twelve advanced economies during the period 1820–1979 (Maddison 8). These relative rates of increase obviously altered the importance of the British economy in its international context. Throughout the nineteenth century, Britain remained the largest economy in Western Europe in terms of GDP, though Britain was overtaken by the United States during the middle decades of the century, the precise date varying according to different estimates. By 1870 there was still little difference in the size of the two economies, but the United States surged ahead in the later decades of the century so that Britain was only 37 per cent of United States size by 1914. By 1979 this figure had fallen further to under 17 per cent, and by this later date Japan, France and West Germany had become larger economies than Britain. In the twentieth century Britain also fell behind in GDP per head. But this relative decline took place, paradoxically, during the period when greater sustained growth was achieved than ever before. Most of the increase in British GNP and GDP per head generated between 1700 and the present day has been gained in the twentieth century and, according to some estimates, since 1950 (Maddison 8, 161).

III

In the very broadest terms the growth of GDP can be defined as depending on three elements, an increase in labour, an increase in capital, and an increase in the productivity of these factors of production, called total factor productivity. The principal influence underlying the increase in labour was the growth of population. The falling rate of population growth, especially in the twentieth century, has been reflected in the declining rate of labour increase and its falling contribution to growth. Changes in participation rates in employment were also important in the twentieth century, although the fall in the male participation rate was offset by the increase in the level

of female participation in employment (Matthews 77). The other main influence on the input of labour has been the decline in working hours, together with the increase in holidays, which has been active since at least the middle of the nineteenth century. In recent decades the age distribution of the population has shifted in such a way as to reduce the input of labour. While in the Victorian era, and certainly before that time, increase in labour was principally a function of population increase, in the twentieth century slower population growth and the continuous reduction in the hours worked per year were most influential in reducing labour's contribution.

In contrast to the dwindling contribution of labour to growth, capital has grown at a generally increasing rate over the past three centuries, and there was a particularly high rate of increase in capital input during the period of rapid growth 1951–73. Little surprise will be occasioned by the increase in capital input since it represents a major prerequisite for any economic advance.

The derivation of the estimate for productivity increase, total factor productivity, is rather more hazardous and contentious than the estimation of labour and capital growth. Productivity is usually calculated as the residual left after the rate of growth of factor inputs have been subtracted from the rate of growth of GDP. The controversy arises from the fact that the growth rates of the factor inputs, labour and capital, must be weighted by their respective factor shares in national income. The relative size of these factor shares is thus crucial for determining the size of the productivity residual, especially as, so often in the context of historical data, these shares are based on estimates rather than certain factual knowledge. As can be seen from Table 1.2, differing assumptions about the size of factor shares produce quite different patterns in the allocation of GDP growth between labour, capital and productivity. This is most clearly demonstrated by Crafts' estimates for the eighteenth century. By adopting a factor distribution which allowed a 15 per cent share to land, not in any way an unreasonable assumption, his results leave a larger residual, productivity, than if the more conventional division between labour and capital alone is employed. Feinstein's estimate of GDP growth in the period 1801–31, higher than Crafts or Harley found, also produced a higher estimate for the contribution of productivity (Table 1.3). It was from this indicator that Williamson drew the conclusion that 'Britain's industrial revolution seems odd: whereas other nations passing through early industrialisation record high contributions for conventional capital accumulation and low contributions for total factor productivity, Britain prior to 1820 suggests the opposite' (Williamson 1984: 711–12). But this high rate of aggregate productivity increase can be diminished either by accepting the lower rate of GDP growth for the period 1801–31, following Crafts rather than Feinstein, or by assuming a different

Table 1.2 *Factor contributions to growth: three hypotheses (per cent per annum)*

	Assumption 1			Assumption 2			Assumption 3		
	Labour	Capital	TFP	Labour	Capital	TFP	Labour	Capital	TFP
1700–60	0.20	0.35	0.14	0.30	0.18	0.21	0.20	0.25	0.24
1760–80	0.35	0.40	−0.05	0.53	0.20	−0.03	0.35	0.28	0.07
1780–1801	0.50	0.60	0.22	0.75	0.30	0.27	0.50	0.42	0.40
1801–31	0.70	0.75	0.52	1.05	0.38	0.56	0.70	0.53	0.74
1761–1800	0.40	0.50	0.20	0.60	0.25	0.25	0.40	0.35	0.35
1801–30	0.70	0.70	1.30	1.05	0.35	1.30	0.70	0.49	1.51
1831–60	0.70	1.00	0.80	1.05	0.50	0.95	0.70	0.70	1.10
1856–73	0.00	0.85	1.35	0.00	0.43	1.77			
1873–1913	0.45	0.90	0.45	0.68	0.45	0.67			
1913–24	−1.15	0.10	0.95	−1.73	0.05	1.58			
1924–37	0.75	1.00	0.45	1.13	0.50	0.57			
1937–51	0.05	0.65	1.10	0.08	0.33	1.39			
1951–73	−0.25	1.95	1.10	−0.38	0.98	2.20			
1973–79	−0.05	1.75	−0.40	−0.08	0.88	0.50			
1979–83	−1.00	0.75	1.85	0.35	0.38	1.22			

Total factor productivity was estimated on the various assumptions about the distribution of national product between labour and capital as follows: Assumption 1 – 50/50; Assumption 2 – 75/25; Assumption 3 – 50/35 (Crafts' definition for the period prior to 1860).
Data taken from Table 1.1.

distribution of factor shares (Table 1.2). There is no strong evidential reason to prefer any one of these estimates to another, although the Crafts data for GDP growth, showing greater growth after 1830 than earlier, are consistent both with Harley's recent estimates and the increasingly popular view that the main increase in growth was deferred until after 1815. The estimates listed under assumption 1 in Table 1.2 may well provide the best indicator of factor contributions to growth before 1860. This suggests that growth in GDP was primarily contributed by the growth of labour and capital inputs in the eighteenth century, followed by a greater increase in the contribution of both capital and productivity thereafter.

From the mid nineteenth century, the trend of income distribution favoured labour rather than capital. Total labour income increased from about 55 per cent in the second half of the nineteenth century to reach 65.1 per cent by 1937 and 72.8 per cent by 1973 while the remaining share left for property income fell accordingly, mainly affecting farm income and profits (Matthews 164). This suggests that the estimates made under assumption 2 in Table 1.2 are more plausible for the twentieth century.

Thus, in more recent times, the contribution of labour to growth was substantial only in the period 1873–1913, and 1924–37 when there was a marked shift in the age distribution which favoured increased labour utilization. But in the middle decades of the nineteenth century and during the most recent past labour has made a minimal or even negative contribution to growth. Capital inputs and total factor productivity have comprised most of the growth stimulus. Indeed in the mid Victorian period and since the late 1930s, productivity increased at a higher rate and contributed more to aggregate growth than at any other time.

IV

A rather fuller description of growth and its component parts can be found by disaggregating output growth between the sectors which produce it. Data limitations are such that prior to the mid nineteenth century such disaggregation is possible only to the very modest extent of three large sectors, each containing a considerable variety of growth and decline within it. Even such data are based as much on intelligent guesswork as hard evidence, and the most persuasive aspect of these recent estimates lies in the fact that they report results similar to each other and consistent with other evidence. The relative contribution to the growth of GDP provided by each sector is found by multiplying the rate of growth of the sector by its share of GDP. Thus, for the period 1700–60, Crafts estimated that the rate of growth of agriculture was 0.60 per cent annually and that its share in GDP was 37 per cent. The product of these two estimates yield the weighted growth rate of 0.22 per cent annually (Table 1.3). Such estimates depend not only on the accuracy of the estimated sectoral growth rates but equally on the accuracy of the estimated sector shares. Thus, for example, the Deane/Cole sector share estimates for the eighteenth century allocate a greater proportion to agriculture and less to industry than do Crafts' estimates. Since the rate of growth of GDP is the aggregate of all the weighted sectoral growth rates such a change in sector shares alters, in this instance reduces, the rate of growth of GDP (Deane/Cole 156, 161).

Both the series of sectoral growth estimates derived by Crafts and Harley reflect a similar pattern of growth. Both the industrial and service sectors contributed substantially to aggregate growth. The industry sector was so broadly defined that it included mining, construction, and public utilities as well as manufacturing, so that any comparison with the fuller disaggregation possible for the period after 1860 should combine these four sectors together. Higher rates of growth in GDP appear to correlate well with periods in which manufacturing made a greater contribution to growth. But the overall slow rate of aggregate growth is also reflected in the modest

Table 1.3 *Weighted sectoral output growth rates (per cent per annum)*

	Agriculture	Industry	Services	GDP
1700–60	0.22	0.14	0.33	0.69
1760–80	0.04	0.38	0.28	0.70
1780–1801	0.24	0.53	0.55	1.32
1801–31	0.31	0.96	0.70	1.97
1700–70	0.19	0.16	0.21	0.56
1770–1815	0.26	0.40	0.65	1.31
1815–41	0.36	0.99	0.88	2.23
1831–60	0.36	0.97	1.17	2.50

Note: The growth rate of each sector was weighted (multiplied by) the size of that sector in GDP.
Crafts' sectoral weights were used for each date set, except for the 1831–60 period when the weights used in Table 1.4 were applied.

Sources: N. F. R. Crafts, 'British economic growth 1700–1831: a review of the evidence'. *Economic History Review*, 2nd series, 36 (1983) pp. 187, 189, 191, 193 (rows 1–4).
C. K. Harley, 'British industrialisation before 1841: evidence of slower growth during the Industrial Revolution'. *Journal of Economic History* 42 (1982) pp. 284–6 (rows 5–7).
C. H. Feinstein, 'Capital formation in Great Britain' in P. Mathias and M. M. Postan (eds.), *Cambridge Economic History of Europe*, vol. VII, pt I (Cambridge 1978), p. 84 (row 8).

weighted growth rate of the manufacturing sector, never reaching one per cent until the present century. For much of the entire period from the early eighteenth century until the present day the service sector kept pace with manufacturing in its contribution to growth, and often exceeded it. Only in the early part of the nineteenth century, before the advent of the railways, and during the interwar years in the twentieth century was the contribution of manufacturing greater than that of services by any marked amount.

The estimates of sectoral growth derived by Crafts and Harley revealed a varied pattern of growth within manufacturing during the century and a half before the railways. These calculations reveal substantial increases in output. According to Harley, they occurred mainly in cotton and metal manufacture, followed by mining, construction, paper and printing, and clothing (1982: 272). Crafts' estimates of value added by industrial sector suggest that between 1770–1831 cotton manufacture accounted for £24.7 million and construction for £24.1 million of a total value added for industry of £90.1 million. The combined textile industries accounted for almost half the total value added, while coal and iron generated only modest increases (Crafts 1983: 180). Apart from the dramatic growth of the cotton industry from a negligible minor branch of textiles to the position of a major manufacturing

industry by 1840, growth in industry took the form of a broad expansion of established manufactures.

Output data are considerably more reliable by the Victorian period. By then the service sector not only played a greater role in generating growth of GDP but exceeded the contribution of manufacturing. There was considerable growth in all services, but most notably in distribution and transport and communications (Table 1.4). The increasing importance of services continued into the twentieth century and commerce, the professions, and financial services, including banking and insurance, were major growth sectors, continuing their growth even through the 1970s. Disaggregation of manufacturing by sector is difficult prior to the first Census of Production published in 1907. But the major sectoral contributions to growth can be inferred in general terms. In 1907, the combined textiles, clothing and leather industries accounted for 32.0 per cent of manufacturing production, while the combined metal and engineering industries comprised a further 33.0 per cent. Had these aggregate sectors grown at the same annual rate as all manufacturing, that is 2.6 per cent between 1856–73 and 2.0 per cent between 1873–1913, then their weighted sectoral growth contributions would have been about 0.9 per cent and 0.7 per cent respectively. Similarly, the other main sector, food, drink and tobacco, which comprised 19.7 per cent of manufacturing output in 1907, would have contributed 0.4–0.5 per cent to aggregate growth. Together, these three main sectors made up the bulk of manufacturing production and growth in the Victorian period, although it is likely that textiles grew at a rate below the manufacturing average and the engineering industries above it. After the First World War the contribution of particular manufacturing sectors to growth can be estimated with greater surety (Table 11.2). Within the context of higher growth rates in manufacturing than hitherto, the relative contribution of textiles declined while that of engineering, especially its newer branches, increased as did that of vehicle production and chemicals. After 1973, within a context of accelerating industrial decline, most sectors of industry experienced contraction in output.

Changes in the structure of national output were largely replicated by shifts in the allocation of employment between different sectors as a result of differential growth. Employment growth was particularly rapid in the nineteenth century, indicating the importance of increased labour to the growth of production. But the rate of increase in employment was much lower in the twentieth century, and declined absolutely in the 1970s. Estimates of sectoral employment before the mid nineteenth century are, of course, less detailed or accurate than the data contained in the later Census of Population surveys. The most recent and detailed estimates for the eighteenth century have been made by Lindert (Tables 1.5 and 1.6). In