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052134106X - Regions and Industries: A Perspective on the Industrial Revolution in Britain

Edited by Pat Hudson

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INTRODUCTION

There is growing dissatisfaction with studies at aggregate national level which attempt causal analysis, be they of demographic, social or economic phenomena. These sorts of studies have recently been prominent in reassessing the nature and importance of the industrial revolution in Britain emphasising gradualism and continuity and playing down the possibility of major discontinuity in either economic or social life.¹ Much valuable research of the last decade or so has rightly corrected an earlier tendency to exaggerate the discontinuities of the period c. 1750–1850.² But should the averaging out of changing experiences in different parts of Britain and the formation of an aggregate picture of components which happen to figure in the national income estimation persuade us that no discontinuity was present? Concern with change and progress may now be out of fashion: 'British historians today are mainly concerned to show that less happened, less dramatically, than was once thought.'³ But there are problems in viewing history in terms of 'great arches'⁴ of continuity or, as with much economic history, confining analysis to the 'economic' aspects of life as isolated by neo-classical economics. Both fail to capture that variety of experience and motivation which makes up the whole and neglect the significant transformations going on just under the surface of national economic indicators and national social groupings.

Thanks to the work of historians stretching back to J. H. Clapham and

¹ For discussion of this literature see Chapter 1.

² Some of this is discussed by D. Cannadine in 'The present and the past in the English industrial revolution 1880–1980', *Past and Present*, 103 (1984). The best of this literature has, however, always had an eye for the dialectics within continuity and for qualitative changes in levels of exploitation and in the competitive environment of seemingly 'traditional' forms of activity. See, for example, R. Samuel, 'The workshop of the world: steam power and hand technology in mid-Victorian Britain', *History Workshop Journal*, 3 (1977).

³ D. Cannadine 'British history: past, present – and future?', *Past and Present*, 116 (1987), p. 183. See also B. Bailyn, 'The challenge of modern historiography', *American Historical Review*, 87 (1982), p. 3.

⁴ The term is from P. Corrigan and D. Sayer, *The Great Arch: English State Formation as Cultural Revolution* (Oxford, Blackwell, 1985), although this book, as the title implies, by no means places exclusive stress on continuity. The term and the work is discussed in M. Barratt Brown, 'Away with all the great arches: Anderson's history of British capitalism', *New Left Review*, 167 (1988).

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including Joan Thirsk, A. H. John, J. D. Chambers, J. de L. Mann, E. L. Jones and more recently F. F. Mendels, S. Pollard and J. Langton, we have been made aware that industrialisation in Britain and elsewhere occurred first and foremost within regions rather than within nations as a whole.⁵ It is the contention of this volume that attempts to understand the industrial revolution as an economic, social and political process are best made with the regional perspective at centre stage. After all, both economic structure and human agency during this period, in important respects, operated at a regional level.⁶ Furthermore, there was something unique about the industrial regions of the late eighteenth and nineteenth centuries. They were dominated by particular sectors (principally by various combinations of textiles, coal, engineering and shipbuilding) in a way never experienced before. Nor was this to be experienced subsequently, as the twentieth century has seen the growth of intra-sectoral spatial hierarchies with high-order, capital-intensive and research and development functions being located away from other processes. Furthermore, it can be argued that despite the continuing influence of London, the industrial regions of the industrial revolution period were freer of metropolitan economic, social and political influence than they had been in the seventeenth and early eighteenth centuries or were to become from the late nineteenth century. The canal-based economies of the period were regionally as well as nationally and internationally orientated and the region was a powerful focus of social and political identity across the social spectrum.⁷ Sectoral specialisation and regional integrity largely explain the distinctive social and class relations found in the industrial areas of the period and suggest why these regions continued to have important elements of economic, social and political coherence long after the later nineteenth-century innovations in communications and in business and financial institutions. This alone makes their study essential in understanding the overall growth of the national economy at this time.

⁵ J. H. Clapham, *An Economic History of Modern Britain*, vols. 2 and 3 (Cambridge: Cambridge University Press, 1932, 1938); A. H. John, *The Industrial Development of South Wales 1750–1850* (Cardiff, University of Wales Press, 1950); J. D. Chambers, 'The Vale of Trent, 1660–1800', *Economic History Review*, Supplement 3 (1957); J. de L. Mann, *The Cloth Industry in the West of England from 1640 to 1880* (Oxford, Clarendon Press, 1971). Other works by authors mentioned here are noted in Chapter 1.

⁶ By 'human agency' I am here referring to the economic and social action and identity of the mass of the population. Its manifestation in terms of regional institutions of employers, pressure groups, trade unions and political movements, as well as the nature of regional economic structures is discussed by J. Langton, 'The industrial revolution and the regional geography of England', *Transactions of the Institute of British Geographers*, 9 (1984). For his own definition and account of human agency in this context see D. Gregory, *Regional Transformation and Industrial Revolution: A Geography of the Yorkshire Woollen Industry* (London, Macmillan, 1982). For further discussion see Chapter 1.

⁷ See Langton, 'The industrial revolution'.

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Some may be surprised that this volume nowhere attempts to define what is meant by a region. There is scope, of course, for another book on the heuristic and other qualities of the region as a dynamic concept. But this sort of discussion has largely been avoided here because the contributions themselves highlight the dangers of seeing the region as a static and pre-given category. Unlike nation states and other political units, regions emerge in the course of analysis and become finite in different ways depending on where and when we place the emphasis of our study. Regions are always historically relative and contingent although their spatial, economic, social and cultural integrity can endure for long periods despite considerable changes in communications, markets, technology and control. One such long period was experienced by British industrial regions from the early nineteenth century to at least the interwar years.

This book is about provincial concentrations of manufacturing activity. The role and importance of London as a centre of production as well as trade and finance form scope for another very different but parallel story of the industrial revolution which is not addressed here. The history of the metropolis and its concentration of wealth, political power and consumer markets must never be separated from the history of the provinces, however. The effect of London on regional specialisation, on finance and on culture remained and remains crucially important.

The volume started out with a set of integrating themes given as an agenda to the contributors. It was not envisaged that each chapter would address all or even most of the themes but that there would be common preoccupations sufficient for some general conclusions to be drawn and for one region to be compared with another. The themes cover four major aspects vital to understanding the emergence, the functioning and the long-term prospects of manufacturing regions during the period of industrialisation. They are discussed to some extent in Chapter 1. The first theme suggested to contributors was to consider factors in the environment of pre-factory industry including the agrarian and institutional settings, the role of urban centres and the nature of markets and competition. The second theme related to the nature of industrial activity itself: its evolution, its diversity, the organisation of production and trade, the sources of capital and credit and the role of transport and communications systems. The third theme concerned the relationship within a region between economy, population and labour supply including the question of a demographic dynamic associated with industry and including the working of the poor law and inter-regional migration. Finally, the question of the dynamism of early manufacturing regions was addressed. What role did the nature of pre-factory industry, its organisation, finance and workforce play in

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influencing the pace and nature of transition to more centralised and mechanised production? How important were political as well as economic forces acting at regional, national and international levels in explaining the history of manufacturing regions? What factors influenced the diversification of industry in a region and that region's ability to survive periods of economic depression?

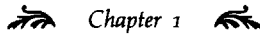
The contributions to this book each deal with the varied experiences of different industrial regions during periods which include that associated with the British industrial revolution. The essays are clearly articulated, address overlapping themes and are thus largely left to speak for themselves. They are mentioned in the introductory chapter but no attempt is made fully to summarise their arguments as the concern of that chapter is to provide an analytical framework within which the various contributions can be placed and considered. The function of these essays is illustrative of various debates rather than an attempt to present an entire alternative and regionally oriented picture of the economic history of Britain in this important period. Given the shortcomings and limits of the mass of recent aggregative studies the idea here is to take a modest step in the direction of identifying and evaluating the industrial revolution as a political and social as well as an economic process which initially occurred in certain very limited and somewhat self-contained regions of Britain only and which had both spread and backwash effects on other manufacturing areas. It was a process which added up to more than the sum of its parts. And it was from these varied regional industrial bases that a gradual revolutionising of economy and society across a broad front began. There is much current research activity on British regions and there are a few excellent vintage texts but there has hitherto been no convenient format which provides both a taste of the varieties of regional experience subsumed under the heading of the first industrial revolution and which at the same time gives a guide to the existing theoretical and empirical literature about the importance of economic and social change at this level. It is thus hoped that the volume will appeal to research specialists and to students alike and will encourage a renewed search for discontinuities as well as for continuities in the economic and social history of Britain and her component regions.

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Chapter 1



The regional perspective

PAT HUDSON

Disaggregated analyses of the industrial revolution in Britain are currently out of fashion. The influence of the 'New Economic History' on the growing macro-economics school has resulted in new calculations of the movement of aggregate variables: national income, industrial output, the rate of capital formation, the growth and composition of the labour force, living standards and demographic trends. Aggregate estimates, incorporating wide margins of error, have been accompanied by cross-national comparisons and by the formation of hypotheses about the causal relationships between different elements of change.¹ Valuable though this work has been in suggesting a macro-framework and in speculating about national characteristics of cause and effect its perspective on industrial change and economic development is limited. Thus, aspects of economy and society which were innovative or unique to the period have been neglected. And the industrial revolution remains as inscrutable as ever.

This chapter aims to highlight the importance of the regional perspective in understanding the extent of fundamental economic and social change

¹ See N. F. R. Crafts, *British Economic Growth during the Industrial Revolution* (Oxford, Clarendon Press, 1985), a book which consolidates the results first published in several journal articles; idem, 'Patterns of development in nineteenth-century Europe', *Oxford Economic Papers*, 36 (1984), pp. 438–58; C. K. Harley, 'British industrialisation before 1841: evidence of slower growth during the industrial revolution', *Journal of Economic History*, 42, 2 (1982), pp. 267–89; C. H. Feinstein, 'Capital formation in Great Britain', in P. Mathias and M. M. Postan (eds.), *Cambridge Economic History of Europe*, vol. 7, part 1 (Cambridge, Cambridge University Press, 1978), pp. 28–96; D. N. McCloskey, 'The industrial revolution: a survey', in R. C. Floud and D. N. McCloskey (eds.), *The Economic History of Britain since 1700*, vol. 1 (Cambridge, Cambridge University Press, 1981); P. H. Lindert and J. G. Williamson, 'Reinterpreting Britain's social tables, 1688–1913', *Explorations in Economic History*, 20, 1 (1983), pp. 94–109; idem, 'English workers' living standards during the industrial revolution: a new look', in J. Mokyr (ed.), *The Economics of the Industrial Revolution* (Totowa, N. J., Rowman & Allanheld, 1985), pp. 177–205; J. G. Williamson, *Did British Capitalism Breed Inequality?* (London, Allen & Unwin, 1985); E. A. Wrigley and R. S. Schofield, *The Population History of England, 1541–1871* (London, Edward Arnold, 1981). Debate still rages between the various authors regarding their methods of estimation, accuracy and about how to explain the slow rates of change which they find. The most recent contributions to this debate, which survey many of the problems and issues, are to be found in *Explorations in Economic History*, 24, 3 (1987), which contains articles by Crafts, Williamson and Mokyr.

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occurring between the mid-eighteenth and mid-nineteenth centuries. First, the limitations of the current aggregative, national income estimation approach are discussed followed by an assessment of causal analysis of demographic change at the national level. The regional approach is then outlined and justified as uniquely important for comprehending the economic and social history of the industrial revolution period. An agenda of issues ripe for study at the regional level is established which centres around the identification of regional dynamics and includes discussion of external economies, proto-industrialisation and critical mass. The analysis closes with a stress on the need to place regional studies within the wider context of changing structures of national and international political and economic power.

AGGREGATION AND GRADUALISM

Deane and Cole's aggregative work long ago rightly laid the foundations for a more gradualist interpretation of the overall growth of the industrial revolution period but unlike the current wave of macro-economic estimates and theorising their concern was to present an integrated picture of parallel but often unequally distributed growth in trade, industry, capital, agriculture and population.² They still talked of an industrial transformation but stressed the need to look back to the early eighteenth century for its beginnings. By contrast the main thrust of the diverse findings of the last decade on the movement of aggregate indices has been to dethrone the industrial revolution altogether apart from the broad structural aspect of deployment of population. Productivity change continued in its slow early eighteenth-century fashion, fixed capital proportions, savings and investment changed only very gradually, workers' living standards and personal consumption remained largely unaffected before 1830 and were certainly not squeezed.³ The macro-economic indicators of industrial and social transformation were not present and certainly Prometheus himself was absent.

Harley's estimates indicated that the size of the industrial sector of the early eighteenth century was nearly twice as large as previously thought but its subsequent growth and transformation were thus much less

² P. Deane and W. A. Cole, *British Economic Growth 1688–1959*, 2nd edn (Cambridge, Cambridge University Press, 1967).

³ The exception to this picture of gradualism was provided by Feinstein in his estimates of capital formation and productivity growth but he has been criticised by Crafts for using Deane and Cole's inflated economic growth measures. Crafts regards the bulge in productivity growth 1800–30 found by Feinstein as an artifact of index number problems in Deane and Cole's work, Crafts *British Economic Growth*, Ch. 4.

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dramatic.⁴ Crafts has calculated that change in investment proportions was very gradual in the eighteenth century and that total factor productivity growth in manufacturing was only around 0.2 per cent from 1760 to 1801 and 0.4 per cent from 1801 to 1831. Even total factor productivity growth across the entire economy, inflated in Crafts' opinion by the performance of agriculture, grew very slowly: 0.2 per cent from 1760 to 1801, 0.7 per cent from 1801 to 1831, reaching 1.0 per cent only from 1831 to 1860.⁵ Crafts argues that one small and atypical sector, cotton, possibly accounted for half of all productivity gains in manufacturing.⁶ In his words 'not only was the triumph of ingenuity slow to come to full fruition, but it does not seem appropriate to regard innovativeness as pervasive'.⁷ Crafts believes that his work should occasion the rewriting of textbooks on the period.⁸ But this would be certainly premature.

The new gradualist view of economic change in the industrial revolution is based on the assessment of the growth of aggregates from the weighted averages of their components. Apart from the scope for mathematical error, this involves as Crafts himself admits a classic index-number problem.⁹ The difficulties of assigning weights to industrial and other sectors of the economy, allowing for changes in weights over time and for the effects of differential price changes and value-added changes in the final product are insurmountable and will always involve a range of subjective decision.¹⁰

⁴ Harley, 'British industrialisation before 1841'.

⁵ Crafts, *British Economic Growth*, pp. 31, 81, 84. Crafts' computations have been severely criticised by Williamson, Mokyr and others. As Mokyr has pointed out in 'Has the industrial revolution been crowded out? Some reflections on Crafts and Williamson', *Explorations in Economic History*, 24, 3 (1987), 'Crafts' figures imply that Britain's industrial revolution was a grave mistake because it should really have become the First Agricultural Nation... judging by the way Crafts refines (Deane and Cole's) figures, one might have thought that the numerator in these estimates was relatively reliable and that the highest marginal product of scholarly labour was in correcting and adjusting the price deflator... estimates of nominal product (agricultural output) made by Deane and Cole cannot possibly have been intended for the use which Crafts makes of them. They repeatedly use words like "largely guesswork" and "highly arbitrary" in describing their assumptions' (p. 306). Crafts ignores these sorts of qualifications made by Deane and Cole and also by Feinstein (where he utilises the latter's estimates). Furthermore, his calculations of several measures such as agricultural total factor productivity and productivity of the 'unmodernised' sector depend on the estimation of residual figures which embody and often therefore magnify the errors endemic in all the additional major calculations of economic growth and, especially, of sectoral breakdowns.

⁶ Crafts, *British Economic Growth*, p. 85.

⁷ *Ibid.*, p. 87.

⁸ N. F. R. Crafts, 'British economic growth, 1700–1850: some difficulties of interpretation', *Explorations in Economic History*, 24, 3 (1987), p. 268.

⁹ Crafts, *British Economic Growth*, p. 17. A gross error of either calculation or transcription occurs in Crafts' assessment of the growth rate per annum of national product 1780–1801 at 1.42 per cent. From his own calculations this should read 1.32 and the error seriously lowers his estimation of the per capita measure, *ibid.*, Ch. 2.

¹⁰ R. V. Jackson has recently highlighted the certain underestimation by Crafts of the size of the government component in national income at this time. 'Government expenditure and British economic growth in the eighteenth century: some problems of measurement', paper presented to the Annual Conference of the Economic History Society (University of East Anglia, 1988).

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What is certain is that cotton and some of the other more dynamic sectors of the economy have been overemphasised in studies of the past. Though they grew at a phenomenal rate, revolutionising industries were initially small and their effect on aggregate statistics was very modest compared with agriculture and more 'traditional' manufacturing sectors. In fact dualistic growth models which distinguish between a vanguard and a traditional sector of the economy make abrupt changes in the economy as a whole a mathematical impossibility. Even if changes in the vanguard sector itself were discontinuous its share in the economy would grow very gradually while the traditional sector would lose ground slowly and only in the long run would the 'modern' sector become dominant in the overall economic indicators.

Drawing a dichotomy between a 'traditional' economy which, although not stagnant, developed gradually along conventional lines with slow productivity growth and slowly rising capital and labour ratios and the 'modern' sector consisting of cotton, iron, engineering, mining and some other consumer goods such as pottery and paper is certainly no simple matter. Mokyr is one of the few historians who whilst extolling some of the virtues of recent aggregative analysis is prepared to countenance their fundamental difficulties. He admits that at first only small segments of the advanced sectors underwent 'modernisation' so that dualism existed within as well as between industries making calculations about the performance of the 'modern' sector rather tricky.¹¹ But even Mokyr fails fully to examine the dynamism of the 'traditional' economy which could and did contain significant cumulative innovations. Although not discontinuous these probably accounted for a very large part of productivity gains in the economy in the period before 1830.¹² Relegation of this sector, in much current literature, to the role of backward survivor or even to the role of a contemporary subordinate of the revolutionised sector is inappropriate.

Embodied in the entire macro-economic approach to the history of the industrial revolution is a type of modernisation theory which assumes that the 'traditional' sector is just catching up with the vanguard march of the factory, certainly not that it might represent a more permanent feature of the dualism inherent in all advanced societies (and often increasingly

¹¹ J. Mokyr makes this point very clearly: 'The industrial revolution and the new economic history', in Mokyr (ed.), *The Economics of the Industrial Revolution*, p. 5.

¹² G. N. Von Tunzlemann, 'Technical progress during the industrial revolution', in Floud and McCloskey (eds.), *The Economic History of Britain*, p. 143; D. N. McCloskey, 'The industrial revolution 1780–1860: a survey', in Mokyr (ed.), *The Economics of the Industrial Revolution*, pp. 53–74. For the best descriptive account of the productivity changes in the traditional economy defined correctly in the broadest terms to include organisation and work practices, external economies of concentration, etc., see M. Berg, *The Age of Manufactures* (London, Fontana, 1985), *passim*.

apparent as economic growth continues). In reality the 'traditional' sectors are more justifiably seen as representing a different path or pattern of development within the complex of industrialisation which gets lost in the aggregate studies. They were sometimes complementary to, sometimes competitive with (and often as dynamic in their own way as), the factory and heavily capitalised sectors. The 'traditional' sectors were as much, if not more, a part of the dynamic of the industrial revolution as the factory although their qualitative changes are not well reflected in the quantitative indicators. The labour force in the 'traditional' sectors, for example, gets lost in the failure of statistics to record much part-time and female or juvenile work. Furthermore, organisational and commercial changes in these sectors did not entail massive injections of fixed capital which would show up in the aggregate figures.¹³ It would be better if we abandoned the terms 'modern' and 'traditional' entirely in this context. The contrast arises more out of the functional differences between labour-saving and labour-using development than out of a chronological sequence of growth.

The labour-using sector partly arose, at a regional level, from the demands of the factory and the expansion of heavy-goods industries, urbanisation and improved transportation: a major reason why its size in overall national income and in manufacturing remained and remains so large. Developing more independently, artisan and workshop manufacture could also by the use of flexible technologies and constant adaptation to, and stimulation of, changing taste and fashion function in dynamic form throughout the nineteenth century as the examples of the Sheffield and Birmingham regions testify. This usually occurred within a well-defined industrial region where flexible specialisation and small production units were the dominant characteristics. These districts not only exhibited their own specific social values and institutions but they also created, often on the basis of collective effort, a range of external economies of technical, commercial and financial support which contributed vitally to their continuing success.¹⁴

It is becoming clear that the current spate of aggregative studies has an inbuilt problem of identification in posing questions about the existence of an industrial revolution. Is there any justification for identifying such a

¹³ For fuller discussion of the shortcomings of dual-economy models, the neglect of technological and organisational change outside the factory and the role of female and child labour in the period see M. Berg, 'Technology and productivity change in manufacture in eighteenth-century England', in J. A. Davis and P. Mathias (eds.), *Technology and Innovation from the Eighteenth Century to the Present* (Oxford, Blackwells, forthcoming). I am grateful to Maxine for allowing me to see this unpublished paper. See also, M. Berg and P. Hudson, 'Is the industrial revolution dead?', unpublished seminar paper, 1988, which emerged from our discussions.

¹⁴ C. Sabel and J. Zeitlin, 'Historical alternatives to mass production: politics, markets and technology in nineteenth century industrialisation', *Past and Present*, 108 (1985), pp. 133–76.

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phenomenon with high investment ratios, factory mass production, high productivity manufacturing techniques and their influence on overall aggregate indicators? Clearly, technological progress was not growth and rapid growth did not everywhere imply the revolutionising of production functions: 'Some industries which grew slowly were mechanising and switching to factories (e.g. paper after 1801, wool and chemicals like soap and candles) while construction and coal mining, in which manual techniques ruled supreme with few exceptions until deep into the 19th century, grew at respectable rates.'¹⁵ There is also a problem in relying too heavily on measures which happen to be included in national income estimation. Increased efficiency in the tertiary sector is one major omission. The growth of the service sector and its concentration in London and the south-east is a major part of the story of Britain's industrialisation, argues Lee.¹⁶ Furthermore, changing social relations of production were not always and everywhere a function of changing forces of production spawned by new technologies. The changing relationship between capital and labour, the degree of subordination or even of subsumption of the latter by the former, and the increasingly competitive world in which employers (across the spectrum down to penny-capitalists) became enmeshed were marked features of the period. These were as much a part of the discontinuity of the industrial revolution (as a social and political as well as an economic process) as the physical measures of industrial output and productivity.

The social and cultural as well as the economic impact of the modernising sector, its reciprocal interrelationship with the 'traditional' sector and the innovative possibilities of the latter cannot be comprehended in aggregate statistical analyses. At the regional level of study the false dichotomy between 'modern' and 'traditional' and the shortcomings and assumptions embedded in this terminology become thoroughly exposed. Growth was an uneven process and it took very different qualitative forms both within and between sectors and regions. This complexity and its precise impact and importance eludes the national-level quantitative methods so fashionable in the current historiography.

¹⁵ Moky, 'Has the industrial revolution been crowded out?', p. 314.

¹⁶ C. Lee, 'Regional structure and change', in J. Langton and R. J. Morris (eds.), *Atlas of Industrialising Britain 1780-1914* (London, Methuen, 1986), pp. 30, 140-3, and *The British Economy since 1700* (Cambridge, Cambridge University Press, 1986).