Thriving, surviving, and declining: industrial jobs and the geography of deindustrialisation in twentieth-century England and Wales

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Short abstract

This thesis uses official data and documentary sources to provide a new history of deindustrialisation processes in England and Wales after the First World War. Across three core sections it shows that deindustrialisation occurred in stages, some of which spanned decades, and manifested itself in several ways across places. These forms of deindustrialisation, which were contingent on a number of economic factors, offered different prospects for working-class people and places.

The thesis is structured over three core chapters. Chapter 1 uses census data to map the reorganisation of the industrial economy between 1921 and 1971. It shows how the timing of deindustrialisation varied across places as a result of the turnover of activities within the industrial sector. It also draws attention to the decline of the major cities, which shaped the deindustrialisation of the decades that followed.

Chapter 2 uses a newly-harmonised dataset to examine the second phase of deindustrialisation, which began after 1971. The elimination of industrial work proceeded unevenly; the chapter therefore presents a typology under which different deindustrialisation processes can be grouped. The typology draws a distinction between struggling 'declining' places and relatively more successful 'thriving' and 'surviving' post-industrial economies. Analysis of a number of indicators demonstrates that the type of deindustrialisation a place experienced was a key determinant of its long-term outcomes.

Chapter 3 uses individual-level data from the British Household Panel Survey to examine deindustrialisation from the perspective of individual workers. The chapter assesses the degree to which sex, education, qualifications, and parentage determined whether or not people became industrial workers, and – through the use of a novel approach to comparing heterogenous careers – examines their career trajectories. It shows that changing sectors involved considerable risks for individuals' socioeconomic status.

Long abstract

This thesis uses official data and documentary sources to provide a new history of deindustrialisation processes in England and Wales after the First World War. Across three core sections it shows that deindustrialisation occurred in stages, some of which spanned decades, and manifested itself in several ways across places. These forms of deindustrialisation, which were contingent on a number of economic factors, offered different prospects for working-class people and places.

Deindustrialisation has attracted considerable interest both inside and outside the academy, although contributions from economic history have played a modest role in the recent literature. This is especially the case in relation to quantitative research with a sub-national focus, where economic geography has instead loomed large (Venables 2021, Beatty & Fothergill 2020). Historians today are generally less interested in the mechanics of deindustrialisation processes and more in their socio-cultural implications (Gibbs 2021, Clark 2023, Sutcliffe-Braithwaite 2021). Research of this kind is valuable and displays considerable methodological breadth. It is, however, often 'miserablist' in tone, and it is often hard to draw generalisable conclusions. Where historians do engage on a quantitative or semi-quantitative basis, detailed case studies are common (Tomlinson, *et. al.*, 2022). Fully quantitative research also has its limitations. As a result of data availability and a relentless search for exogenous shocks to enable the use of clever statistical tools, economists and economic geographers have focused on the 1980s which, while indisputably important to the history of deindustrialisation, should not be examined in isolation.

This thesis makes progress on these issues by way of two interrelated arguments. The first is that, at the level of local labour market areas, deindustrialisation in the 1970s and 1980s was both more widespread and more varied in character than is generally acknowledged. Alongside badly-hit 'declining' areas stood an equal number of better-performing 'surviving' areas and, in a handful of cases, 'thriving' post-industrial economies. Second, it is difficult to understand the spatial pattern of deindustrialisation in

the 1970s and 1980s without an appreciation of the reorganisation of the industrial economy over the previous five decades. Deindustrialisation was underway in some places even as the national economy continued to industrialise. Chief among them were the major cities, which – taken together – lost close to 10 per cent of their industrial jobs even during the 1950s boom. While it was the focus of research in the past, the degree to which the decline of the major cities (aided and abetted by successive governments) set the stage for the dislocation that followed has recently received less attention.

In the course of making these arguments, this thesis makes both practical and analytical contributions. For example, in order to analyse changes in employment at the level of major cities and individual labour market areas (which, in turn, offers a more precise picture than prior studies) the thesis relies on data from the Census of Population and Census of Employment which are readily available neither under a consistent classification system nor (in the case of the Census of Population data) under stable geographical units. In order to overcome this problem, this thesis presents a new harmonised employment classification system for the 1970s and 1980s that contains 129 sectors and is aligned to various historical geographical units using GIS software. The resulting 'look up' tables describing the harmonised data, which are included in the appendix to the thesis, will be of help to future researchers studying labour market topics in the British context.

Following a detailed introduction, which discusses what deindustrialisation is, why it matters, and debates about policy, the argument of the thesis unfolds over three core chapters. Chapter 1 uses census data to map the reorganisation of the industrial economy between 1921 and 1971. County-level data reveal both the well-known rise of the South and Midlands, as well as the more infrequently discussed successful replacement of traditional industrial activities, such as mining and textiles, with new 'expanding' industries in the North. The impression of relative stability gleaned from these developments is, however, misleading. Within individual counties, the geography of industrial employment changed dramatically as new industries replaced the old. With granular harmonised census data, this thesis shows that major cities experienced deindustrialisa-

tion relative to their peripheries throughout the period. These shifting geographies of industrial prosperity – something that the analysis of documentary evidence shows was promoted by successive governments eager to disperse large cities – underpinned post-war prosperity in towns. Unfortunately, this prosperity came at the cost of increased vulnerability to future deindustrialisation.

Chapter 2 uses the new harmonised employment data for self-contained labour market areas to investigate the second phase of deindustrialisation, which began after 1971. The elimination of industrial work proceeded unevenly; the chapter therefore presents a typology under which different deindustrialisation processes can be grouped. The typology draws a distinction between struggling 'declining' places and relatively more successful 'thriving' and 'surviving' post-industrial economies. Analysis of a number of indicators of socioeconomic vitality demonstrates that the type of deindustrialisation a place experienced was a key determinant of its long-term outcomes. Following Tyler, *et. al.* (2017), the chapter uses a dynamic shift-share framework to understand the components of structural change. The analysis shows that the worst performing areas were prisoners of their labour market structures. Employment growth in stronger labour market areas cannot merely be attributed to favourable structures, however. Although there was expansion in new 'knowledge-intensive' service activities, the maintenance of employment levels depended on a resilient industrial sector and fast growth in low-end transport and distributive services. Although this was better than the alternative of no replacement jobs, these sectors were defined by relatively low pay and occupational status.

Chapter 3 uses individual-level data from the British Household Panel Survey to examine deindustrialisation from the perspective of individual workers. Using the 'work histories' dataset developed by Maré (2006), the chapter provides an overview of the decline of industrial work over the course of the twentieth century, and assesses the degree to which sex, education, qualifications, and parentage determined whether or not people became industrial workers. To overcome challenges with the data and examine industrial workers' careers on similar terms, the chapter presents a new approach (inspired

by the Single Transferable Vote electoral system) to extract career-significant spells by which individuals' careers can be compared. Logistic regression models show that industrial workers were less mobile than other groups, and that transport and distributive services were indeed the main destination for former industrial workers. Moreover, the chapter shows that switching careers was risky. Workers who changed sectors between career-significant roles were 146 per cent more likely to undergo downward mobility than workers who remained within their sector of origin.

The thesis concludes with an overview of a number of the main conclusions, as well as reflections on avenues for future research. Among these are the plentiful opportunities to make use of some of the key concepts of the thesis, such as the existence of types of deindustrialisation, as well as the scope for case study analyses. By way of an example, the conclusion provides a brief summary of a number of arguments made in Evans (2023), a paper that deployed some of the research of the thesis to provide an economic history of deindustrialisation Merseyside in the 1980s.

Introduction

In the early 1960s, the steady growth in industrial employment that had long been a feature of the British economy ground to a halt. Interruptions had occurred before. Britain's industrial dominance began to be eroded at the end of the nineteenth century, and in the period 1919-1939 manufacturing employment was stagnant.[1] Yet the process that began in the 1960s was different; employment in manufacturing plunged rather than plateaued, taking with it not just well-paying jobs but also a host of social and political structures that had grown alongside the industrial economy. For the world's first industrial nation, and especially the parts of it whose economic survival depended on the production of goods, the onset of deindustrialisation would therefore prove to be something of a calamity.

Deindustrialisation is a topic that has drawn considerable attention both within the academy and beyond. Decades of research, both on Britain and countries like it, has revealed deindustrialisation to have been a multifaceted process with a long 'half life'.[2] Years since the initial loss of their industrial jobs, many communities remain scarred by structural change and, by some metrics, their position continues to worsen. Among the most striking examples of this can be seen in geographical health inequalities and 'deaths of despair' – excess mortality caused by addiction or suicide – observed in post-industrial places. Recent research has shown that, with a handful of exceptions on the coast, age-standardised mortality rates in England today are highest in post-industrial

[1] M. Kitson and J. Michie, "The deindustrial revolution: the rise and fall of UK manufacturing, 1870-2010", *Cambridge Centre for Business Research Working Papers*, no. 459 (2014): 6.

[2] S. Lee Linkon, *The Half-Life of Deindustrialization: Working-Class Writing about Economic Restructuring* (Ann Arbor: University of Michigan Press, 2018).

areas such as Middlesbrough, Sunderland, and Wakefield.[3] The follow-up study to the influential Marmot Report 2010 also showed that improvements in life-expectancy have stalled in deprived neighbourhoods, and that vast health inequalities continued to exist even before the COVID-19 pandemic.[4]

As with all historical episodes, different fields and successive generations of scholars and commentators have tended to view deindustrialisation in different ways. In the wake of Brexit and the rise of populism in Europe and America, its impact on voting behaviour was studied.[5] More recently, the worsening security and energy situation has instigated a debate about industrial policy and the rebuilding of 'sovereign' manufacturing capabilities.[6] By contrast, early deindustrialisation scholarship, of which Bluestone and Harrison's 1982 *Deindustrialisation of America* is among the most prominent examples, focused heavily on patterns of disinvestment, and was produced by scholars who saw their work as contributing to an anti-deindustrialisation activist milieu.[7] Such scholarship has since given way to a sharp cultural turn, with prominent figures such as Cowie and Heathcott arguing in favour of moving beyond the so-called 'body count' of lost jobs and towards analyses of memory and culture.[8] It is in these matters that historians have tended to have the greatest impact, generally through the use of oral accounts and case studies.

As a consequence of the cultural turn, quantitative economic and social histories of deindustrialisation are somewhat rare, with most of the work being taken up by economists and economic geographers. In this sense, the corpus of literature on deindustrialisation is quite unlike that concerning industrialisation, which is structured around

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[3] C. Camacho et al., "Risk factors for deaths of despair in England: An ecological study of local authority mortality data", *Social Science & Medicine* 342, no. 116560 (2024).

[4] M. Marmot et al., *Health equity in England: the Marmot Review 10 years on* (London: Institute of Health Equity, 2020), 13.

[5] S. Guriev and E. Papaioannou, "The Political Economy of Populism", *Journal of Economic Literature* 60, no. 3 (2022): 753–832.

[6] "The world is in the grip of a manufacturing delusion: how to waste trillions of dollars", *The Economist*, 15 July 2023, 60–62.

[7] S. High, "'The Wounds of Class': A Historiographical Reflection on the Study of Deindustrialization, 1973-2013", *History Compass* 11, no. 11 (2013): 995; T. Strangleman and J. Rhodes, "The "New" Sociology of Deindustrialisation? Understanding Industrial Change", *Sociology Compass* 8, no. 4 (2014): 413.

[8] J. Cowie and J. Heathcott, *Beyond the ruins: the meanings of deindustrialization* (Ithaca, NY: Cornell University Press, 2003), 4.

longstanding themes and has been led by the work of economic historians.[9] There are advantages and disadvantages associated with this. On the one hand, interdisciplinary scholarship has ensured that topics such as protest, femininity and masculinity, nationalisms, family, and community cohesion have not been lost in an economic mêlée. On the other, the de-prioritisation of economic questions is arguably producing a field more interested in assembling subjective accounts of ruination than drawing links between myriad socio-cultural and political problems and their underlying causes.

At face value, the above statement may seem unnecessarily harsh. After all, each of the consequences of deindustrialisation researched by qualitative means have a singular cause – the closure of industrial enterprises and the resulting lack of jobs – and scholars are ignorant neither of its chronology nor its material implications. Yet for most studies of deindustrialisation, these factors appear mostly as the context for the historical analysis at hand, rather than as a leading line of inquiry. The result is a literature that is too often guided by 'miserablist' priors. Instead of working forwards from the onset of deindustrialisation to a variety of outcomes, historians instead tend to select case studies defined by their terrible outcomes and work backwards to the initial shock. The difference between the two is subtle, but it has important implications for understanding how deindustrialisation harmed communities, and how the process may have occurred differently across places and moments in time.

This is not to say that the present shortcomings of the field are the fault of qualitative researchers alone. On the contrary, problems such as data availability and a desire to find exogenous shocks to enable the use of clever statistical tools have inhibited the development of a long-run, data-driven account of deindustrialisation in the British context. Instead, quantitative accounts remain almost entirely focused on the 1980s, which, while indisputably important to the history of deindustrialisation, should not be examined in isolation. Although this is beginning to change, quantitative accounts also often fail to pay enough attention to local economic geography in their analyses. Studies conducted

[9] J. Mokyr, *The British Industrial Revolution: An Economic Perspective*, 2nd ed. (New York: Routledge, 2018), 1–84.

at national, or even regional, levels cannot hope to adequately capture how deindustrialisation devastated communities and shaped local labour market outcomes.

This thesis makes progress on these issues by way of two interrelated arguments. The first is that, at the level of local labour market areas, deindustrialisation in the 1970s and 1980s was both more widespread and more varied in character than is generally acknowledged. Alongside badly-hit 'declining' areas stood an equal number of better-performing 'surviving' areas and, in a handful of cases, 'thriving' post-industrial economies. Second, it is difficult to understand the spatial pattern of deindustrialisation in the 1970s and 1980s without an appreciation of the reorganisation of the industrial economy over the previous five decades. Deindustrialisation was underway in some places even as the national economy continued to industrialise. Chief among them were the major cities, which – taken together – lost close to 10 per cent of their industrial jobs even during the 1950s boom. While it was the focus of research in the past, the degree to which the decline of the major cities (aided and abetted by successive governments) set the stage for the dislocation that followed has recently received less attention.

What emerges from following these arguments through is a picture of deindustrialisation as a collection of geographically-mediated processes rather than a sudden shock. Deindustrialisation played out differently across places, and it was these differences, rather than the onset of deindustrialisation itself, that determined the geography of economic hardship in the decades that followed. In establishing this link, this thesis goes some way to explaining why deindustrialisation tends to – erroneously – be thought of as something confined to the northern periphery, as it was in that part of the country that its most pernicious form took root. Other misconceptions that are challenged by this thesis include those relating to who constituted Britain's industrial workforce, as well as the state of social mobility in the industrial economy. These questions are addressed in the final substantive chapter, which focuses on individuals rather than places as the main units of analysis.

Choice of indicators and causes of deindustrialisation

Throughout this thesis, more emphasis is placed on employment than any other measure of deindustrialisation. There are two reasons for this. First, data concerning other measures, such as output, are not available at low levels of geographical aggregation for the entire period. Whether this will change in future is, as yet, unknown. The current sub-regional gross value added (GVA) series produced by the Office for National Statistics (ONS) goes back only as far as 1998. Other sources with greater temporal coverage, such as the Rosés and Wolf dataset on regional GDP, use geographical units that are still too large.[10] Fixing this problem with a new series is well beyond the scope of this thesis. By contrast, employment data are available for small geographical units, are classified by industry, and have been recorded for centuries. The only downside to the employment data (a problem the data concerning output also share) is that they are currently only available in a useful format for England and Wales, meaning that Scotland and Northern Ireland are excluded from this study.

Second, while it can be observed in data concerning trade and output, deindustrialisation is overwhelmingly an employment phenomenon. Indeed, the trajectories of industrial employment and output often move in opposite directions, with output rising despite steep contractions in the number of jobs. This is certainly the case in Britain where, notwithstanding dips in the 1930s, 1980s, and late-2000s, deindustrialisation in terms of output has yet to occur. Instead, real manufacturing output expanded consistently up to the 1990s and has remained essentially flat ever since.[11] Despite this, Britain's share of global manufacturing exports fell from 24.6 per cent in 1950 to just 6.9 per cent in 1999.[12] Industrial employment has also fallen precipitously; as is discussed at length throughout this thesis, the number of industrial workers declined from a peak of around

[10] N. Wolf and J. Rosés, *The economic development of Europe's regions: a quantitative history since 1900* (New York: Routledge, 2019).

[11] Kitson and Michie, "The deindustrial revolution: the rise and fall of UK manufacturing, 1870-2010", 6–12; C. Rhodes, *Manufacturing: statistics and policy*, 01942 (London: House of Commons Library, 2020), 4.

[12] S. Broadberry, "The performance of manufacturing", in *The Cambridge Economic History of Modern Britain*, 1st ed., ed. R. Floud and P. Johnson, vol. 3 (Cambridge: Cambridge University Press, 2004), 64.

8.6 to 4.2 million during the same period.[13]

The explanation for the mismatch between the indicators lies in deindustrialisation's underlying causes, which, as argued by Rowthorn and Wells back in the 1980s, are both internal and external in origin.[14] On the one hand, deindustrialisation can result from changes in countries' comparative advantage. As economies in different parts of the world – especially those with lower wages – begin to industrialise, the relative competitiveness, and thus the industrialism, of existing producers will naturally decline. Allied to this is the tendency for industrial production to become 'unbundled' over time, with labour-intensive processes being outsourced overseas.[15] It is these changes that sit at the core of what Autor calls the 'China syndrome' in the United States; places vulnerable to Chinese import competition have deindustrialised, lowering employment, economic participation, and shaping political attitudes.[16] On the other hand, deindustrialisation can be a natural consequence of economic maturity. Just as agriculture declined from being the employer of the majority of workers centuries ago, industrial employment can be expected to fall as a result of mechanisation and changes in consumption patterns as incomes rise. From this standpoint, deindustrialisation should not be seen to be a negative process, but rather a sign of economic progress.[17]

In their own ways, both of these sets of processes can explain why industrial employment has fallen despite output remaining high. In order to remain competitive, manufacturers raise their productivity (and, more often than not, their output) by replacing expensive workers with machines. Moreover, as their competitiveness in the production of 'simple' goods disappears altogether, advanced economies begin to specialise in small-volume, high-technology products. This process, which can be (crudely) described

[13] R. Thomas and N. Dimsdale, *A Millennium of UK Data* (Bank of England OBRA dataset: https://bit.ly/3FWho4i, 2017), Table A53.

[14] R. Rowthorn and J. Wells, *De-industrialization and foreign trade* (Cambridge: Cambridge Univeristy Press, 1987).

[15] R. Baldwin, "Trade and industrialisation after globalisation's 2nd unbundling: how building and joining a supply chain are different and why it matters", *NBER Working Papers*, no. 17716 (2011): 1–38.

[16] D. Autor, D. Dorn and G. Hanson, "The China Syndrome: Local Labor Market Effects of Import Competition in the United States", *American Economic Review* 103, no. 6 (2013): 2121–2168.

[17] R. Rowthorn and R. Ramaswamy, *Deindustrialization—Its Causes and Implications* (Washington D.C.: International Monetary Fund, 1997), 11.

as switching from producing Fiats to Ferraris, also marries a reduction in the number of workers (especially those with lower skills) with higher overall output.

Naturally, elements of this theory have come under challenge. While some authors place more emphasis on domestic factors, others (using very similar data) stress the importance of trade – especially with the newly-industrialising 'global south'.[18] In a 2013 paper, Rowthorn and Coutts take the view that it is indeed internal factors, such as productivity growth and shifts in consumption, that determine the onset of deindustrialisation.[19] Using regression models, they show that the turning point at which the manufacturing sector's share of employment begins to fall ought to be a GDP per capita of around $10,500 (1995 PPP), although recent analysis of structural change in developing economies suggests that this may not apply universally. Some countries, especially in Latin America, are deindustrialising at much lower levels of income.[20] One possible explanation for this 'premature' deindustrialisation is that these countries are struggling to follow more advanced economies in moving up the value chain of production away from simple to more complex products.[21] Another exception to the trend is Britain, which Rowthorn and Coutts say deindustrialised much more heavily than would be expected considering changes in trade and incomes over the last few decades.[22] Their main suggestion is that this extra deindustrialisation may have something to do with financialisation, although it seems more likely that an explanation they mention only in passing – the actions of the various Thatcher ministries – possesses greater explanatory power.[23]

[18] For a flavour of this debate see C. Kollmeyer, "Explaining Deindustrialization: How Affluence, Productivity Growth, and Globalization Diminish Manufacturing Employment", *American Journal of Sociology* 114, no. 6 (2009): 1644–1674; L. van Neuss, "Globalization and deindustrialization in advanced countries", *Structural Change and Economic Dynamics* 45 (2018): 49–63; and K. Vu, N. Haraguchi and J. Amann, "Deindustrialization in developed countries amid accelerated globalization: Patterns, influencers, and policy insights", *Structural Change and Economic Dynamics* 59 (2021): 454–469.

[19] R. Rowthorn and K. Coutts, "De-industrialisation and the balance of payments in advanced economies", *Cambridge Centre for Business Research Working Papers*, no. 453 (2013): 13.

[20] D. Rodrik, "Premature deindustrialization", *Journal of Economic Growth* 21 (2016): 1–33.

[21] G. Dosi, F. Riccio and M. Virgillito, "Varieties of deindustrialization and patterns of diversification: why microchips are not potato chips", *Structural Change and Economic Dynamics* 57 (2021): 182–202.

[22] Rowthorn and Coutts, "De-industrialisation and the balance of payments in advanced economies", 14.

[23] For a discussion of the role of financialisation in the Latin American case in particular, see E. Caldentey and M. Vernengo, "Financialization, premature deindustrialization, and instability in Latin America", *Review of Keynesian Economics* 9, no. 4 (2021): 493–511. In taking the position that deindustrialisation in Britain may be rooted in changes in the balance of payments, Rowthorn and Coutts resuscitate an argument central to the thesis of Rowthorn and Wells, who argued that, in part, deindustrialisation had to have happened because there was a zero-sum relationship between tangible and intangible trade.

In addition to their role in accelerating the financialisation Rowthorn and Coutts identify as a possible cause of Britain's additional deindustrialisation, the blow dealt to British industry by the various Thatcher ministries had two main sources. In the first instance, the 'adventurist' flirtation with monetarism – pursued in the hope of curbing the high inflation of the 1970s – dramatically worsened the impact of the early-1980s recession, during which huge numbers of industrial jobs were lost.[24] Convinced that inflation was driven by an expansion in the money supply, the government cut spending and dramatically increased interest rates.[25] This increased the cost of borrowing for businesses and, crucially, led to an appreciation in the value of sterling that left British exports uncompetitive. Considering the fact that the pound's value had already climbed as a result of rising North Sea oil revenues, the results were deadly for industrial employers; between 1979 and 1981 approximately 25 per cent of Britain's industrial capacity was lost.[26] In conjunction with these early missteps, the Thatcher ministries exacerbated deindustrialisation through their privatisation programme, their combative stance to trade unions, and the withdrawal of state intervention and subsidy in the industrial sector. Pursued ostensibly in the hope of revitalising the economy, each of these things either directly caused industrial job losses or enabled them by removing a perceived obstacle to economic progress.[27]

Yet it is important to recognise that part of the reason why the Thatcher years were so devastating was that British industry was already in a fragile position. Investment in industry was chronically low even before the arrival of Thatcher in Downing Street.[28] Productivity had slipped behind that of comparable European countries, and rising inflation had triggered a deterioration in industrial relations.[29] Moreover, Britain's industrial

[24] J. Tomlinson, "Mrs Thatcher's Macroeconomic Adventurism, 1979-1981, and its Political Consequences", *British Politics* 2 (2007): 3–19.

[25] The government's commitment to monetarism has been debated, but insider accounts suggest that Thatcher herself was ideologically committed to controlling the money supply as a method of reducing inflation. See T. Lankester, *Inside Thatcher's Monetarism Experiment: The Promise, the Failure, the Legacy* (Bristol: Policy Press, 2024).

[26] E. Evans, *Thatcher and Thatcherism*, 3rd ed. (London: Routledge, 2013), 23.

[27] P. Dorey, "Weakening the Trade Unions, One Step at a Time: The Thatcher Governments' Strategy for the Reform of Trade-Union Law, 1979–1984", *Historical Studies in Industrial Relations* 37, no. 1 (2016): 169–200.

[28] Kitson and Michie, "The deindustrial revolution: the rise and fall of UK manufacturing, 1870-2010", 16.

[29] S. Broadberry, *The Productivity Race: British manufacturing in international perspective, 1850-1990* (Cam-

sector remained marked by the first industrial revolution. Even by 1971, nearly one in five industrial workers was employed in old industries such as textiles, mining, or shipbuilding which operated far from the technological frontier. British industry was, therefore, not in a position to withstand the sort of shock therapy the Thatcher governments had in store.

How British industry found itself in such a vulnerable position is a contentious issue, with much of the debate intertwined with discussions of the relative decline in Britain's GDP per capita during the post-war period. The most prominent explanation for these problems is the 'Broadberry-Crafts view', which posits that British industry faced a number of structural impediments that were rectified only after joining the European Community and the reforms implemented after 1979.[30] Among the problems identified by Broadberry and Crafts are the failed experiment in boosting productivity through the use of American mass-production methods, which were inappropriate for British consumers and worsened industrial relations, as well as a host of anti-competitive practices nurtured from the 1930s onwards.[31] Factors that shielded British firms from competition included a reliance on captive imperial markets, politicised (and ineffective) supply-side policy during the 1940s, nationalisation, and the existence of cartels.[32] Each of these things staved off deindustrialisation in the medium term, but they slowed economic growth and ultimately created a bloated and unproductive industrial sector.

While the idea that the British industrial sector had structural weaknesses is not overly controversial, the argument that the various Thatcher ministries corrected its problems and arrested national decline is far more so. This is not least because improvements in productivity and growth came at a staggeringly high human cost. As is widely known, unemployment exceeded 3 million in the early-1980s recession, and the growth that did occur was not shared evenly. Part of the reason for this was the smashing of

bridge: Cambridge University Press, 1997), Chapter 12.

[30] S. Broadberry and N. Crafts, "UK productivity performance from 1950 to 1979: a restatement of the Broadberry-Crafts view", *Economic History Review* 56, no. 4 (2003): 719–720.

[31] Broadberry, "The performance of manufacturing".

[32] N. Crafts, *Adapting Well to New Circumstances? UK Experience in Changing Times* (London: Resolution Foundation, 2022).

trade unions that had historically protected the incomes of low-paid workers, but it was also a product of structural change.[33] The post-industrial economy operated under different rules than its forebears; working-class people – especially those without formal qualifications – had fewer opportunities to become prosperous.

It is here that the question of British decline becomes especially contentious, with anti-declinists offering two main rebuttals. On the one hand, scholars such as Booth and Edgerton play down the extent to which Britain fell behind in the post-war period, pointing out that Britain's decline was not overly large, was entirely relative, and was confined to international comparisons.[34] After all, from a domestic standpoint, growth during the immediate post-war decades was at a record high, and living standards improved dramatically. The other, more persuasive, line of argument is much more philosophical: how much do deficiencies in growth matter if rectifying them means fewer people enjoy the spoils? It is partly for this reason that scholars such as Tomlinson argue in favour of abandoning the declinist paradigm altogether, replacing it with deindustrialisation as a 'meta-narrative' for postwar British history.[35]

By highlighting the tensions between economic and human welfare, the debate on declinism offers further justification for focusing on employment as a measure of deindustrialisation. While countless papers and books show growth to be the primary determinant of welfare in the long run, its impact in the short-to-medium term can be ambiguous, particularly when structural change is involved. Perhaps with the exception of consumption, it is through employment that people primarily interact with the economy. For the vast majority of people who sell their labour for income, whether they have a job, and whether their wages are good enough to support their lifestyles, will always seem more important than fractional differences in productivity and output. Most of the consequences of deindustrialisation for individuals, such as falling incomes

[33] S. Machin, "The decline of labour market institutions and the rise in wage inequality in Britain", *European Economic Review* 41, no. 3 (1997): 647–657.

[34] A. Booth, "The manufacturing failure hypothesis and the performance of British industry during the long boom", *Economic History Review* 56, no. 1 (2003): 1–33; D. Edgerton, "The Decline of Declinism", *Business History Review* 71, no. 2 (1997): 201–206.

[35] J. Tomlinson, "De-industrialization Not Decline: A New Meta-narrative for Post-war British History", *Twentieth Century British History* 27, no. 1 (2016): 76–99.

or even the breakdown of 'traditional' concepts of masculinity, follow from this fact.[36]

Something similar can be said for deindustrialisation's impact on places, which again derived mostly from employment rather than output. Unlike the regionally-orientated industrial capitalism of the nineteenth century, most industrial employers were either national enterprises headquartered in London or firms based overseas.[37] This meant that the competitiveness of industries, as well as their success and failure in general, had an impact on places mostly through their impact on employment and wages, which in turn drove or crashed the local economy. Furthermore, with the exception of the role played by the presence of physical ruins in shaping local identities, the social impact of deindustrialisation on places has also largely reflected changes in workplace culture.[38] While the work itself often imposed social costs, communities that grew up in the shadow of industrial production were familiar with its rhythms and drew pride from their association with an asset that delivered them stability and high wages.[39] For men in particular, the workplace engendered a solidaristic moral order that produced a form of hierarchical social harmony.[40] When industrial jobs disappeared, their associated social benefits also vanished, leaving lasting psychological damage on entire communities.[41]

Another factor that places employment at the heart of the history of deindustrialisation is that the industrial society it unmade was remarkably work- and worker-centric.[42] As Offer argues, the economy of the post-war period was dominated by a 'pro-

[36] T. Strangleman, "The World We Have Lost: Reflections on Varieties of Masculinity at Work", *International Labor and Working-Class History*, 2024, 1–17.

[37] D. Edgerton, *The Rise and Fall of the British Nation: A Twentieth-century History* (London: Allen Lane, 2018), 312. Foreign ownership was especially common in Scotland, where American multinationals played a large role in maintaining industrial employment. See J. Tomlinson, J. Phillips and V. Wright, "De-industrialization: a case study of Dundee, 1951–2001, and its broad implications", *Business History* 64, no. 1 (2022): 28–54.

[38] A. Mah, *Industrial Ruination, Community, and Place: Landscapes and Legacies of Urban Decline* (Toronto: University of Toronto Press, 2012).

[39] S. High, "'They were making good money, just ten minutes from home': Proximity and Distance in the Plant Shutdown Stories of Northern Ontario Mill Workers", *Labour/Le Travail* 76 (2015): 24.

[40] T. Strangleman, "Work Identity in Crisis? Rethinking the Problem of Attachment and Loss at Work", *Sociology* 46, no. 3 (2012): 412.

[41] V. Walkerdine and L. Jimenéz, *Gender, Work and Community after De-Industrialisation: A Psychological Approach to Affect* (Basingstoke: Palgrave Macmillan, 2011).

[42] I take the term 'industrial society' from Strangleman, who defines it as a specific epoch bookended by the industrial revolution and deindustrialisation. T. Strangleman, "Deindustrialisation and the Historical Sociological Imagination", *Sociology* 51, no. 2 (2017): 477.

letarian mode of production' that was structured around the needs of skilled (if informally trained) manual workers. Under that paradigm, secure, well-paid work was available to individuals with no formal qualifications, with advancement tied mostly to years of experience. Alongside this, workers enjoyed real – collective – bargaining power, which protected their autonomy, incomes, and idiosyncratic way of life from the excesses of the capitalist system.[43] In historical terms, this state of affairs was highly unusual. Prior spurts of growth, such as in the industrial revolution, tended to bring returns to capital rather than labour, and downturns tended to hit working-class incomes hard.[44] A full analysis of why the economy of the post-war period was so favourable to working-class people is not necessary here, although it probably owed something to the fact that industrial production – especially craft-led British manufacturing – was both competitive and still at a relatively labour-intensive point in its development cycle (at least compared to today). The resulting demand for industrial workers provided the working class with political and social clout which, in turn, it used to squeeze out greater returns to labour and better working conditions.

Structure of the thesis

This thesis is structured around three substantive chapters. The first two examine deindustrialisation processes from a spatial standpoint, and the final chapter is focused on individuals' careers. Core to this thesis is the idea that in order to understand deindustrialisation properly, it is necessary to study the process comparatively. An important part of the historical significance of what happened in somewhere like Manchester or Coventry lies in how it compared to the experiences of other places, as well as whether or not the consequences of deindustrialisation were the result of a sudden shock or a long-running process. Without comparisons, or indeed the long-run gaze of this thesis, these things are largely unknowable. Solving this problem has required the collection

[43] A. Offer, "British Manual Workers: From Producers to Consumers, c. 1950-2000", *Contemporary British History* 22, no. 4 (2008): 537–571.

[44] R. Allen, "Engels' pause: Technical change, capital accumulation, and inequality in the British industrial revolution", *Explorations in Economic History* 46, no. 4 (2009): 418–435; J. Humphries and J. Weisdorf, "Unreal wages? Real Income and Economic Growth in England, 1260-1850", *The Economic Journal* 129, no. 623 (2019): 2879.

and harmonisation of large amounts of data spanning the entire period in question. This was a long and complicated process, but the result is new insights into the forms deindustrialisation took at low levels of geographical aggregation and its underlying causes. Nowhere is this the case more than in the data used in Chapter 2, where I created a new sector classification system to harmonise data for the 1970s and 1980s to a level of precision unavailable elsewhere. In order to help future researchers, the full details of this new classification system are included in the Appendix.

Chapters 1 and 2 are structured chronologically, with the first of the two being concerned with the period 1921-1971 and the latter the 1970s and 1980s. The narrative is broken in the late-1960s for two reasons. On the one hand, the quality of the available data improves considerably after 1971, with figures being available more regularly and at lower levels of geographical aggregation. On the other, it was in the late-1960s that the deindustrialisation process changed from a geographically and sectorally isolated problem in a growing industrial economy to a process that swept away most industrial employment altogether. This second stage, something I call the 'elimination phase' of deindustrialisation, affected almost every part of the country.

Making use of considerable amounts of census data drawn both from the original printed tabulations and a compendium assembled at the end of the 1970s by Lee, Chapter 1 provides a detailed overview of the gradual reorganisation of the industrial economy from 1921 onwards. It shows how the timing of the onset of deindustrialisation at a national level was determined by a combination of relentless job losses in declining industries, such as coal mining, and the slowdown in growth in formerly expanding sectors, such as vehicles. The balance of these two factors also had a strong effect at a local level. Despite national employment in industrial activities continuing to rise into the mid-1960s, many parts of the country were experiencing deindustrialisation much earlier. Among these were industrial heartlands such as Lancashire and Wales, whose industrial employment peaked in the 1920s, as well the major cities, which in almost every case began to deindustrialise earlier than both the country as a whole and their immediate vicinities.

While deindustrialisation in Wales and Lancashire can mostly be attributed to their historical reliance on declining industries, the fall of the major cities was instead the product of their missing out on growth in expanding industries. Despite possessing nearly 22 per cent of all jobs in expanding industries in 1921, the non-London major cities (Birmingham, Bristol, Leeds, Liverpool, Manchester, Newcastle, Nottingham, and Sheffield) received just 1 per cent of the (net) new jobs created in those sectors over the next five decades. This meant that the brief period of working-class prosperity enjoyed after the Second World War was necessarily a creature of suburbs and towns – towns that would, in the decades that followed, struggle to stay afloat as the economy changed.

Part of the historical relevance of the town-city deindustrialisation dynamics discussed in Chapter 1 is the degree to which they interacted with regional policy. Despite it occurring during a period in which governments of all parties worked hard to influence the geography of the industrial economy, the decline of the cities was allowed to progress unabated. Indeed, many government interventions actively attempted to reinforce the process, largely because of a feared 'congestion' problem, and the supposed poor locational acumen of industrialists. In a new contribution to the literature on post-war regional policy, Chapter 1 makes use of the records of the Location of Offices Bureau – a body set up to disperse offices from cities – to show just how deeply these views were held. The records of the Bureau are interesting because office employment was targeted despite the fact that it inflicted far fewer burdens on places than industry in terms of pollution, space requirements, and wear and tear on public infrastructure.

Chapter 2 turns to the more familiar ground of the 1970s and 1980s, during which millions of industrial jobs were lost. Central to the chapter is an attempt to resolve an important question; if decades of reorganisation had made the industrial economy of the early-1970s so regionally dispersed, why did the deindustrialisation of the post-1971 period trigger a return to the regional problems of the pre-war period? In order to answer this question, Chapter 2 explores the employment trajectories of more than 100 self-contained industrial labour market areas, using the aforementioned new industrial classification to delineate precisely the roles played by different sectors. In something of

an innovation for the literature, the chapter also pays attention to women's employment, showing, in turn, that their experiences in the 1970s and 1980s were shaped by many of the same forces as men.

In the course of the analysis, the chapter shows that the overwhelming majority of industrialised labour market areas (even the ones that have done relatively well in the decades since) lost industrial employment in absolute terms even before 1978. Deindustrialisation was therefore ubiquitous; the difficulties faced by some parts of the country cannot be explained by the onset of structural change alone. Instead, I argue that the differences can be attributed to the forms of deindustrialisation that places experienced. I do this through the development of a new typology that separates out 'declining', 'surviving', and 'thriving' places. Declining areas, most of which are situated north of Britain's famous north-south divide, differed from the others in that falling industrial employment led to an overall reduction in the size of a place's labour force, while in the other two, deindustrialisation coexisted with continued growth. Using a simple regression analysis, I show that even with a battery of controls, these deindustrialisation types are a leading reason for the socioeconomic differences observed between declining areas and the rest in the decades since.

The latter part of Chapter 2 is devoted to explaining why the different forms of deindustrialisation emerged. Using a dynamic shift-share analysis, the chapter shows that the weakness of declining areas resulted from structural factors. The success of thriving and surviving areas is, however, more difficult to explain. Like declining areas, thriving and surviving areas were not structurally predisposed for growth. Indeed, had they simply followed the path their structural inheritances laid out for them, they too would have declined. The success of thriving and surviving probably owed something to their ability to reinvent their economies over the long term, replacing their industrial employment with jobs in new 'tradable' service activities able to bring income into the community. Yet the evidence for this, at least in the medium term, was mixed. In the 1970s and 1980s, most of the success of thriving and surviving areas lay in shallower contractions in their industrial base, as well as new jobs in low-value transport and distributive services. This,

in turn, suggests that whatever reinvention was occurring was unlikely to have yielded many benefits for the industrial working class, most of whom ended up in low-paid and low-prestige employment.

The third and final substantive chapter of the thesis explores how the reorganisation of the industrial economy in the pre-1971 period, in conjunction with the heavy deindustrialisation of the 1970s and 1980s, affected the careers of working-class people. In order to do this, the chapter makes use of the British Household Panel Survey (BHPS), which was a longitudinal study that collected data on individuals in a series of annual 'waves' from 1989 onwards. Of critical importance to this study, the surveyors asked respondents about their entire careers in the second and third waves, making it possible to reconstruct people's careers prior to the beginning of the survey in the 1990s.

After a discussion of the source and its relative strengths and weaknesses, Chapter 3 turns to the task of establishing who comprised the twentieth-century industrial working class. In examining career choices, the chapter focuses on four characteristics – age, sex, education, and parentage. Perhaps unsurprisingly, the odds that a person became an industrial worker were higher if they were male, were born before 1940, had no post-secondary qualifications, and had at least one parent who worked in an industrial job. Nevertheless, the chapter shows that male domination of the industrial sector was far lower than that seen in construction or, indeed, female domination of the public sector.

The rest of Chapter 3 is devoted to people's career trajectories, especially in relation to the frequency of sector changes and their resulting impact on socioeconomic status. This is by no means a straightforward task. The long-run nature of the work history data, in conjunction with significant heterogeneity in career structures, makes drawing comparisons between individuals extremely difficult. The chapter gets around these problems by way of a novel approach to measuring careers – the identification of 'career-relevant spells' – that allow the drawing of comparisons between individuals on the basis of jobs that were relatively important in the context of their careers, rather than at arbitrary points. Thanks to this framework, Chapter 3 is able to show what industrial workers

tended to do after their last significant industrial job, as well as assess the implications of taking jobs in different sectors for socioeconomic status. Confirming the results of Chapter 2, the findings of Chapter 3 suggest that the bulk of former industrial workers who stayed in the workforce did so by taking jobs in low-end transport and distributive services.

The thesis ends with a short conclusion that reflects on the historical significance of the chapters, as well as the opportunities for future research. By way of an illustration, the conclusion presents some findings from a research briefing published in the summer of 2023, which applied the typology framework of Chapter 2 in the Merseyside context. The briefing itself demonstrates both why the plight of Liverpool in the 1980s is thought of as a case of deindustrialisation even though the city was not especially industrial by the 1980s, and the value in using the framework in assessing structural change in different places and in different time periods.[45]

[45] J. Evans, "Understanding deindustrialisation in Merseyside, 1971-1991: lessons for policy", *Heseltine Institute Policy Briefings* 3, no. 5 (2023): 1–8.

Chapter 1

An industrial economy reorganised, 1921-71

1.1 Introduction

As the year in which manufacturing employment reached its zenith, 1966 is habitually cited by scholars and commentators as a significant moment in the history of deindustrialisation in Britain.[1] There are good reasons for this; manufacturing was the leading source of industrial employment, and its post-1966 decline was unusually severe by international standards.[2] Nevertheless, the question of when deindustrialisation began depends greatly on how 'industry' is defined and measured. Whilst employment in manufacturing grew into the 1960s, other parts of the industrial sector, such as mining, began contracting much earlier. The importance of industry to the national economy also shifted as other sectors grew. Both in Britain and other developed economies, the expansion of services led to reductions in industry's share of employment long before the raw number of industrial workers fell.[3]

[1] See, for example, S. Fothergill and T. Gore, "The implications for employment of the shift to high-value manufacturing", Foresight, Government Office for Science (2013): 8, https://bit.ly/3ESf24F.

[2] A. Thirlwall and H. Gibson, *Balance-of-Payments Theory and the United Kingdom Experience*, 4th ed. (London: Palgrave Macmillan, 1992), 366.

[3] C. Feinstein, "Structural Change in the Developed Countries in the Twentieth Century", *Oxford Review of Economic Policy* 15, no. 4 (1999): 53–54.

Seemingly trivial, definitional issues such as these have implications for how deindustrialisation is evaluated and historicised. For Tomlinson, whose 'meta-narrative' framework is amongst the most influential long-term perspectives, deindustrialisation was a child of the 1950s.[4] Yet, when considered from a sub-national standpoint, the chronology of structural change is not so clear cut. Deindustrialisation was faced by working-class people in some parts of England and Wales even as industry expanded at a national level. In this formulation, the 1950s and 1960s are important not as the time deindustrialisation began but rather as the decades in which the process changed. Whereas it had previously burdened just some people in some parts of the country, the generalised deindustrialisation underway by the end of the 1960s was a crisis for the entire industrial working class.

The central contention of this chapter is that the well-known post-1966 'elimination' phase of deindustrialisation was conditioned by a process of reorganisation that played out over five decades prior. The reorganisation had both sectoral and spatial dimensions, and it occurred relentlessly across both the troubled interwar years and the post-war 'golden age'. A key feature was the crisis of the major cities which, in terms of population and employment, declined first relatively and then absolutely after 1931. The deterioration of the major urban centres ensured that the fleeting post-war years of working-class prosperity discussed in the introduction to this thesis were, for the most part, a creature of towns. Many of these towns were located away from older industrial centres, and were either new creations or significant expansions on what had existed before. Reorganisation therefore temporarily opened new places and patterns of urban life to working-class people, only for them to be upended a generation later as the elimination phase of deindustrialisation got underway.

By including the entire 1921-1971 period in the history of deindustrialisation, this research breaks with established patterns of periodisation observed in the literature. Despite widespread recognition that the challenges of pre- and post-war industry occurred across similar geographies (especially along north-south divide), the two periods are

[4] Tomlinson, "De-industrialization Not Decline: A New Meta-narrative for Post-war British History".

frequently considered in isolation.[5] This is in no small part a consequence of the upturn in the fortunes of the industrial sector during and immediately after the Second World War. Deindustrialisation, a term laden with negative connotations, feels incompatible with social progress.

However, far from being irreconcilable, deindustrialisation is as good a term as any to describe the processes of industry turnover and geographical reorganisation that affected working-class life throughout the entire period. The fortunes of industries tend to be determined by forces operating at national and international scales; however, most people interact with the economy within constrained geographical boundaries. Thus, even in places where overall levels of industrial employment were maintained, the replacement of one sector, such as mining, with something different, such as light industry, could trigger profound changes in patterns of living and working. Deskilling, reduced job security, and loss of workplace esteem were not just traits of the elimination phase.

Following a discussion of the main sources and an overview of the reorganisation of the industrial economy from a national perspective, this chapter examines changes in industrial employment at a county level. It is shown that even in parts of England and Wales that deindustrialised relatively early, the loss of older industries was compensated for by significant growth in expanding industrial activities. The most notable exception to this trend was the major cities, which lost their initial lead in expanding sectors and deindustrialised as a consequence. Towns, by contrast, punched well above their weight. The latter part of the chapter is devoted to the state, which used various policy levers to shepherd the reorganisation of industry from the mid-1920s onwards. Robust numbers are hard to obtain, but government initiatives were reasonably successful at creating industrial jobs and limiting unemployment. However, policy responses tended to reinforce patterns of sectoral and geographical reorganisation rather than interrupt them. Nowhere is this more obvious than in the major cities, which were actively contained by successive governments on the advice of a planning profession ideologically hostile

[5] D. Dorling, "Distressed times and areas: poverty, polarisation and politics in England, 1918-1971", in *Geographies of England: The North-South Divide, Material and Imagined*, ed. A. Baker and M. Billinge (Cambridge: Cambridge University Press, 2004), 44–63.

to their development.[6]

From a political economy perspective, successive governments' unwillingness to arrest the decline of the country's largest settlements seems astounding, and not least because of the considerable efforts made to prop up smaller places at the cost of competitiveness over the long term. Yet it did happen, and its impact both on deindustrialisation and present debates about the UK's economic geography is a matter that hitherto has received too little attention. This chapter goes some way to correcting this imbalance though the use of various publications and documents emanating from the 'Location of Offices Bureau', which was established in 1963 with the express purpose of constraining the growth in services in the capital.[7] These documents, which have been underused by historians, emphasise the degree to which attempts to disperse activity away from cities were grounded in a willingness to subordinate economic considerations to an ideological pursuit of small-town living.

1.2 Data sources

As far as quantitative evidence is concerned, choosing sources requires a balancing act between the time period covered, the granularity of the sector classification, and the geographical units. The best workable balance needed for this study is achieved by the census which, with the exception of 1941, is available at least on a decadal basis for the entire period. In addition to its longevity, the census contains employment data that are broken down into detailed sectoral categories and are available at sub-regional geographical units. The main challenge emanating from the source is that rather than existing in a single digitised repository under a consistent classification system, census data have been compiled piecemeal by a number of different projects. As a result, this chapter has required careful harmonisation of different sources and, in places, the manual transcription of original data.

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[6] P. Hall, "The Containment of Urban England", *The Geographical Journal* 140, no. 3 (1974): 403.

[7] Parliamentary Papers, *London – Employment: Housing: Land*, (HC 1962-1963 1952) (London: House of Commons, 1963), 6.

These compilation processes have been assisted greatly by the work of Lee, whose *British Regional Employment Statistics* contains county-level estimates of employment by industry for the decadal censuses in the period 1841-1971.[8] Digitised and made available online by the team behind the 'Great Britain Historical Database' (GBHD), Lee's estimates provide the starting point around which I have aligned other census data.[9] Among these are sub-county data that the GBHD team have digitised and made available for the 1931, 1951, and 1971 censuses.[10] An important advantage of Lee's estimates over other compilations of sub-regional census data for this period, such as that found on the GBHD project's 'Vision of Britain' website, lies in the classification system. Writing in the 1970s, Lee's compilation uses the contemporary – 1968 – Standard Industrial Classification (SIC). As a time in which the industrial sector was more important that it is today, that system presents the industrial sector in much more granular detail than today's SIC. This makes it possible to distinguish between employment in different parts of the industrial sector over the long run. While Lee only harmonises the various census data to a middling level of aggregation, this results in a dataset with 27 sectors, 19 of which are industrial.[11]

In addition to taking the digitised sources provided by Lee and the GBHD project, I have transcribed data for the major cities from the 'Industry Tables' of the 1921 census and relevant 'County Leaflets' of the 1961 census.[12] I have also transcribed data for all counties and the major cities from the County Leaflets of the 1966 'Sample Census'.[13] Breaking with the traditional decadal character of census taking in Britain, the 1966 census provides important additional detail about the progress of deindustrialisation in

[8] C. Lee, *British Regional Employment Statistics 1841-1971* (Cambridge: Cambridge University Press, 1979).

[9] D. Gatley et al., *Great Britain Historical Database: Census Data: Occupational Statistics, 1841-1991*, 2nd ed. (UK Data Service: SN4559, DOI: 10.5255/UKDA-SN-4559-2, 2022).

[10] H. Southall, *Great Britain Historical Database: Census Data: Industry Statistics, 1931, 1951 and 1971* (UK Data Service: SN9020, DOI: 10.5255/UKDA-SN-9020-1, 2022).

[11] In addition to the 17 manufacturing industries, this chapter includes mining and utilities (gas, electricity, and water) in its definition of 'industrial' sectors. For details of the SIC 1968 see Central Statistical Office, *Standard Industrial Classification 1968* (London: Her Majesty's Stationery Office, 1968), 1–6.

[12] General Register Office, *Census of England and Wales 1921: Industry Tables* (London: His Majesty's Stationery Office, 1925), 337–383; General Register Office, *Census 1961 England and Wales: Occupation, Industry, Socio-economic Groups* (London: Her Majesty's Stationery Office, 1966).

[13] General Register Office, *Sample Census 1966 Engand and Wales: Economic Activity County Leaflets* (London: Her Majesty's Stationery Office, 1968).

the 1960s. Each of these sources were accessed at the Official Papers Collection at the Bodleian Library. With help from Lee's conversion table, it was possible to create a complete harmonised panel dataset for every county and major city in England and Wales from the 1921 census onwards.[14] These data are further supplemented by national employment and output data from the Bank of England's 'Millennium of Macroeconomic data', harmonised district-level population counts for the decadal censuses 1921-1971 from the Vision of Britain website, and parish-level data on the locations of coalface workers in 1911 drawn from the Integrated Census Microdata (I-CeM).[15] The latter are used to precisely identify settlements lying in coalfield areas.

There are three problems with the census data that must be acknowledged. First, despite a concerted effort to construct 'fuller and more scientific' systems to classify occupations and industries than those available ten years prior, industry categories in the 1921 census data are somewhat underdeveloped.[16] Moreover, while standalone wholesale, retail, and dealing were meticulously stripped out, many of these functions were conducted 'in house' at the time, unavoidably inflating employment in some industries.[17] Second, although information on the location of jobs was usually recorded on the basis of workplaces, the 1931 census data only report workers' places of residence. While frustrating, the distortionary impact of the problem is reduced by the fact that long-distance commuting (particularly across county boundaries) was generally uncommon. At the time it was hoped that the limitations of the 1931 census, which were the result of attempts to cut costs, could be compensated for by a census in 1936 that never occurred.[18]

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[14] Lee, *British Regional Employment Statistics 1841-1971*, 28–29.

[15] Thomas and Dimsdale, *A Millennium of UK Data*; output data are deflated as necessary using R. Thomas and S. Williamson, *'What Was the U.K. GDP Then?' The Historic Series* (Measuring Worth: https://bit.ly/3qbWLMg, 2023); Great Britain Historical GIS Project, *Total Population* (University of Portsmouth: https://bit.ly/3ZPmqrg, 2023); K. Schurer and E. Higgs, *Integrated Census Microdata (I-CeM), 1851-1911* (UK Data Service: SN7481, DOI: 10.5255/UKDA-SN-7481-2, 2022).

[16] General Register Office, *Census of England and Wales 1921: Industry Tables*, iii.

[17] General Register Office, *Census 1921: Classification of Industries* (London: His Majesty's Stationery Office, 1924), 9–11; It is, however, arguable that because firms in the early-20th century were much more vertically integrated than their descendants, and because these non-production functions were intrinsic to the value creation of the firm, that they ought to be seen as part of the manufacturing process after all. For a conceptual framework of these issues, see O. Williamson, *Markets and Hierarchies: Analysis and Antitrust Implications* (London: Collier Macmillan, 1983).

[18] General Register Office, *Census 1951 England and Wales: Preliminary Report* (London: His Majesty's Stationery Office, 1951), iii.

The third problem is geographical. In assembling his book, Lee merged a number of counties – notably those of Wales into two areas ('Glamorgan & Monmouth' and 'North & West Wales') and the constituent parts of Lincolnshire into a single unit – to ensure consistency over time. A more thorny issue is that of London which, after considerable political wrangling, saw a radical overhaul of the structure of its governance from 1965.[19] The new polity these reforms created extended beyond the boundaries of the old County of London and absorbed almost all of Middlesex and parts of Essex, Hertfordshire, Kent, and Surrey. Because Lee does not adequately control for them in his book, the extent of the changes necessitated the merging of these counties into a larger 'London Region' in order to ensure consistency. As a consequence of these various mergers, this chapter is confined to larger geographical units than could theoretically be the case. However, an analysis conducted over smaller scales would have to exclude data from the 1921, 1961, and 1966 censuses, which did not consistently record industry data for units smaller than counties.

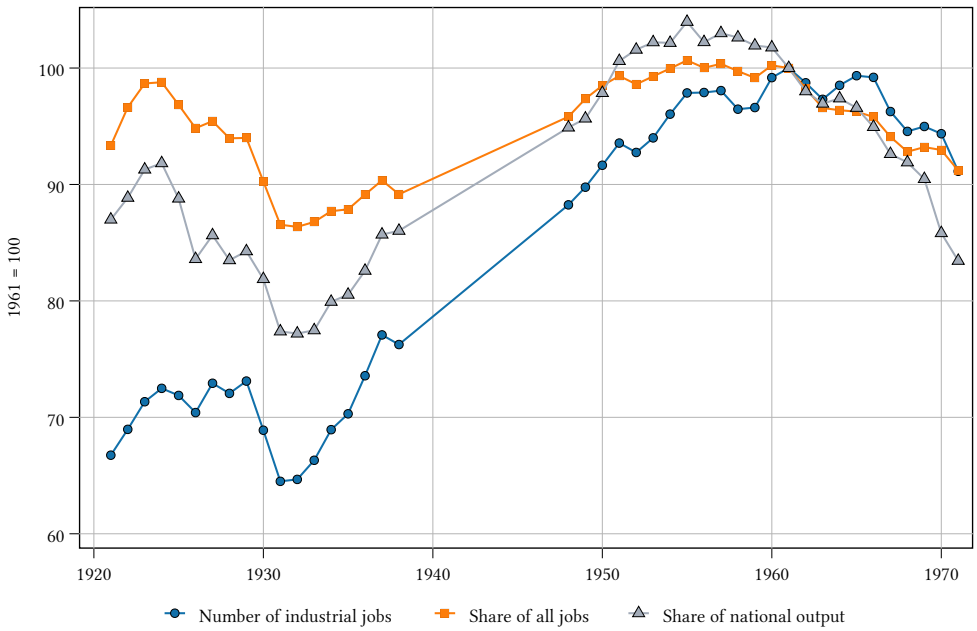
1.3 The timing of deindustrialisation at national and local scales

A steep contraction between 1929 and 1931 notwithstanding, Britain saw consistent growth in industrial employment from the First World War until the 1960s. Peaking in 1961 at just under 9.2 million, the number of industrial workers then remained stable until 1966, before embarking on an irreversible decline. However, from the perspective of its share of all employment, the industrial sector was at its zenith in the previous decade. As can be seen in Figure 1.3.1, the proportion of all workers in Britain engaged in industrial jobs declined in the 1920s and 1930s before stabilising close to 1923 levels from 1950. Peaking in 1955 at over 40 per cent, the relative size of the industrial sector began to slip in the late 1950s, before falling away more steadily after 1961. Determined by developments in other sectors, it is these shifts in the industrial sector's share of

[19] Alongside local manoeuvres, the enabling legislation – the London Government Act 1963 – was subject to 1,000 suggested amendments in the Commons alone. See D. Williams, "London Government Act, 1963", *The Modern Law Review* 27, no. 4 (1964): 447.

employment that determine the onset of deindustrialisation in Tomlinson's formulation.

Figure 1.3.1: Levels of industrial output and employment relative to 1961, 1921-1971



Series derived from 'A Millennium of UK Data' (Tables A16 and A53) and indexed to 1961. As discussed in Section 1.2, pre-1931 estimates are vulnerable to problems emanating from the inclusion of some distributive activities with their secondary industries.

The industrial sector's share of national output followed a similar trajectory to its share of employment, although its decline after 1965 was much steeper. Rising from 35.5 per cent in 1921 and stabilising at around 41.5 per cent in the 1950s, the sector's share of national GVA had declined to 34.1 per cent by 1971. As with employment, the peak year was 1955, when the industrial sector accounted for 42.5 per cent of national output. Two factors were responsible for this pattern. First, GVA growth in manufacturing – by far the largest component of the industrial sector – slowed significantly in the 1960s relative to other parts of the economy. Between 1948 and 1959, manufacturing GVA had grown at an annualised rate of 3.6 per cent per year while non-industrial sectors mustered just 2.3 per cent per year. In the 1960s the situation reversed; manufacturing grew at just 1.4 per cent per year, while non-industrial activities grew at an annualised rate of 3.4 per cent. Second, despite also growing at 2.9 per cent per year from 1948, output in mining and quarrying plunged after 1957. The industry's real output in 1970 was half that recorded

just thirteen years prior.[20]

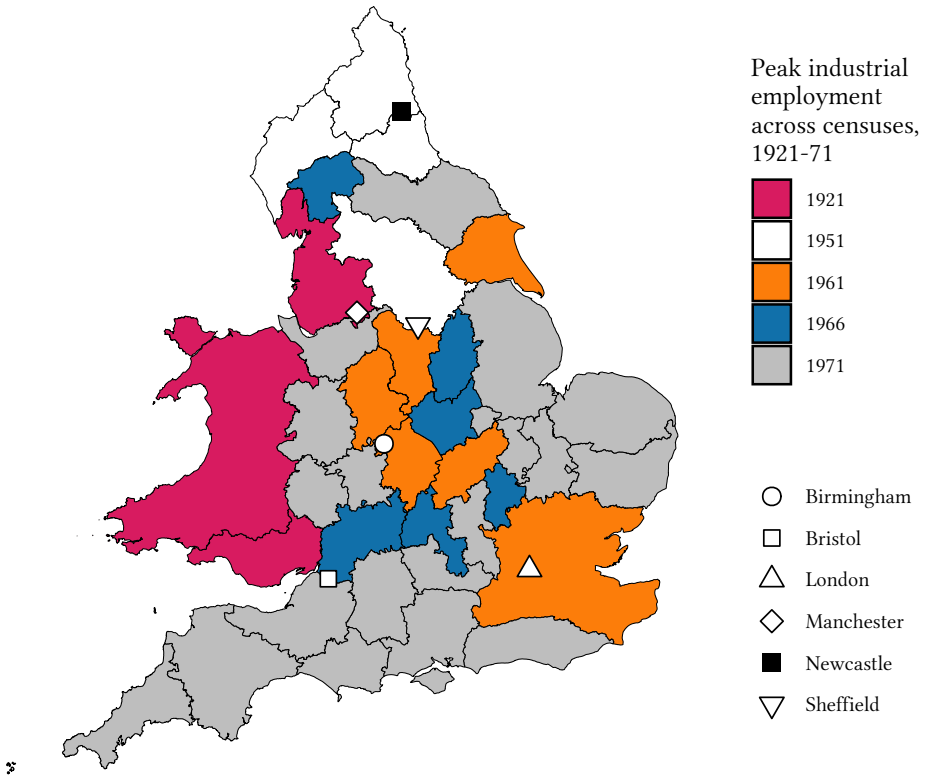
National-level data therefore show a period of approximately ten years between the onset of relative deindustrialisation and the arrival of the elimination phase in the mid-1960s. In this period, the industrial sector continued to absorb losses in some industries (such as mining and quarrying), but its expansion relative to other parts of the economy ground to a halt. The emergence of this ceiling marked the end of Britain's long industrialisation process and the beginning of the post-industrial era, at least in terms of employment. As discussed in the introduction to this thesis, industrial production continued to rise at an annualised rate of 1.7 per cent per year well into the 1990s.[21]

However, from a sub-national perspective, the timing of the onset of deindustrialisation varied considerably. As Figure 1.3.2 shows, only a handful of counties began to deindustrialise at the same time as the national economy. Most of the well-known industrial centres – Wales, the North, London, and the West Midlands – all began to deindustrialise before 1961. In some areas, most notably Lancashire and the Welsh counties, industrial employment peaked in the 1920s, never to recover from the interwar 'slump'. By contrast, most parts of the country actually saw continued expansion in industrial employment up until 1971. Localised industrialisation and deindustrialisation coexisted throughout the 1921-1971 period.

[20] Data from Thomas and Dimsdale, *A Millennium of UK Data*, Tables A15 and A16 and adjusted using Thomas and Williamson, *'What Was the U.K. GDP Then?' The Historic Series*.

[21] The annualised rate for the 1921-1961 period was a much stronger 2.6 per cent per year. Thomas and Dimsdale, *A Millennium of UK Data*, Table M4.

Figure 1.3.2: Peak industrial employment by county, 1921-1971



Employment data come from Lee's estimates and manual transcription of the 1966 sample census. Map data are derived from Great Britain Historical GIS via the 'Vision of Britain' website. As discussed in Section 1.2, a number of counties were merged in order to counteract problems caused by local government reorganisation.

A natural consequence of the differences in the growth in industrial employment across places was a realignment in the geography of the industrial economy. While Staffordshire proved more resilient, most places that were major industrial centres at the start of the period, such as Lancashire, the West Riding of Yorkshire, Durham, and Glamorgan & Monmouth, saw reductions in their share of the national stock of industrial workers, while those of the 'London-Birmingham axis' – especially London, Warwickshire, and smaller industrial economies in the Greater South East – increased.[22] Among these areas, Lancashire was perhaps the biggest 'loser' – dropping from pos-

[22] D. Keeble, *Industrial location and planning in the United Kingdom* (London: Methuen, 1976), 9.

sessing 19.3 to 12.3 per cent of the national total between 1921 and 1971 – and London the biggest 'winner'.[23] These developments permanently changed the geography of industrial working-class living, ensuring that the elimination phase of deindustrialisation (which affected nearly every part of the industrial sector) would strike far beyond the mill towns and pit villages of Lancashire and Yorkshire.

1.4 The role of industry turnover

The timing of the onset of deindustrialisation, as well as the rise and fall of different places, owed a great deal to changes in the composition of the industrial sector over time. A sense of this can be gleaned from Table 1.4.1, where net changes in employment across 27 sectors are displayed for the 1921-1971 period. Employing more than 8 million workers, the industrial sector was still 15 per cent larger in 1971 than it had been fifty years prior, although it was down on where it had been five years before. Much of this can be explained by the fortunes of two groups of activities within the industrial sector.

On one side stood the five 'declining' industries which, from 1921 onwards, endured losses that put continuous downward pressure on national industrial employment levels. The most important of these were coal and textiles, which together shed nearly 1.4 million workers between 1921 and 1971. Losses occurred in every decade; the number of miners fell between 1.1 and 1.5 per cent annually up to the 1960s, at which point decline accelerated to 5.7 per cent per year. Aside from a brief reprieve between 1931 and 1951, where the contraction was just 0.5 per cent per year, employment in textiles fell between 1.7 and 2.2 per cent per year throughout the entire period. Joining these two industries were shipbuilding, clothing, and leather; the first of which saw catastrophic – 8.0 per cent per year – losses in the 1920s and more muted declines thereafter.

On the other were the 14 'expanding' industrial activities, each of which employed more people in 1971 than they had fifty years prior. Until the early 1960s, growth in

[23] Rising from 18.3 to 21.9 per cent, the capital's gain in share across the entire period was actually more modest than its earlier growth would suggest. In 1961, 23.7 per cent of all industrial workers were in London. Contraction in the city itself, a matter discussed later in this chapter, reduced the London area's share of the national total throughout the 1960s.

Table 1.4.1: Employment in 27 sectors in England and Wales

Industry	1921	1971	Growth (%), 1921-1971	Peak census
Agriculture	1,063,040	546,350	-48.6	1921
Mining and quarrying	1,089,215	354,700	-67.4	1921
Foodstuffs and tobacco	521,559	638,600	+22.4	1966
Petroleum	-	56,290	-	1971
Chemicals	213,321	428,280	+100.8	1971
Metals manufacturing	403,689	501,490	+24.2	1961
Mechanical engineering	582,514	1,022,450	+75.5	1966
Instrument engineering	28,107	127,370	+353.2	1966
Electrical engineering	158,629	791,340	+398.9	1966
Shipbuilding	271,227	139,790	-48.5	1921
Vehicles	347,812	751,480	+116.1	1961
Other metals	372,394	556,330	+49.4	1971
Textiles	1,139,499	515,840	-54.7	1921
Leather	77,287	49,300	-36.2	1921
Clothing	775,227	437,400	-43.6	1931
Bricks and pottery	201,051	283,990	+41.3	1966
Timber and furniture	241,478	274,160	+13.5	1951
Paper	324,322	559,020	+72.4	1971
Other manufacturing	154,880	308,820	+99.4	1966
Construction	588,554	1,492,160	+153.5	1966
Utilities	157,817	332,450	+110.7	1966
Transport and communications	981,837	1,419,670	+44.6	1951
Distributive services	1,835,805	2,738,350	+49.2	1966
Insurance and finance	281,268	889,590	+216.3	1971
Professional and scientific services	454,776	2,610,260	+474.0	1971
Other services	1,912,701	2,146,690	+12.2	1931
Public administration	1,066,059	1,428,090	+34.0	1951
National	15,244,068	21,400,260	+40.4	1966

National-level tabulation of employment data from Lee's county estimates.

these industries more than offset losses in the declining industries, causing a net expansion in industrial employment. Among the most important of the expanding industries was vehicles, which had risen from a marginal position to become an important source of industrial employment thanks to growth rates of 4 per cent per year between 1931 and 1951.[24] It was the faltering of expanding industries such as these that determined

[24] S. Rosevear, "Regional policy and the British motor vehicle industry 1945-64: a study in selective intervention and the economics of industrial location" (PhD diss., University of Bristol, 1998), 49–57.

the onset of deindustrialisation at a national level, as relentless contraction in declining industries meant that maintaining national industrial employment levels demanded constant growth elsewhere. Slowdowns in the growth of expanding industries relative to the rest of the economy led to reductions in the industrial sector's share of all employment in the 1950s, and job losses after 1961 signalled the moment national industrial employment entered terminal decline.

With employment in vehicles and various metal manufacturing trades falling, electrical engineering, which until that point had expanded at an annualised rate of 3.7 per cent per year, and mechanical engineering (comprised mainly of the manufacturing of various types of machinery), were the last expanding industries large enough to offset losses at a national scale by 1966.[25] Although its performance still lagged behind that of other countries, such as the United States, Britain's electrical engineering industry was a relative success story within the national industrial economy. Between 1951 and 1973, output in the sector grew at an annualised rate of 4.7 per cent per year; total factor productivity similarly rose by 4.3 per cent per year over the same period.[26] Consisting of a mix of different activities ranging from the manufacturing of cables and domestic appliances through to computers and radar equipment, specific activities had very different demands in relation to labour.[27] While some industries were research-intensive and science-led, others involved routine tasks and employed large numbers of unskilled women on low wages.[28] By the 1970s, jobs in the latter began to disappear in the face of foreign competition and worsening industrial relations, leaving Britain's electronics industry as a niche player serving specialist activities such as national defence.[29] Despite this, the relative labour intensity and generally low skills requirements of the industry meant that between 1921 and 1971 electrical engineering was a highly adaptable sector which could take root in a wide variety of locations.[30] It was, therefore, an ideal expand-

[25] Central Statistical Office, *Standard Industrial Classification 1968*, 2.
[26] Figures from Broadberry, *The Productivity Race: British manufacturing in international perspective, 1850-1990*, 334.
[27] Central Statistical Office, *Standard Industrial Classification 1968*, 2–3.
[28] Keeble, *Industrial location and planning in the United Kingdom*, 192–193.
[29] Broadberry, *The Productivity Race: British manufacturing in international perspective, 1850-1990*, 336–337.
[30] B. Coates and E. Rawstron, *Regional Variations in Britain: studies in economic and social geography* (Lon-

ing industry for places otherwise burdened by declining sectors.

Most explanations for the spatial reorganisation of the industrial economy follow a similar rubric, with the boom of the Midlands and South being attributed to their success in nurturing expanding industries (usually termed 'new' industries), and the failure of the major manufacturing regions explained by their reliance on declining 'staple' industries. In this narrative, the interwar period tends to take centre stage, as the loss of markets and a lack of investment during the First World War did considerable harm to the declining industries.[31] These problems were intensified by the disastrous return to the gold standard at the pre-war parity, which necessitated significant deflation and hurt the competitiveness of exporters.[32]

Compounding the challenge of replacing jobs lost in declining sectors in the interwar period was the fact that regions in which they were dominant appear to have had rigid labour markets that inhibited transfers between activities.[33] High barriers to entry, and the immaturity of expanding industries, also inhibited within-county reorganisation in these places, preventing the arrival of enough branch plants capable of absorbing displaced industrial workers.[34] Instead, this expansion was confined to the Midlands and South East, where domestically-orientated expanding industries could situate themselves close to markets thanks to roads and electrical power. In their study of the construction of new plants in the 1930s, Scott and Walsh show that despite accounting for just 21.3 per cent of manufacturing jobs in 1911, the South East received 47.9 per cent of new industrial enterprises in the period.[35] The knock-on impact of this was significant. Although regional inequality was emerging at the end of the 19th century, industrialised regions still sat

don: Batsford, 1971), 77.

[31] S. Bowden and D. Higgins, "British industry in the interwar years", in *The Cambridge Economic History of Modern Britain*, ed. R. Floud and P. Johnson, vol. II (Cambridge: Cambridge University Press, 2004), 380.

[32] N. Dimsdale, "British Monetary Policy and the Exchange Rate 1920-1938", *Oxford Economic Papers* 33 (1981): 306–349; M. Jones, "The Regional Impact of an Overvalued Pound in the 1920s", *Economic History Review* 38, no. 3 (1985): 397.

[33] M. Paker, "A Problem of Industries and Regions: Unemployment and Structural Change in Britain During the Interwar Years and 1980s" (PhD diss., University of Oxford, 2021), 157.

[34] C. Heim, "Industrial Organization and Regional Development in Interwar Britain", *Journal of Economic History* 43, no. 4 (1983): 931–952.

[35] P. Scott and P. Walsh, "New Manufacturing Plant Formation, Clustering and Locational Externalities in 1930s Britain", *Business History* 47, no. 2 (2005): 190.

alongside London as high-wage economies in the Edwardian period.[36] This changed in the 1920s, with places such as the North West moving from levels of GDP per capita 9.3 per cent above the British average to 11.4 per cent below over the course of the decade.[37]

Path dependency was, therefore, a powerful force. For decades, places dependent on declining industries had developed physical, social, and economic infrastructure all geared to supporting a particular set of activities. To use the jargon of the economic geography literature, the interwar experience of the major industrial centres was that of clustering processes gone awry; rather than boosting innovation and growth, the clustering of declining industries instead generated negative 'lock-ins' that prevented reinvention.[38] Another problem was the sheer size of the inheritance with which the traditional industrial centres had to grapple. Declining industries were highly concentrated in 1921, with 70 per cent of their employees found in just nine places (Derbyshire, Durham, Glamorgan & Monmouth, Lancashire, Leicestershire, Northamptonshire, Northumberland, Nottinghamshire, and the West Riding of Yorkshire). In these places, declining industries accounted for the majority of industrial employment and more than a third of all the workers in the local economy.[39] This meant that tens of thousands of jobs had to be replaced in order for places dependent on declining industries to merely hold the size of their industrial labour force constant, let alone pursue growth. Lacking these problems, 'virgin' locations in the Midlands and South East were, by contrast, largely unhindered in their take up of new industrial activity.

An indication of the interplay between these factors from the interwar period onwards can be seen in Figure 1.4.1, where the share of the industrial workforce employed

[36] P. Scott, *Triumph of the South: A Regional Economic History of Early Twentieth Century Britain* (Aldershot: Ashgate, 2007), 15; N. Crafts, "Regional GDP in Britain, 1871-1911: Some Estimates", *Scottish Journal of Political Economy* 52, no. 1 (2005): 59.

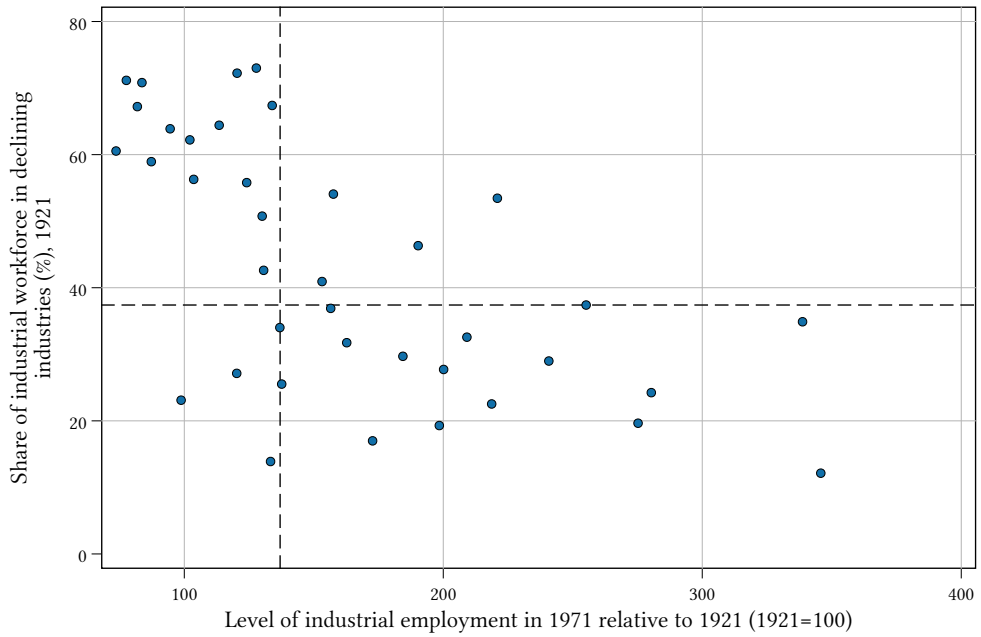
[37] F. Geary and T. Stark, "What happened to regional inequality in Britain in the twentieth century?", *Economic History Review* 69, no. 1 (2016): 221.

[38] M. Porter, "Clusters and the New Economics of Competition", *Harvard Business Review* 76, no. 6 (1998): 77–90; G. Grabher, "The weakness of strong ties; the lock-in of regional development in the Ruhr area", in *The Embedded Firm; on the Socioeconomics of Industrial Networks*, ed. G. Grabher (London: Routledge, 1993), 255–277. For a more nuanced view of path dependency and lock-ins, see R. Martin and P. Sunley, "Path dependence and regional economic evolution", *Journal of Economic Geography* 6, no. 4 (2006): 395–437.

[39] In Leicestershire and Durham, declining industries employed 46 per cent of all workers.

in declining industries in 1921 is plotted against places' total growth in industrial employment between 1921 and 1971. It is clear from the chart that dependence on declining industries was associated with poor growth. Just four of the fifteen counties where declining industries accounted for more than the average amount (37.4 per cent) of industrial workers in 1921 saw above-average (37.3 per cent) growth in industrial employment, and six endured net contractions.[40] By contrast, places less dependent on declining industries saw considerable growth, doubling and even tripling the size of their industrial labour forces.

Figure 1.4.1: Declining industries in 1921 vs industrial employment growth



Data derived from Lee's estimates.

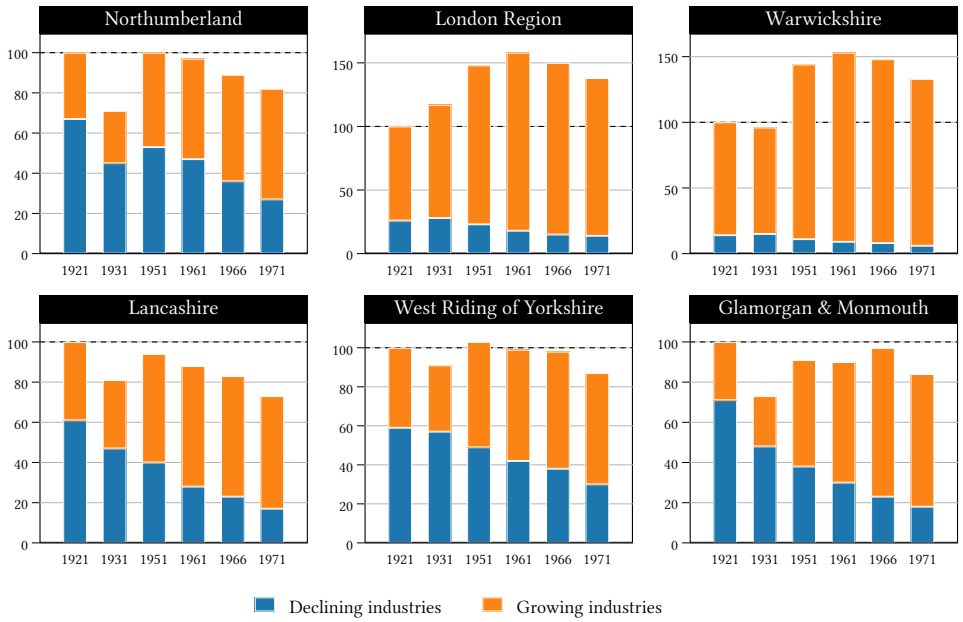
Yet, at least over the medium term, it is important not to stretch the argument too far. Stark as the interwar shock was, it did not in itself seal the fate of the major industrial centres. For one thing, as Figure 1.3.2 showed, a number of them continued to industrialise until the 1950s, and even in those that did not, industrial employment followed the shape of the national trend, which involved decline between 1921 and 1931, two decades of recovery, followed by renewed decline in the 1960s. Much of this was determined by wartime demand, which breathed new life into industry and older heartlands despite

[40] The averages are displayed with dotted lines.

longer-term trends. For example, despite a steep contraction between 1921 and 1931, the number of industrial workers in Lancashire recovered to 94 per cent of the 1921 total in 1951 before falling thereafter. In Durham and Northumberland, where the number of industrial workers fell 28 per cent between 1921 and 1931 (well in excess of the 19 per cent decline seen in Lancashire), industrial employment levels stabilised at just over their 1921 levels before reducing from 1951. It was therefore the continuous processes of industry turnover, rather than the hammering of old staples during the interwar period, that gave the industrial economy its new spatial character.

A sense of the ongoing nature of these processes can be seen in Figure 1.4.2, where both the size of the industrial sector (relative to 1921) and its composition is displayed for a selection of counties and broader county areas. Representing 'virgin' places, overwhelmingly clustered in the bottom-right quadrant of Figure 1.4.1, are Warwickshire and the London Region, where declining industrial sectors were relatively unimportant from the beginning. As such, the development of the industrial economy in these places was characterised less by absorbing losses in declining industries and more by the exploitation of a favourable base. In 1921, just 13.9 per cent of industrial workers in Warwickshire were in declining industries. Of these, 20,000 were in clothing and 19,000 were in mining and quarrying. Textiles employed most of the remainder. Far more important to the county were the growing metals, vehicles, and mechanical engineering industries, which already accounted for more than half of all industrial employment in 1921. After a relatively disappointing 1920s, these industries grew their ranks substantially. Vehicles alone more than doubled from 78,000 to 168,000 workers by 1966. Electrical engineering also saw significant expansion; alone it offset the jobs lost in the county's declining industries.

Figure 1.4.2: Declining and expanding industries in selected areas, 1921-1971



The total number of industrial workers in each area was indexed with 1921 as the base year. Data derived from Lee's estimates and manual transcription of the 1966 sample census.

At 25.5 per cent, declining industries accounted for slightly more industrial employment in the London Region in 1921 than in Warwickshire. These workers were found almost exclusively in clothing manufacturing, with smaller groups of workers in shipbuilding, leather, and textiles. Employing 18.3 per cent of its industrial workers, clothing was actually the capital region's single biggest source of industrial jobs in 1921.[41] Over the next five decades, 129,000 jobs in clothing were lost, and by 1971 the sector accounted for just 6 per cent of the capital's industrial workers. London's second largest industrial sector, foodstuffs and tobacco, also contracted despite the industry growing nationally. However, the rest of the capital's industries grew strongly. The greatest contributions to this expansion were made by the electrical engineering, mechanical engineering, and paper industries, which between them added a net total of over 370,000 jobs. London also benefitted from expansions in the metals, vehicles, and chemical industries, which grew in size from 207,000 to 375,000 workers over the same period. While the share of

[41] Regional concentration in the clothing industry had accelerated towards the end of the nineteenth century. By 1911, Leeds and London's East End accounted for nearly 25 per cent of all tailoring workers, with the East End focused especially on the women's garment trade; A. Godley, "The Development of the UK Clothing Industry, 1850–1950: Output and Productivity", *Business History* 37, no. 4 (1995): 46–63.

the workforce employed in the industrial sector fluctuated between just 30.3 and 34.9 per cent, the size of the London Region ensured that it remained major industrial centre right up to the 1970s.

Places with less favourable inheritances are represented in 1.4.2 by Northumberland, Lancashire, the West Riding of Yorkshire, and Glamorgan & Monmouth, where declining industries accounted for between 59 and 71 per cent of industrial jobs in 1921. As would be expected, each of these places underwent deindustrialisation ahead of Warwickshire and the London Region, with even the best performers – Northumberland and the West Riding of Yorkshire – seeing absolute losses in industrial jobs before 1961. However, despite their inheritances and early deindustrialisation, industrial employment in each of these places was boosted considerably by new jobs in growing industries, preventing the collapse that would have otherwise occurred.

In Northumberland, the heaviest losses were in the prominent mining and shipbuilding industries. Having contracted by more than two thirds during the 1920s, Northumberland's shipbuilding industry underwent a recovery during the war and in the postwar period, and stabilised at around one tenth of its industrial workforce until 1971. Of all the expanding industries present in the county throughout the period, electrical engineering expanded the most impressively. Growing from just 5,000 to more than 50,000 workers, the industry alone offset three-quarters of the jobs lost in declining sectors. Lancashire, Wales, and the West Riding of Yorkshire, like Northumberland, saw no net expansion in industrial employment between 1921 and 1971. Nevertheless, strong growth in expanding industries (and, in the case of the West Riding of Yorkshire, a degree of resilience in declining industries such as mining) offset considerable losses generated elsewhere in the industrial sector. The scale of the replacement was far from trivial. For example, Lancashire's declining industries shed 587,000 jobs between 1921 and 1971. Textiles and clothing, which collapsed by 70.6 per cent, accounted for 471,000 of these, and coal mining an additional 98,000. In Glamorgan & Monmouth, 81.3 per cent of jobs in coal mining, which in 1921 was by far the biggest industrial employer, vanished over the period. Despite these challenges, industrial employment in the two South Wales counties was close

to 1921 levels in the mid-1960s and just 13.7 per cent below them in 1971. In Lancashire, net losses were limited to 26.4 per cent. Across both areas, replacement was again led by electrical engineering, with metals and mechanical engineering and vehicles playing secondary roles in Glamorgan & Monmouth and Lancashire respectively.

Where, then, does this leave the question of path dependency and lock-ins? Much of the answer to this question lies in the degree to which the offsetting processes evident in Figure 1.4.2 were the product of genuine reinvention and clustering or merely a shift in places' roles in the industrial economy. After all, job creation in expanding industries may have just been downstream of breakthroughs taking place elsewhere, with areas formerly dependent on declining industries receiving new employment by virtue of their ability to provide cheap land and labour, much in the same way warehousing has come to dominate post-industrial landscapes in the twenty-first century.[42] Nevertheless, the fact that the industrial economies of places that were dependent on declining industries in 1921 were not entirely sclerotic suggests that the path dependencies were not completely insurmountable. Enough of the infrastructure and human capital was transferable for even the most disadvantaged counties to benefit at least partially from the reorganisation of the industrial economy.

A good example of this can be seen in Northamptonshire, where a 43.2 per cent collapse in employment in the dominant clothing industry was offset by a tripling of employment in growing industries between 1921 and 1971. Critical to these processes was the arrival of steelmaking in Corby and large employers such as British Timken, a manufacturer of roller bearings, elsewhere. Eventually possessing plants in both in Daventry Northampton, British Timken arrived in the county in 1941 under the wartime direction of the Ministry of Supply.[43] After the war, the Board of Trade earmarked the firm for peacetime production, and the company's presence in the county survived in some form

[42] J. Evans and P. Swinney, "Just what should levelling up mean in the coalfields?", *Centre for Cities Blogs*, 2024, https://bit.ly/3U6pcHp.

[43] Although in its advertisement for shares the company was keen to point out that the Northampton plant had been built 'according to the Company's own designs'. "British Timken Limited", *The Times*, 25 May 1948, 8.

until 2002, when it closed its last plant with the loss of 950 jobs.[44] Modern steel production was brought to Northamptonshire by the construction of a new integrated plant in Corby by the Stewards and Lloyds company in 1934. The firm moved into the area to exploit local iron ore deposits for the manufacturing of steel tubes, and to make use of local transport connections.[45] Initially just a small settlement, the area quickly grew into a substantial town with a distinct culture influenced by large amounts of migration from Scotland.[46] Motivated partly to help offset existing housing problems, the government designated Corby a New Town in 1950 and earmarked the area for further growth. Expansion of the steelworks was considered to be 'a matter of national importance' by the Development Corporation responsible for the New Town, and the process of population expansion from 14,000 to 40,000 was planned in accordance with the plant's needs.[47] For the next two decades, the growth of Corby played an important role in the diversification of Northamptonshire's economy and the provision of industrial jobs.

While the Corby experiment ended in tears (not least because local leaders deliberately squashed attempts to diversify the local economy), the Northamptonshire example is useful for showing how industry turnover sustained older industrial economies even when the needs of the new industries were seemingly entirely different to those of the old.[48] This was certainly not lost on contemporaries. Indeed, despite their praise of the Board of Trade's decision to keep the British Timken plant in Northampton open after the war, the *Northampton Mercury* expressed concerns about the impact it may have on the recruitment of workers for the local clothing industry.[49] This is because, fundamentally, the skills requirements of the two industries were not far enough apart to prevent competition for labour. Only in rare cases was new industrial growth precluded in places dependent on declining industries by a mismatch in the skills of the local population.

[44] "Bearings plant blames sterling as it closes with loss of 950 jobs", *The Independent*, 27 April 2001, 18.
[45] K. Edwards, "Corby – A New Town in the Midlands", *Town Planning Review* 22, no. 2 (1951): 123.
[46] M. Harper, "'Come to Corby': A Scottish Steel Town in the Heart of England", *Immigrants & Minorities* 31, no. 1 (2013): 27–47.
[47] Parliamentary Papers, *New Towns Act, 1946. Reports of the Aycliffe, Basildon, Bracknell, Corby, Crawley, Cwmbran, Harlow, Hemel Hempstead, Peterlee, Stevenage, Welwyn Garden City & Hatfield Development Corporations*, (HC 1951-1952 32) (London: House of Commons, 1951), 89.
[48] M. Grieco, "Corby: New Town planning and imbalanced development", *Regional Studies* 19, no. 1 (1985): 9–18.
[49] "New County Industry After the War", *Northampton Mercury*, 23 March 1945, 3.

From the perspective of the entire 1921-1971 period, then, it is simply not accurate to speak of a boom in expanding industries confined to the Midlands and South. Indeed, having risen strongly during the 1920s, the share of all jobs in expanding sectors located in the Greater South East actually stabilised at around 35 per cent from 1951 onwards, and the region's share of non-industrial jobs was always far higher.[50] The West Midlands saw its share drift down slowly from 18.4 to 16.3 per cent over the 1921-1971 period. In other words, while the Midlands and South were becoming more important to the national industrial economy, growth in expanding industries was little faster than that observed in the rest of the country. In terms of raw numbers, places like County Durham were much larger centres of employment in expanding industries than 'successful' counties such as Buckinghamshire or Berkshire.[51] Another interesting comparison is that between Lancashire and Warwickshire; Lancashire accounted for 50 per cent more of the national stock of workers in expanding industries than Warwickshire in every census year.

The dispersion of employment in different sectors can be assessed using a statistical measure of specialisation called the Herfindahl-Hirschman index (HHI). In its original form, the index is designed to capture the concentration of firms within an industry by summing the squared market share of the constituent firms.[52] Bounded between 0 and 1, scores over 0.15 imply some concentration, and scores over 0.25 imply high concentration. Using data on output or employment, the method can be used to understand either the extent to which a local economy is specialised or the degree to which an industry is concentrated across space. The latter type of analysis can be seen in Table 1.4.2, where scores for all employment, industrial employment, and – for comparison – employment in finance and insurance are provided for each census year. The calculation behind the table's figures can be expressed as follows:

[50] The Greater South East accounted for between 42.4 and 45.4 per cent of non-industrial employment throughout the period.

[51] County Durham added 100,964 new jobs in expanding industries between 1921 and 1971. The equivalent figures for Buckinghamshire and Berkshire were 75,687 and 39,363 respectively.

[52] O. Herfindahl, "Concentration in the Steel Industry" (PhD diss., Columbia University, 1950); A. Hirschman, "The Paternity of an Index", *American Economic Review* 54, no. 5 (1964): 761–762.

$$HHI_t = \sum_{i=1}^{N} (S_{i,t})^2$$

where $S_{i,t}$ is the share of all employment, industrial employment, or finance and insurance employment located in county i in year t. N is the number of counties.

Table 1.4.2: HHI concentration of employment across counties and censuses, 1921-1971

Year	Growing industries	Declining industries	Finance and insurance	All employment
		National		
1921	0.12	0.12	0.29	0.11
1931	0.13	0.12	0.27	0.12
1951	0.12	0.11	0.28	0.11
1961	0.12	0.10	0.27	0.11
1966	0.11	0.10	0.25	0.11
1971	0.10	0.09	0.27	0.11
		Excluding the London Region		
1921	0.09	0.13	0.11	0.08
1931	0.08	0.13	0.08	0.07
1951	0.08	0.12	0.08	0.07
1961	0.08	0.11	0.07	0.06
1966	0.07	0.11	0.07	0.06
1971	0.07	0.10	0.07	0.06

Calculations based on employment data from Lee's estimates and manual transcription of the 1966 sample census.

The first conclusion to be drawn from the table is that neither all employment nor industrial employment were especially concentrated in any census year. While some sectors, such as textiles, were concentrated in specific counties, most industries were found in a variety of locations.[53] Even coal mining, shipbuilding, and vehicles manufacturing – industries commonly associated with specific parts of the country – were spread widely enough to give HHI scores below the 0.15 threshold. While there were instances of a particular industry burdening or furthering counties, the declining and expanding industrial economies did not display county-level concentration to the level exhibited by industries such as finance and insurance, which was concentrated in the London Re-

[53] Employment in textiles had a very high HHI score of 0.32 in 1921.

gion and thus had consistently high HHI scores. Although it was always more concentrated than all employment, employment in growing industries was especially dispersed amongst counties beyond the capital. By contrast, employment in declining industries was significantly more concentrated than all employment in these areas.

The second is that industrial employment became relatively more dispersed between counties over time. In growing industries, this process of decentralisation was led most strongly by the instrument and electrical engineering industries, which saw reductions in their HHI concentrations of 57 and 41 per cent respectively. Of the declining industries, reductions in concentration were strongest in textiles, the collapse of which in Lancashire pushed the industry from high to low levels of concentration. Mining was alone amongst industrial activities in ending the period slightly more concentrated than it had been fifty years prior. However, vehicles also decentralised remarkably little compared to the rest of the industrial sector, perhaps contributing to the view that it was a regionally concentrated industry.

Overall, it is fair to conclude that the industrial sector, and the expanding industries in particular, were relatively footloose during the 1921-1971 period. This property was welcomed by scholars during the 1960s, who thought that the fact that the growth of the 'overemployed' South and Midlands was not being driven by structural factors meant that there was considerable room to foster growth elsewhere.[54] To a degree these researchers were correct; localised deindustrialisations during the reorganisation of the industrial economy were far less poisonous precisely because growth in expanding industries was so even and undiscriminating. Had the industrialisation of the Midlands and South been as parochial as the industrialisation of the eighteenth and nineteenth centuries, the consequences for places like Lancashire and the West Riding of Yorkshire would have been disastrous.

This is not to trivialise the extent of the change that occurred. While employment in growing industries allowed industrial society, in the broadest sense, to be maintained,

[54] A. Thirlwall, "A Measure of the 'Proper Distribution of Industry'", *Oxford Economic Papers* 19, no. 1 (1967): 46–58.

the reorientation of traditional industrial economies had considerable consequences for the individuals involved. Some of the changes were physical; growing industries such as food processing and electrical engineering were creatures of low-rise, electrically-powered industrial estates such as those in Slough or 'Team Valley' near Gateshead. Isolated from older factories and social infrastructure, these estates were seen by their proponents to embody a new form of industrial organisation through which a modern, productive workforce (of over 280,000 by 1939) could be moulded.[55] Unlike declining industries in which unionised skilled labour was prominent, work in estates, and in growing industries generally, was often routine and regimented.[56] New jobs often did not go to workers displaced from declining industries. Rather, industrialists made considerable use of a 'reserve army' of women and unskilled juvenile workers that was cheap and relatively docile.[57] As a consequence, even the maintenance of industrial society in places formerly dependent on declining industries could be highly disruptive, with household earning structures and patterns of working often being upended.

The extent to which these changes can be construed as negative is a difficult question. Workers and wider communities had complicated relationships with both declining industries and the activities that replaced them. Nowhere was this more evident than in mining areas, which even decades later 'simultaneously admired…and detested' their former industry – largely because material prosperity was accompanied by bodily ruination.[58] Under the right conditions, the pivot to growing industries therefore resulted in a new industrial settlement that was comparatively clean, safe, and still well paid.[59] The unravelling of gender roles was a similarly complex matter. Although women were employed in part because they could be more easily exploited, the way in which the

[55] P. Scott, "Industrial Estates and British Industrial Development, 1897-1939", *Business History* 43, no. 2 (2001): 78.

[56] S. Wetherell, *Foundations: how the built environment made twentieth-century Britain* (Woodstock: Princeton University Press, 2020), 32.

[57] P. Scott, "Women, Other "Fresh" Workers, and the New Manufacturing Workforce of Interwar Britain", *International Review of Social History* 45, no. 3 (2000): 473–474.

[58] D. Byrne, "Industrial culture in a post-industrial world: The case of the North East of England", *City* 6, no. 3 (2002): 287.

[59] E. Gibbs, "'It's Not a Lot of Boring Old Gits Sitting about Remembering the Good Old Days': The Heritage and Legacy of the 1987 Caterpillar Factory Occupation in Uddingston, Scotland", *Labour History Review* 86, no. 1 (2021): 122.

reorganisation of the industrial economy coincided with – perhaps even drove – the expansion of women's participation in the labour market gave women in mining areas greater autonomy.[60] It is also the case that employment in growing industries was fought over and defended. In Uddingston in Lanarkshire, where a Caterpillar tractor factory had opened in 1956 in a former pit village, conflicts between owners and workers were partly conditioned by a sense of community ownership over the plant.[61] An employer of some 2,500 workers in 1968, the factory was seen as a valuable source of prosperity that, despite its alteration of previous patterns of skill formation and socialisation, was worth protecting.[62]

1.5 Weakening major cities

Further complicating these mixed consequences of the reorganisation of local industrial economies was the fact that the process was not always spatially neutral even within counties. As the Corby example shows, the expansion of industrial employment was often localised to a specific part of a county and did not necessarily replace lost jobs *in situ*. Among the various sub-county spatial shifts that occurred in the decades after the First World War was the relative (and, later, absolute) decline in the importance of the major cities. This change mattered both to the economies of major conurbations themselves and the broader, national-level, geography of industrial prosperity, which became increasingly closely bound to newly-industrialised towns.

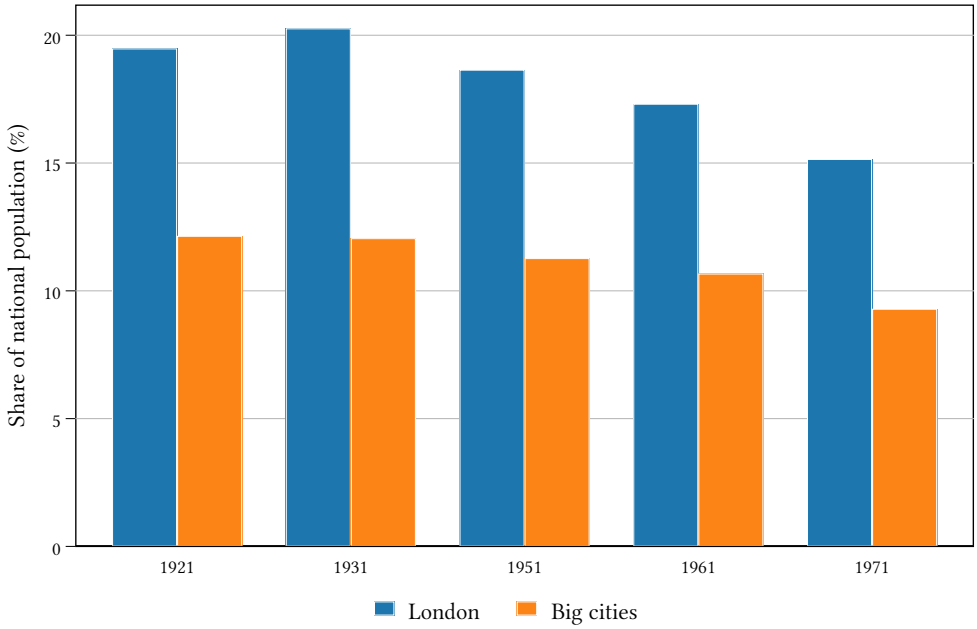
1.5.1 Population shifts

The timing of the decline can be seen in Figure 1.5.1, where the share of the England and Wales population accounted for by London and the other major cities – Birmingham, Bristol, Leeds, Liverpool, Manchester, Newcastle, Nottingham, and Sheffield – is displayed. Taken as a group, the non-London major cities' share of the national popula-

[60] F. Sutcliffe-Braithwaite, "'Reopen the Coal Mines'? Deindustrialisation and the Labour Party", *Political Quarterly* 92, no. 2 (2021): 251.
[61] E. Gibbs and J. Phillips, "Who owns a factory?: Caterpillar tractors in Uddingston, 1956-1987", *Historical Studies in Industrial Relations* 39 (2018): 111–137.
[62] Gibbs and Phillips, 119–120.

tion fell slightly between 1921 and 1931 before sliding more aggressively after the Second World War. In absolute terms, the population of these cities rose from 4.6 to just over 4.9 million between 1921 and 1951, fell slightly in the 1950s, and declined strongly in the 1960s. By 1971 just 4.5 million people lived in the non-London major cities, and growth did not return until the 1990s and 2000s.

Figure 1.5.1: Share of population living in major cities, 1921-1971



Data from the decadal censuses accessed via Vision of Britain.

Of these urban areas, declines were strongest in Liverpool and Manchester, both of which saw their populations fall by over a quarter in absolute terms. Newcastle similarly saw a net reduction in its population, although at 2.5 per cent, the losses were much smaller. The rest of the major cities had more residents in 1971 than in 1921, however Leeds was the only city to enjoy successive population increases across censuses. The populations of Bristol, Birmingham, Nottingham, and Sheffield peaked ten years before. Even the cities that saw net increases in population – of which Birmingham and Leeds, which were respectively 16.7 and 19.9 per cent bigger in 1971 than they were in 1921, were the largest – grew well beneath the national rate of 28.9 per cent. These factors conspired to ensure that every major city accounted for a smaller share of the national population at the end of the period than at the beginning.

Although it managed to avoid a net decrease in population, London's demographic trajectory between 1921 and 1971 bore some resemblance to that of Newcastle, with strong growth in absolute numbers up to 1951 giving way to sustained decline thereafter. The capital did, however, see a slightly steeper decline in its share of the national population, which fell from a peak of 20.3 per cent in 1931 to just 15.2 per cent four decades later. As a result of its size, London's decline was the primary driver of the general retreat from big-city living observed across England and Wales in this period. Whereas nearly one third of the population lived in the big cities in 1931, less than a quarter did so at the beginning of the 1970s.

An important dimension to the population changes that occurred in London was a centre-periphery dynamic which involved large population movements away from the inner city and towards the outer, more suburban, boroughs.[63] Dropping from 4.4 to just 2.7 million residents between 1921 and 1971, the population of Inner London fell continuously across censuses. Nearly 12 per cent of the population of England and Wales lived in Inner London in 1921. Fifty years later just 5.6 per cent did the same. The rise and fall of London as a whole was therefore forged in the outer boroughs, which grew by nearly two-thirds between 1921 and 1951 and faltered slightly thereafter. In all, Outer London gained 1.7 million residents in the fifty years after the First World War and Inner London lost almost exactly as many. These swings were far larger than the cumulative changes observed across the other major cities in both absolute and relative terms. Had it been a city in its own right, the decline of Inner London would have far outstripped any other major conurbation. At nearly 38.2 per cent, its population losses were 40 per cent larger than those of Liverpool and Manchester, the next worst performing cities.

The consequences of these changes was a dramatic shift in the geography of population growth, which pivoted towards towns at the expense of cities. The extent of the

[63] In this chapter 'borough' refers to the post-1965 authorities. Inner London consists of: Camden, Greenwich, Hackney, Hammersmith and Fulham, Islington, Kensington and Chelsea, Lambeth, Lewisham, Southwark, Tower Hamlets, Wandsworth, and Westminster. Outer London is comprised of: Barking and Dagenham, Barnet, Bexley, Brent, Bromley, Croydon, Ealing, Enfield, Haringey, Harrow, Havering, Hillingdon, Hounslow, Kingston upon Thames, Merton, Newham, Redbridge, Richmond upon Thames, Sutton, and Waltham Forest.

transformation can be seen in Table 1.5.1, where population totals and growth rates for London, the big cities, and towns both large and small are displayed. In both relative and absolute terms, small towns saw the fastest population growth of any part of the country. Located predominantly in the East and South East of England, these settlements more than doubled in size. Large towns, which were scattered more evenly across the country, saw their population grow by more than a quarter. Their share up slightly on 1921, large towns remained the most common place of residence in England and Wales, accounting for more than London and the other big cities put together.

Table 1.5.1: Net population changes in cities and towns, 1921-1971

Place	Population		Share of national population (%)		N
	1921	1971	1921	1971	
London	7,382,131	7,403,534	19.5	15.2	1
Big cities	4,603,967	4,540,864	12.2	9.3	8
Large towns	13,106,885	17,680,823	34.6	36.2	124
Small towns	4,352,476	9,571,389	11.5	19.6	123
Mining areas	8,441,243	9,636,601	22.3	19.7	60

Data from the decadal censuses accessed via Vision of Britain. London and the big cities are defined as above. The rest of England and Wales is divided among small and large towns and mining areas. Mining areas are defined using parish-level 1911 census data on 'hewers' – coal face workers – drawn from I-CeM and aggregated up to the local authorities used by the Vision of Britain website. The dividing line between small and large towns, all located outside cities and mining areas, is a population of 53,401 in 1921.

The deterioration of the position of London and the major cities is further contextualised by the performance of settlements with active coal mining. Situated predominantly in the North East, Lancashire, South Wales, and parts of the Midlands, these places saw combined population growth of around 14.2 per cent between 1921 and 1971. Growth occurred across every census year; despite the presence of a notoriously noxious declining industry, just 16 of the 60 towns saw population losses. Mining towns did, however, lose national share, although the decline was shallower than that seen in the big cities. While the major conurbations' share of the national population fell around 23 per cent between 1921 and 1971, mining areas' share declined by just 11 per cent.

The big cities did, however, perform generally better as places of production than they did as places of residence throughout the period. While their share of the national population fell by around a quarter, the non-London big cities' share of the national workforce fell by just under a fifth between 1921 and 1971. Inner London's decline was also much more muted. By 1971 the core areas of the capital accounted for twice as much of the nation's workforce as it did its population. This relative resilience likely reflects the strength of agglomeration economies – improvements in productivity derived from the clustering of businesses and workers in a location – despite changes in residential preferences.

1.5.2 Connections with deindustrialisation

The fall of the big cities is well known both to scholars and policy experts, who have emphasised its importance to the history of Britain's economic geography.[64] Demographic changes such as these struck internationally. Cities in all 'core' European regions saw population declines in the post-war decades.[65] In the United States, the process struck most strongly in major cities in the North East and Midwest, of which the highly racialised transformation of Detroit is among the most famous examples.[66] The existence of these changes was not lost on contemporaries. The slowdown in population growth in Britain's major cities was analysed as early as 1932, shortly after the publication of the first wave of census results for the previous year.[67] The Preliminary Report of the 1951 census noted a national retreat from urban living as well as the large shifts within London.[68] Discussions of population movement within the capital and between its surrounding counties also appear in the opening summary to the 1961 census reports.[69] By the early 1980s, the post-war decline of the largest cities, and the robustness of their

[64] See, for example N. Clayton, *Cities Outlook 1901* (London: Centre for Cities, 2012).
[65] Examples for a host of European cities can be found in European Institute of Urban Affairs, *Urbanisation and the functions of cities in the European Community* (Brussels: Office for Official Publications of the European Community, 1992).
[66] J. McDonald, "What happened to and in Detroit?", *Urban Studies* 51, no. 16 (2014): 3309–3329.
[67] R. Dickinson, "Some New Features of the Growth and Distribution of Population in England and Wales", *Geographical Review* 22, no. 2 (1932): 279–285.
[68] General Register Office, *Census 1951 England and Wales: Preliminary Report*, xvi–xviii.
[69] General Register Office, *Census 1961 England and Wales: Preliminary Report* (London: Her Majesty's Stationery Office, 1961), 11.

employment bases relative to their populations, was the subject of detailed study.[70]

Suburbanisation offers a partial explanation for these trends. Explained both by positive 'natural' evolutions rooted in new transport technology and more problematic flight from social and political problems, suburbanisation processes have again been observed internationally, with the British case bearing some resemblance to the American example.[71] Suburbs loom large in Britain's urban forms, and their proponents have pointed to the existence of a 'suburban aspiration' among almost all social groups in the decades after the First World War.[72] Nevertheless, the profound swing against the major cities, which continued into the 1970s and 1980s, went beyond that which can be explained by aspirational suburbanisation alone.[73] Changing patterns of employment – especially in manufacturing – played a much more important role.

The extent to which the contraction of the major cities depended on industrial employment is clear in the census. Between 1921 and 1971, the big cities' share of industrial employment fell around 30 per cent more than their share of all employment. Most of this additional decline occurred in the 1950s, as industrial employment went into sharp reverse despite the rest of the big cities' other sectors continuing to grow. Further losses of share occurred during the 1960s, although by this time cities were losing national share in all sectors. Indeed, after 1966, the big cities' share of non-industrial employment fell faster than their share of industrial employment. These shifts were so strong that, during the 1960s, the weakness of the major cities likely accounted for the bulk of the decade's emerging inter-regional employment differentials.[74] The capital's experience was, however, even more extreme. Whereas Inner London's share of all employment fell by a third between 1921 and 1971, its share of industrial employment almost halved.

The manner in which the shift in industrial employment occurred on more local-

[70] N. Spence et al., *British Cities: An Analysis of Urban Change* (Oxford: Pergamon Press, 1982), 41–44.
[71] P. Mieszkowski and E. Mills, "The Causes of Metropolitan Suburbanization", *Journal of Economic Perspectives* 7, no. 3 (1993): 135–147.
[72] M. Clapson, "The suburban aspiration in England since 1919", *Contemporary British History* 14, no. 1 (2000): 151–174.
[73] A. Champion, "Counterurbanization in Britain", *The Geographical Journal* 155, no. 1 (1989): 52–59.
[74] S. Fothergill and G. Gudgin, "Regional Employment Change: A Sub-Regional Explanation", *Progress in Planning* 12, no. 3 (1979): 199.

ised scales is best known in the case of London, where swings in manufacturing and population were strongly correlated. In their study of the locations of manufacturing plants within the capital during the interwar period, Scott and Walsh show that while Inner London remained attractive to some traditional craft industries, the presence of good arterial roads, reusable former munitions plants, and large pools of cheap labour in the outer boroughs drove expansion in Outer London.[75] In later years, falling relative competitiveness, plant obsolescence, dock closures, and skilled labour shortages killed off these centrally-located craft industries, with areas south of the Thames and in the East End being particularly badly affected.[76] Analyses of post-war changes in Glasgow, Liverpool, and Manchester (the latter two primarily from the mid-1960s) similarly demonstrate a loss of industrial firms and employment from inner city areas in favour of suburban and non-urban locations.[77] However, losses in inner Liverpool and Manchester were so great that movement to, and growth in, their peripheries was trivial in comparison.[78]

By the 1980s, economic geographers had placed the study of the relative decline of the major cities as industrial centres into discourse around 'urban-rural shift', which by that time was being observed across other developed economies.[79] Driven primarily by differential growth rather than the direct movement of firms between urban and rural settings, the term itself is a somewhat of a misnomer.[80] This is doubly the case considering that many of the places that enjoyed growth were not straightforwardly 'rural', especially in the period up to the 1970s, but were rather towns and commuter settlements.[81]

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[75] P. Scott and P. Walsh, "Patterns and determinants of manufacturing plant location in interwar London", *Economic History Review* 57, no. 1 (2004): 109–141.

[76] P. Gripaios, "Industrial Decline in London : An Examination of its Causes", *Urban Studies* 14, no. 2 (1977): 181–189; R. Dennis, "The Decline of Manufacturing Employment in Greater London: 1966-74", *Urban Studies* 15, no. 1 (1978): 63–73.

[77] W. Lever, "Deindustrialisation and the Reality of the Post-industrial City", *Urban Studies* 28, no. 6 (1991): 983–999.

[78] P. Lloyd, "The Components of Industrial Change for Merseyside Inner Area: 1966–1975", *Urban Studies* 16, no. 1 (1979): 45–60; C. Mason, "Industrial Decline in Greater Manchester 1966-1975: a Components of Change Approach", *Urban Studies* 17, no. 2 (1980): 173–184.

[79] D. Keeble, "The urban-rural manufacturing shift", *Geography* 69, no. 2 (1984): 165.

[80] D. North, "Rural Industrialization", in *The Geography of Rural Change*, ed. B. Ilbery (Harlow: Longman, 1998), 168.

[81] This can perhaps be forgiven considering the literature's focus on the post-1960 period, where the resilience of industry in rural areas was becoming apparent.

Like deindustrialisation in general, official evaluations of urban-rural shift were tinged with a certain inevitability. A good example of this can be seen in the 1976 review of the *Strategic Plan for the South East*, which took a pessimistic tone regarding the then trouble-stricken Inner London boroughs' ability to withstand a 'natural' (and economically efficient) drift of productive industrial activity away from the capital itself and into the wider Outer Metropolitan Area.[82]

Among the earliest empirical studies of urban-rural shift was that of Keeble, whose examination of the 1971-1976 period noted the strength of the process but was unable to offer a complete explanation.[83] Alongside Thrift, Keeble's position emphasises the residential preferences of highly-skilled innovators, whose choice of a life away from the conurbations led to the creation of firms in rural locations.[84] Explanations of urban-rural shift centred on attempts by firms to reduce costs are also prominent in the literature.[85] Direct evidence from cutting-edge sectors, such as the electrical, electronics, and aerospace equipment industries, support this position. Between 1966 and 1972, the major cities lost more than 30,000 jobs in these industries, mostly highly-skilled, as firms attempted to reduce outgoings and raise productivity through mergers, moves, and changes to production processes.[86] Variations on the costs argument stress the importance of capitalist exploitation, with rural locations favoured as places with cheap female employment and little history of militant trade unionism.[87]

The explanation for urban-rural shift on which the literature mainly settled is that of Fothergill, Gudgin, and their co-authors, who argued that the process was an inevitable consequence of the replacement of workers with machines in industrial production.[88]

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[82] J. Davis, *Waterloo Sunrise: London from the sixties to Thatcher* (Princeton: Princeton University Press, 2022), 418–419.

[83] D. Keeble, "Industrial Decline, Regional Policy and the Urban—Rural Manufacturing Shift in the United Kingdom", *Environment and Planning A: Economy and Space* 12, no. 8 (1980): 958.

[84] D. Keeble, "Enterprising Behaviour and the Urban-Rural Shift", *Urban Studies* 32, no. 6 (1995): 975–997; N. Thrift, "Manufacturing rural geography?", *Journal of Rural Studies* 3, no. 1 (1987): 77–81.

[85] See, for example, P. Tyler and B. Moore, "Geographical variations in industrial costs", *Scottish Journal of Political Economy* 35, no. 1 (1988): 22–50.

[86] D. Massey and R. Meegan, "Industrial Restructuring versus the Cities", *Urban Studies* 15, no. 3 (1978): 273–288.

[87] D. Massey, *Space, Place, and Gender* (Minneapolis: University of Minnesota Press, 1994).

[88] They argued that these processes were so relentless that big cities 'might disappear entirely'! S. Fothergill et al., "The De-industrialisation of the City", in *The Geography of De-industrialisation*, ed. R. Martin

With rising capital intensity comes larger, more complex, demands in relation to industrial floorspace. As 'constrained locations', urban plants are less able to alter their factories; as such, the capital investment on which competitiveness depends more often leads to the closure of plants in urban areas than rural ones, causing a net shift in industrial employment.[89] Evidence in favour of the floorspace explanation can be found in ongoing research into urban-rural shift up to 2018 that shows the process stalling at the moment the ratio of manufacturing employment to floorspace stabilised.[90]

With industrial employment entering absolute decline in the 1950s, deindustrialisation in the major cities far predated that of the rest of England and Wales, which continued to see growth up to 1966. With 40.5 per cent of their workforces engaged in industrial labour, the non-London big cities were still 1.2 percentage points more industrialised than the rest of England and Wales in 1971. However, the gap between them had closed; in 1931 and 1951 the non-London big cities had enjoyed 8.5 and 7.7 percentage point leads respectively. Inner London's trajectory was somewhat different. While it did see an upswing in industrial employment in absolute terms between 1931 and 1951, the capital deindustrialised progressively throughout the entire period, with industry's share of all employment dropping from 35.0 per cent in 1921 to just 22.1 per cent fifty years later. These trends contrasted sharply with those observed in the outer boroughs. Despite beginning the period with proportionally fewer industrial workers than Inner London, Outer London entered the 1970s with a more industrial labour market than it had during its 1930s boom.

The differences between Inner London and its neighbouring areas are even more striking in a regional context. As can be seen in Table 1.5.2, Inner London changed from being more industrialised than its region to decidedly less. An equivalent shift occurred in Gloucestershire, with Bristol experiencing strong deindustrialisation while surrounding areas industrialised. The patterns observed for the rest of the major cities

and R. Rowthorn (Basingstoke: Macmillan, 1986), 220.

[89] S. Fothergill and G. Gudgin, *Unequal Growth: Urban and regional employment change in the UK* (London: Heinemann Educational Books, 1982), 68.

[90] R. Jump and A. Scavette, "The urban-rural shift in British manufacturing employment: A status update", Unpublished working paper (2021): 1–10.

were less extreme. Most were less heavily industrial than their surrounding counties, and this remained the case throughout the period. Nevertheless, with the exception of Liverpool and Sheffield, every major city deindustrialised proportionally more strongly than its wider county. The decline of the conurbations was, therefore, both local and national.

Table 1.5.2: Deindustrialisation in the major cities and their wider counties, 1931-1971

Place	City			Rest of county		
	1921 (%)	1971 (%)	Δ (%)	1921 (%)	1971 (%)	Δ (%)
Inner London	35.0	22.1	-36.8	30.8	35.3	+14.8
Birmingham	65.0	51.3	-21.0	53.8	50.0	-7.2
Bristol	47.5	31.6	-33.5	37.0	40.6	+9.8
Leeds	59.3	39.5	-33.4	65.3	48.2	-26.1
Liverpool	34.3	31.7	-7.3	67.3	47.2	-29.8
Manchester	49.2	34.2	-30.4	67.3	47.2	-29.8
Newcastle	46.4	30.1	-35.2	54.9	38.2	-30.5
Nottingham	58.8	42.2	-28.2	56.2	52.3	-6.9
Sheffield	63.6	48.5	-23.7	65.3	48.2	-26.1

Data on cities are at the local authority (county borough) level and come from the GBHD industry statistics and transcription of the 1921 census. County-level data originate in Lee's estimates. Inner London is displayed relative to the wider London Region (as displayed in Figure 1.3.2); Birmingham, Bristol, Newcastle, and Nottingham are displayed against Warwickshire, Gloucestershire, Northumberland, and Nottinghamshire respectively. Liverpool and Manchester are contextualised by the rest of Lancashire, and Leeds and Sheffield by the rest of the West Riding of Yorkshire. In these latter two cases, both cities in the county are removed in order to generate the 'rest of county' figures.

One matter on which the quantitative literature on urban-rural shift can agree is that the decline of the major cities did not depend on structural factors. Shift-share analysis of employment data from four dates between 1952-1976 demonstrates that the inner parts of Britain's major conurbations had economic structures conducive to growth, and that their decline thus had to be attributed to other causes.[91] Longer-term evidence in favour of this interpretation can be found from the census data in Table 1.5.2, which show little relationship between industrialism and subsequent deindustrialisation. The major cities deindustrialised more heavily than their surrounding areas regardless of whether they were previously more industrial or not. Some of their surrounding counties, especially

[91] M. Danson, W. Lever and J. Malcolm, "The Inner City Employment Problem in Great Britain, 1952-76: a Shift-Share Approach", *Urban Studies* 17, no. 2 (1980): 193–210.

Lancashire, Nottinghamshire, Northumberland, and the West Riding of Yorkshire, were heavily dependent on declining industries in the interwar period.[92] This inheritance did little to prevent them from deindustrialising more slowly than their cities, which they did with just two exceptions.

The explanation for this curious shift lies mainly in the location of employment in expanding industrial activities. As can be seen in Table 1.5.3, employment in declining industrial activities fell by similar proportions in both the non-London major cities and the rest of their counties, even if the shift in absolute numbers was much larger in the latter. The entire differential that emerged between the two lay in expanding sectors alone. Despite possessing a strong head start in the expanding industries, growth in the major cities was sluggish. The last time these cities, taken as a whole, possessed a lead over their peripheries was in 1951, when they had just over one million employees in these sectors and their peripheries had 980,000. Even then this lead was a faltering one; while employment in growing activities in the cities had grown at an annualised rate of 2.2 per cent per year since 1931, it had grown at 2.7 per cent per year in the rest of their counties. Thereafter, employment in expanding industries fell across consecutive censuses in the major cities and continued to grow in their outlying areas until 1966.

Of all the major cities, London was the only place where declining industries initially accounted for a larger share of industrial employment in the core urban area than in the wider region. This remained the case until 1971, when Inner London was joined by Bristol, Leeds, and Manchester, which had transitioned from being less to more dependent than their counties on declining industries. The capital's record was particularly poor. There, losses in declining industries were much heavier than in the rest of the region, and the core urban area bucked the national trend by losing significant amounts of employment in growing sectors.

Together, these figures present an intriguing picture about how the reorganisation of the industrial economy played out within counties. The fact that the places proximate to the major cities had much less trouble attracting new jobs in growing industrial activ-

[92] These four counties were in the top quarter most dependent on declining industries.

Table 1.5.3: Industrial employment in cities and their peripheries, 1921-1971

Place	Growing industries			Declining industries		
	1921	1971	Δ (%)	1921	1971	Δ (%)
Inner London	600,830	403,250	-32.9	235,820	90,790	-61.5
Rest of London Region	363,290	1,203,190	+231.2	94,642	84,360	-10.9
Big cities	795,886	827,220	+3.9	271,243	109,820	-59.5
Rest of counties	630,508	1,308,540	+107.5	1,387,835	569,870	-58.9

Data on cities are at the local authority (county borough) level and come from the GBHD industry statistics and transcription of the 1921 census. County-level data originate in Lee's estimates. For the purposes of this table, the non-London big cities and peripheral areas are taken as a whole.

ities underscores the argument that the problems large urban areas faced were neither regional nor strictly structural in origin. The failure of the major cities to generate new industrial jobs was instead derived from conditions relating to their size that applied as much to better performing cities as it did to weaker ones. This point can be illustrated by comparing relatively successful Birmingham to struggling Manchester, both of which grew less strongly than their peripheries and the country as a whole. In 1921, Birmingham accounted for 7.2 per cent of all employment nationally in expanding industries and 80.3 per cent of Warwickshire's total. By 1971, the equivalent figures for Birmingham's place nationally and regionally were just 4.5 and 60.3 per cent respectively. Manchester moved from possessing 2.4 per cent of national and 21.6 per cent of county employment in expanding industries in 1921 to just 1.4 and 12.0 per cent respectively in 1971. In all, despite being home to 21.5 per cent of all jobs in expanding industries in 1921, the non-London major cities received just 1.1 per cent of all the net new jobs created in these sectors over the following five decades.

As a result of these dynamics, county-level replacement processes, such as those displayed back in Figure 1.4.2, were an overwhelmingly suburban and small-town phenomenon. Among the most successful were formerly rural places in the Greater South East that finally broke into the industrial economy, but as the population statistics in Table 1.5.1 make clear, examples can be found across the country. Some of these local economies were particularly robust – defying sub-optimal industrial inheritances by replacing jobs in declining sectors at impressive rates.

Examples of industry-led booms in small towns beyond the Greater South East can be seen in Table 1.5.4, where net changes in the size of the workforce, and its industrialism, is displayed for four areas. Hartlepool, a port and centre of shipbuilding that struggled greatly during the depression, grew and continued to industrialise up to the 1970s thanks to the steel industry, which was nationalised in 1967 and directly employed 6,000 men locally.[93] Gedling, a coal mining area with historically large employment in textiles and clothing, was just as industrial as Nottingham, the city it bordered to its west, in 1931. Over the next four decades, the settlement preserved, and expanded on, its industrialism while that of its nearby city fell by one fifth. Unlike the major cities they bordered (Birmingham and Bristol respectively), Solihull and South Gloucestershire saw significant expansions in their industrial economies up to 1971. As was the case with British Timken in Northamptonshire, the war played a significant role in the expansion of both locations.[94] 'Shadow factories', established during the 1930s to advance rearmament, existed in both areas. Initially created to build up capacity without upsetting the balance of private producers, these factories were turned over to the private sector after the war on favourable terms.[95] Solihull's former aircraft engine plant, which became home to Land Rover production, employed thousands of workers in the district over the post-war decades.

Table 1.5.4: Industrialisation in small towns, 1931-1971 (%)

Place	1931		1971	
	Workforce	Industrial (%)	Workforce	Industrial (%)
Gedling	22,626	53.3	30,103	56.3
Hartlepool	26,684	34.9	39,927	50.7
Solihull	14,617	30.6	61,079	47.1
South Gloucestershire	32,093	40.2	58,095	48.4

All data come from the GBHD via the 'Vision of Britain' website.

[93] L. Morris, "The changing social structure of Hartlepool", in *Global restructuring, local response*, ed. P. Cook (London: ESRC, 1986), 147; employment figures come from Hansard, HC Deb 20 December 1971 vol 828 c246W.

[94] J. Britton, *Regional Analysis and Economic Geography: A Case Study of Manufacturing in the Bristol Region* (London: G. Bell / Sons, 1967), 50–55.

[95] D. Edgerton, "Technical Innovation, Industrial Capacity and Efficiency: Public Ownership and the British Military Aircraft Industry, 1935–48", *Business History* 26, no. 3 (1984): 247–279; T. Whisler, "The British Motor Industry and the Government, 1944-52: A Reappraisal", *Business and Economic History* 25, no. 1 (1996): 196–205.

Together, the places displayed in Table 1.5.4 present a snapshot of the new industrial Britain being formed in the decades either side of the Second World War. Far from being spatially neutral, the 'golden age' of British capitalism that yielded so much prosperity for working-class people was a creature of towns buoyed by new jobs in expanding industries. Where new industrial employment appeared, jobs in other sectors, new housing and infrastructure, and population growth followed. To a degree, these changing geographies of industrial prosperity were analogous to the emergence of new pit villages a century before, which emerged in different parts of coalfields as technology altered the economic viability of mining in particular locations.[96]

The ability of manufacturing to engender local prosperity is rooted in its status as a 'tradable' activity.[97] Tradables matter to local economies because their outputs are exported to other locations and thus earn income that can be spent on local services. Analysis of US census data has shown that between 1980 and 2000, each additional manufacturing job in a place created 1.6 jobs in local services, and that additional highly-skilled tradable jobs generated 2.5.[98] It is therefore easy to see how the arrival of just a single large plant could rapidly alter the economic trajectory of a town. At a time when employment and the labour share of income were high, even routine manufacturing establishments were able to underpin entire ecosystems of jobs in locations otherwise devoid of meaningful activity.

Manufacturing is unusual among tradables in its ability (up to a point) to foster prosperity in small and isolated locations. Because of their reliance on the transfer of knowledge and skills within and between firms to boost their competitiveness, service-orientated tradable activities, such as finance, insurance, and legal services, depend far more on proximity and face-to-face interactions than industrial enterprises and are thus attracted to large urban areas.[99] Modern estimates suggest that the productivity benefits

[96] B. Coates, "The Geography of the Industrialization and Urbanization of South Yorkshire, 18th Century to 20th Century", in *Essays in the Economic and Social History of South Yorkshire*, ed. S. Pollard and C. Holmes (Barnsley: South Yorkshire County Council, 1976), 14–27.

[97] Other terms used historically include 'basic industries'.

[98] E. Moretti, "Local Multipliers", *American Economic Review: Papers and Proceedings* 100, no. 2 (2010): 373–377.

[99] The distances over which so-called 'knowledge spillover' effects operate are remarkably short. Modern

from agglomeration enjoyed by these high-end business services are more than three times larger than those seen among manufacturing and consumer service firms.[100]

Crude evidence of these forces can be seen in the census data. Employment in services has expanded continuously since the 1840s, with the South East being especially prominent.[101] This can be attributed mainly to the position of London which was, and remains, central to Britain's 'knowledge economy'. Yet, the capital was not alone in possessing a greater proportion of its workforce in services than was typical in the rest of the country or in their immediate neighbourhoods. As Table 1.5.5 shows, the non-London major cities had larger amounts of employment in the banking, finance, and legal services sectors than the rest of the country, their neighbouring regions, and, indeed, even the wider London region. This latter point is especially interesting because the towns located in the London Region were a recipient of large numbers of new jobs in producer services during the period, in part thanks to their proximity to the capital.[102]

Table 1.5.5: Share of workforce engaged in banking, finance, and legal services (%)

Year	National	Inner London	Rest of London Region	Big cities	Rest of counties
1921	1.8	5.3	1.1	2.3	0.8
1931	2.1	3.5	3.8	2.0	1.3
1951	2.0	6.3	1.5	2.4	1.0
1961	2.5	7.8	2.0	2.9	1.2
1966	2.8	8.6	2.4	3.3	1.6
1971	4.1	13.2	4.1	4.5	2.3

Data on cities are at the local authority (county borough) level and come from the GBHD industry statistics and transcription of the 1921 and 1966 censuses. County-level data originate in Lee's estimates. For the purposes of this table, the non-London big cities and peripheral areas are taken as a whole.

evidence on the Manhattan advertising industry suggests that they are strongest under 750m, although unplanned face-to-face interactions within buildings may even have an impact. See M. Arzaghi and J. Henderson, "Networking Off Madison Avenue", *Review of Economic Studies* 75, no. 4 (2008): 1011–1038; S. Rosenthal and W. Strange, "How close is close? The spatial reach of agglomeration economies", *Journal of Economic Perspectives* 34, no. 3 (2020): 27–49.

[100] D. Graham, S. Gibbons and R. Martin, "Transport investment and the distance decay of agglomeration benefits", Working paper (2009): 1–40, https://bit.ly/3LyFX9x.

[101] H. Southall and P. Aucott, "Service sector employment in Great Britain 1841-2011", *Journal of Maps* 18, no. 3 (2022): 567–575.

[102] P. Daniels, "The locational geography of advanced producer services firms in the United Kingdom", *Progress in Planning* 43, nos. 2-3 (1995): 135.

Although the number of workers involved was relatively small, the data hint at how major cities were beginning to forge a new path in the midst of their decline. Unlike in industrial employment, where cities lost out both extensively (their share of all the jobs in the country fell) and intensively (the importance of industrial work to their own economies fell faster than was the case elsewhere), the intensity of their emerging knowledge economies outpaced the levels seen in the rest of the country. While industry continued to be more important to the major cities up to the 1970s, the relative strength of their producer service sectors meant that the link between working-class labour and income-generating tradable sectors began weakening in the conurbations earlier than in the towns, where industry continued to dominate. This would go on to have important implications for the elimination phase of deindustrialisation. Inherently ill-equipped to construct a new tradable base rooted in high-end service activities, the disappearance of industrial work was even more devastating in towns than in the major cities, whose service base proved more durable.

1.6 Interactions with policy

None of these changes occurred in a vacuum. From the middle of the 1920s up to the end of the 1970s, the shifting geography of the industrial economy occurred in tandem with, and, to a degree, as a result of, policy interventions made by national and local governments. In general, regional policy worked with the grain of the industrial economy's reorganisation by promoting transitions from declining to growing industries. Formal regional policy operated under two distinct paradigms. The first set of policies, which were active primarily before the Second World War, sought to 'bring workers to the work'. The second, which became active after 1945, looked to 'bring work to the workers' instead. The slowdown in the use of these policies, and their eventual abandonment under the Thatcher ministries, occurred as both the ideological positions of governments, and the possibility of managing deindustrialisation with reorganisation within the industrial sector, changed permanently from the mid-1970s onwards.

The first phase of policy emerged in the aftermath of Herbert Samuel's inquiry on the

coal industry, which had been appointed by Baldwin in a fruitless last-ditch gamble designed to avert a General Strike that year.[103] The commission concluded that the industry was overmanned, and alongside its recommendations that state subsidies be withdrawn and miners wages be cut by 13.5 per cent, suggested that mechanisms be put in place to help unemployed miners move between coal districts for work.[104] Although the report did recommend that employers in new industries consider setting up in some parts of the coalfields, it concluded that state-sponsored employment (through public works or the stimulation of new industrial development) was not practicable in light of ongoing fiscal austerity.[105] By the time the report on Industrial Transference was published, the government believed that there were 100,000 to 200,000 'surplus' workers in mining and at least another 100,000 unemployed in shipbuilding and steel.[106]

The stark logic behind the government's attitude is made plain by an internal memorandum from February 1929 which noted that

> whole communities have lost their source of livelihood on which they and their forefathers depended. There is no alternative livelihood available in the localities; these areas offer few advantages for new industries and the only permanent solution of the position lies in the migration of the surplus population to other districts.[107]

The state's attitude was, therefore, largely defeatist, especially in relation to coal. By the time the transference policy reached maturity, the scheme combined migration and training using employment exchanges and juvenile programmes with mechanisms to include the transfer of whole families as well as individual workers, and 'receiving' locations were given help to establish public works schemes to facilitate orderly labour market transitions.[108]

[103]M. Pugh, *State and Society: A Social and Political History of Britain since 1870*, 6th ed. (London: Bloomsbury Publishing Plc, 2022), 288.
[104]Parliamentary Papers, *Report of the Royal Commission on the Coal Industry*, vol. I, (HC 1926 2600) (London: House of Commons, 1926), 189.
[105]Parliamentary Papers, *Industrial Transference Board Report*, (HC 1928 3156) (London: House of Commons, 1928), 15, 52–53.
[106]Parliamentary Papers, *Industrial Transference Board Report*, 7-8.
[107]Internal Ministry of Labour memorandum, quoted in D. Pitfield, "Labour Migration and the Regional Problem in Britain, 1920-1939" (PhD diss., University of Stirling, 1973), 173. Parts of the text have been underlined for emphasis.
[108]Pitfield, 166.

It was not long, however, until a policy response based on facilitating the migration of workers from depressed areas to growing ones began to be diluted by place-based policies designed to offset localised economic problems by bringing some work to the workers. The first of these began following the passing of the Special Areas (Development and Improvement) Act of 1934, which made four unemployment hotspots (South Wales, Scotland, Durham and Tyneside, West Cumberland) eligible for support through government-sponsored industrial estates and loans for enterprises building new factories in these areas. The provisions of the 1934 law were extended and strengthened by the Special Areas (Amendment) Act of 1937, which allowed the state to make contributions towards rent and taxes. By 1938, trading estates established under these acts employed 12,000 workers.[109]

The shift in policy inaugurated by the Special Areas Acts was a gradual one, and did not necessarily suggest that the government's fatalism had been cured. Transference policy continued almost until the outbreak of the Second World War, and the number of people moved under the scheme peaked in 1936. The schemes established under the 1934 act were experimental in nature, and it was only later that the government became fully committed to reinvigorating local economies with new sources of employment.[110] The lingering impact of transference policies can, however, be seen in the 1944 White Paper on Employment Policy. Widely seen as a landmark document within the emerging post-war consensus, the white paper committed the government to remove 'obstacles to the transfer of workers from one area to another' alongside provisions regarding support for old and new industries.[111] State-sponsored migration had, however, lost emphasis within the interventions favoured by governments, in part because of a feeling that it would leave sending places with under-utilised infrastructure.[112]

The policy responses that came from then on followed the template established in

[109]Rosevear, "Regional policy and the British motor vehicle industry 1945-64: a study in selective intervention and the economics of industrial location", 40.
[110]D. Pitfield, "The quest for an effective regional policy, 1934–37", *Regional Studies* 12, no. 4 (1978): 436.
[111]Parliamentary Papers, *Employment Policy*, (HC 1943-1944 6527) (London: House of Commons, 1944), 11.
[112]Keeble, *Industrial location and planning in the United Kingdom*, 208; Parliamentary Papers, *Employment Policy*, 13, 15.

1934, with different geographical areas being earmarked for support. After the Second World War, the 'Assisted Areas' were replaced by more expansive 'Development Areas' which supplemented the original four with parts of the Highlands and the North West of England (especially Merseyside). The boundaries of intervention continued to shift thereafter, with Development Areas giving way to 'Development Districts' under the terms of the Local Unemployment Act 1960. By 1966, these were replaced with new Development Areas. These, in turn, were later supplemented by 'Special Development Areas' and, in 1970, 'Intermediate Areas'. By that year, some 40 per cent of Britain's land area was covered by some sort of regional intervention.[113]

Alongside formal regional polices were a gaggle of other interventions designed to support the industrial sector and the places dependent on it. Chief among these was the nationalisation, which began under the Attlee ministries and continued into the 1970s. Motivations for nationalisation varied, although efficiency, the potential for market failure, and more nebulous notions of the 'public interest' loomed large. This continued into the 1970s, at which point the state acquired the role of owner of last resort for firms deemed too important to fail.[114] Whatever the merits of nationalisation, its importance to the history of the period 1921-1971 lies in the way it directly involved the state in questions of industrial development and employment. Contrary to hopes that nationalisation would play a role in maintaining full employment and growth in output, state-controlled industries were instead tasked with managing large reductions in employment in an orderly manner from the 1950s onwards.[115] This was a task that was understandably fraught and politically complicated. Pressure to keep establishments open and preserve jobs despite its impact on efficiency were powerful, especially in sectors such as coal and iron and steel.[116]

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[113]D. Parsons, *The political economy of British regional policy* (London: Croom Helm, 1986), 225.

[114]For a summary, see L. Hannah, "A failed experiment: the state ownership of industry", in *The Cambridge Economic History of Modern Britain*, ed. R. Floud and P. Johnson, vol. III (Cambridge: Cambridge University Press, 2004), 332–367.

[115]J. Tomlinson, "A 'Failed Experiment'? Public Ownership and the Narratives of Post-War Britain", *Labour History Review* 73, no. 2 (2008): 238–239.

[116]A. Blair, "The British iron and steel industry since 1945", *Journal of European Economic History* 26, no. 3 (1997): 576; R. Thomas, "Coal", in *The Structure of British Industry*, ed. P. Johnson (London: Nichols Pub., 1980), 75.

These pressures, and governments' temptation to intervene, were not confined to the nationalised sector. The British state influenced the industrial economy through policies prioritising domestic procurement (especially in armaments) and favourable grants and loans to private enterprises for political reasons. In Northern Ireland, for example, generous interventions were made by the national and devolved governments to support employers such as Harland and Wolff, whose Belfast shipyard enjoyed full slipways in the early 1950s mostly thanks to orders derived from Britain's continued militarism.[117] The state also supervised other private industries such as vehicles and steel, the latter of which was denationalised between 1952 and 1967. At the end of the 1950s, Harold Macmillan personally intervened to ensure that proposals for a new strip mill were divided across two locations – one in Scotland and one in South Wales – rather than consolidated in a single plant. The decision, which had to be enabled by large financial sweeteners from the state, was based largely in concerns about employment and regional balance, and probably came at the expense of efficiency and competitiveness over the long term.[118]

1.6.1 Motivating factors

But why intervene at all? Central to various governments' thinking was a need to limit unemployment which had, by and large, historically been attributable to the failure of old, geographically concentrated, industries. This concern with unemployment helps explain why the intensity with which interventions were made waxed and waned over time despite a cross-party commitment to regional policy.[119] The Conservative governments of the 1950s were famously less activist in their treatment of regional questions than the governments that preceded and followed them; low unemployment allowed them to retreat into neoliberal anti-interventionism and short-term thinking despite the

[117] C. Lawson, "Nothing Left but Smoke and Mirrors: Deindustrialisation and the Remaking of British Communities, 1957-1992" (PhD diss., University of California, Berkeley, 2020), 58.

[118] The traditional view is that the decision eliminated the economies of scale necessary for commercial success P. Scott, "The Worst of Both Worlds: British Regional Policy, 1951-64", *Business History* 38, no. 4 (1996): 54. Yet, Edgerton argues that the plants were technologically advanced Edgerton, *The Rise and Fall of the British Nation: A Twentieth-century History*, 315.

[119] R. Martin, "The Political Economy of Britain's North-South Divide", *Transactions of the Institute of British Geographers* 13, no. 4 (1988): 407–408.

concerns of Board of Trade officials.[120]

Explanations for why governments were so preoccupied with unemployment traditionally centre on the experience of the interwar period, where rates rose above 20 per cent in both the early 1920s and following the onset of the Great Depression ten years later.[121] The experience of the Second World War, during which unemployment effectively disappeared and state intervention garnered a positive image, also helped foster a consensus about the state's responsibility to tackle the problem, even if the extent of the wider cross-party agreement on policy can be contested.[122] The memory of the interwar period persisted long after, as Prime Ministers of the 1950s and 1960s were strongly influenced by their own experiences. Macmillan's famed statism has long been ascribed to his participation in the First World War and the suffering he saw in his Stockton-on-Tees constituency in the years that followed.[123] Similar comments can be made of Wilson and Heath, but less so of Thatcher and her ministers, whose opposition to state intervention might partly be attributed to the fact that their relative youth precluded them from developing a personal connection with the issue during the interwar period.[124]

Historians of deindustrialisation have come to understand the commitment to intervention in the realm of structural unemployment through 'moral economy' frameworks. Drawing on Thompson's writings on industrialisation processes in the 18th century and Polanyi's 'double movement', the moral economy perspective emphasises actors' awareness of the social character of work and the existence of mutual obligations between the state, capital, and the people.[125] In terms of deindustrialisation, different policymaking economies – moving between broadly 'solidaristic' and 'Thatcherite' formulations –

[120]Scott, "The Worst of Both Worlds: British Regional Policy, 1951-64".
[121]Paker, "A Problem of Industries and Regions: Unemployment and Structural Change in Britain During the Interwar Years and 1980s", 102.
[122]B. Pimlott, D. Kavanagh and P. Morris, "Is the 'postwar consensus' a myth?", *Contemporary Record* 2, no. 6 (1989): 12–15.
[123]N. Timmins, *The Five Giants: A Biography of the Welfare State*, 3rd ed. (London: William Collins, 2017), 163.
[124]B. Pimlott, *Harold Wilson* (London: HarperCollins, 1992), 35.
[125]E. Gibbs, "The Moral Economy of the Scottish Coalfields: Managing Deindustrialization under Nationalization c.1947–1983", *Enterprise & Society* 19, no. 1 (2018): 124–152; J. Tomlinson, "Re-inventing the 'moral economy' in post-war Britain", *Historical Research: the bulletin of the Institute of Historical Research* 84, no. 224 (2011): 356–373.

can be observed, with the supersession of the former by the latter occurring in the late 1970s.[126] Whereas the Thatcherite moral economy stressed flexibility and adaptation on the part of individuals and communities facing new economic circumstances, the solidaristic paradigm emphasised the need for capital and the state to help those affected by structural change. The solidaristic moral economy required that changes were agreed with workers and their representatives, and that the economic security of those affected would be guaranteed.[127]

In practical terms, the implementation of these principles involved slowing down the retreat of declining industries and bringing forward new sources of employment where possible. Nowhere were these moral economy dynamics more powerful than in the coal industry, where long traditions of solidarity and a formidable trade union gave communities a strong hand.[128] Other heavy industries, such as steel, learned from this, and similarly demanded assistance in exchange for accepting closures.[129] The state took these obligations reasonably seriously, and during the 1960s worked to palliate the impact of closures and gather information on appropriate strategies.[130] In industries such as coal, government intervention to attract new forms of employment to an area were seen by communities as an extension of their moral economy obligations rather than something new. Miners had welcomed nationalisation as an opportunity for the imposition of a social order free of liberal market logic, and both they and the National Coal Board (NCB) approached changes in the industry with a degree of collaboration throughout.[131]

Both the state and the workers got something out of the pact; workers had new

[126]J. Phillips, V. Wright and J. Tomlinson, *Deindustrialisation and the Moral Economy in Scotland since 1955* (Edinburgh: Edinburgh University Press, 2021), 44.

[127]J. Phillips, "Deindustrialization and the Moral Economy of the Scottish Coalfields, 1947 to 1991", *International Labor and Working-Class History* 84 (2013): 101.

[128]Weldon amusingly, and reasonably accurately, describes the NUM as 'the shock troops of the British left'. D. Weldon, *Two Hundred Years of Muddling Through: The Surprising Story of Britain's Economy from Boom to Bust and Back Again* (London: Little, Brown, 2021), 258.

[129]Phillips, Wright and Tomlinson, *Deindustrialisation and the Moral Economy in Scotland since 1955*, 64.

[130]A good example of this can be seen in a study commissioned to examine options ahead of the closure of the Ryhope Colliery near Sunderland, which gathered numerous data to assess the social and economic implications of redeployment. Department of Employment and Productivity, *Ryhope: A Pit Closes: A Study in Redeployment* (London: Her Majesty's Stationery Office, 1970).

[131]E. Gibbs, *Coal Country: The Meaning and Memory of Deindustrialization in Postwar Scotland* (London: University of London Press, 2021), Chapter 2.

sources of employment, and their agreement with the process eased the transfer of people and resources to higher growth activities.[132] Nevertheless, problems remained. Much of the employment generated under the auspices of regional policy was limited to 'branch plants' – production units within larger, often multinational, enterprises – rather than indigenous industry. Their subsidiary nature, in conjunction with their size and the characteristics of their product ranges, left branch plants vulnerable to closure over the long term.[133] The scattergun approach to directing branch plant investment to areas facing unemployment also meant that opportunities to develop self-sustaining agglomeration economies were missed, even if there was an attempt after the Local Unemployment Act 1960 to develop a 'growth point' strategy focused on supply-side reforms.[134]

Despite these problems, policymakers were keen to attract branch plants, especially from the United States, on the grounds that they would sustain and perhaps modernise regional economies.[135] The degree to which this occurred varied, as research and development functions and high-technology production survived only at the most autonomous of plants.[136] Foreign-owned factories did, however, tend to outperform their domestic competitors.[137] This was at least partly attributable to 'a more determined assertion of managerial prerogatives' that enabled a more effective use of labour; it did, however, help fuel industrial unrest – especially in larger establishments.[138]

By attempting to bring growing industries into places formerly characterised by their association with declining industries, state-led attempts to reduce unemployment and

[132]J. Phillips, "The moral economy of deindustrialization in post-1945 Scotland", in *The deindustrialized world: Confronting ruination in postindustrial places*, ed. S. High, L. MacKinnon and A. Perchard (Chicago: University of Chicago Press, 2017), 318.

[133]S. Fothergill and N. Guy, *Retreat from the regions: corporate change and the closure of factories* (London: Kingsley, 1990), 165.

[134]N. Phelps, "From branch plant economies to knowledge economies?Manufacturing industry, government policy, and economicdevelopment in Britain's old industrial regions", *Environment and Planning C: Government and Policy* 27, no. 4 (2009): 574–592.; P. Scott, "Regional development and policy", in *The Cambridge Economic History of Modern Britain*, ed. R. Floud and P. Johnson, vol. III (Cambridge: Cambridge University Press, 2004), 352.

[135]E. Gibbs, "Foreign direct investment policy, multinationals, and subsidiary entrepreneurship success and failure in post-war Scotland", *Business History* (DOI: 10.1080/00076791.2022.2052852) (2022): 2.

[136]Gibbs, 18–19.

[137]P. Enderwick and P. Buckley, "Industrial relations practices in Britain: A comparative analysis of foreign- and domestically-owned firms", *Labour and Society* 8, no. 4 (1983): 329.

[138]Enderwick and Buckley, 329–330.

modernise local economies tended to reinforce processes of industry turnover. Negotiated contractions in nationalised industries smoothed out reorganisation processes, and the transfer of plants and the establishing of branches created up to 870,000 jobs across the country between 1945 and 1965, according to official statistics.[139] By 1966, 14.7 per cent of jobs in electrical engineering, and 12.7 per cent of employment in vehicles, were attributable to moves such as these.[140] Formal assessments suggest that some 630,000 jobs could be attributed to policy initiatives specifically.[141]

1.7 A commitment to dispersal

The replacement of declining industries with growing ones was, however, not the only part of the reorganisation of the industrial economy that all levels of the British state sought to reinforce. For more than two decades after the Second World War, local and national policymakers combined efforts to help struggling regions with interventions that implicitly (and, in the case of London and Birmingham, explicitly) worked to promote industrial growth in towns at the expense of major cities. These policies would remain in force until the mid-1970s, by which time the decline of urban economies was producing sufficiently negative outcomes that it could no longer be ignored. Acknowledging that 'too little attention has been paid to the economic well being' of urban cores, the Callaghan government's *Policy For The Inner Cities* finally recommended a change of course, arguing that 'a deliberate effort is neded [sic] to reduce, and possibly in some cases to end, the loss of people and jobs from the cities as a whole and the inner cities in particular'.[142]

The primary mechanism through which the central government sought to promote small-town industrialism was the 'Industrial Development Certificate' (IDC) – a permit from the Board of Trade that firms needed alongside local planning permission in order

[139]Department of Industry, *The movement of manufacturing industry in the United Kingdom 1945-65* (London: Her Majesty's Stationery Office, 1968), 23.
[140]Department of Industry, 25.
[141]P. Balchin, *Regional policy in Britain: the North South divide*, 2nd ed. (Abingdon: Routledge, 2022), 68.
[142]Parliamentary Papers, *Policy For The Inner Cities*, (HC 1976-1977 6845) (London: House of Commons, 1977), 1, 7.

to erect premises above a certain size. Introduced by the Town and Country Planning Act 1947, IDCs represented a beefed-up version of a system of control that appeared in early versions of the 1945 Distribution of Industry Bill, which would have made consultation with the Board of Trade mandatory before any new industrial development (including *in situ* expansion) could proceed. Although ministers in the wartime coalition government claimed otherwise, the purpose of IDCs, as they eventually became, was to compel industries to establish themselves in particular parts of the country, either by preventing them from setting up in their preferred locations, or by making expansion in their existing localities so difficult as to force them to go elsewhere.[143]

The degree to which IDCs achieved their aim is difficult to assess, however an evaluation of the policy from the early 1980s suggested that just 18 per cent of firms who were refused an IDC ended up cooperating with the government's wishes in the 1958-1971 period.[144] Figures from the same study suggest that the 'indirect' influence of IDCs was much larger. Informal verbal 'steering', such as that envisaged under the 1945 legislation (albeit this time under the theoretical threat of an IDC refusal), far outstripped refusals as a reason firms moved to a target area between 1968 and 1971.[145] This was by no means accidental. In a meeting with figures within the Federation of British Industries concerned about controls in the Midlands in the summer of 1962, the then President of the Board of Trade, Frederick Erroll, stressed that refusals were rare, and that 'the actual application [for an IDC] was usually the last act in a long series of discussions at the end of which the firm knew whether it would get a certificate or not'.[146]

Throughout their period of operation, IDCs were routinely employed to prevent industrial enterprises from moving to, or expanding in, London and Birmingham in the hope that they would establish themselves in struggling regions or, at the very least, in the New Towns of their home regions. Why was such a policy pursued? After all, from

[143]Hansard, HC Deb 21 March 1945 vol 409 c943.
[144]R. Wettmann, W. Nicol and European Commission, *Deglomeration policies in the European Community – A comparative study* (Luxembourg: Office for Official Publications of the European Community, 1981), 120.
[145]Wettmann, Nicol and European Commission, 122.
[146]TNA, BT 194/22, file 2270, p. 16, 9 August 1962.

the mid-1920s until the outbreak of war in 1939, policy had operated in the opposite direction. Up to the summer of 1937, around 200,000 workers (sometimes with family in tow) had moved from depressed areas to the Midlands and South East, if only temporarily, under the auspices of industrial transference policies.[147] This had, of course, been watered down with the introduction of place-based policy from the late 1930s, but the decision to supplement a regime of 'carrots' with a theoretically powerful 'stick' against places on whose prosperity prior interventions had depended was an unusual one. Of all major peer countries, only France chose to constrict its successful region by adopting a similar policy.[148]

1.7.1 Justifying dispersal

One reason for the introduction of a dual regime was practical. The businesses needed to achieve the ill-defined balance of industry sought by successive governments had to come from somewhere. Faced with the enormous task of post-war reconstruction, preventing expansion in successful parts of the country therefore provided an economical method (at least in the short term) of steering activity to the desired locations. In this sense, the industrialising Midlands and South East provided an irresistible supply of raw material that could be bled off to support struggling regions. Concerns about inflation and the balance of payments supported this approach. Diverting industry away from successful places with relatively expensive labour to parts of the country where unemployment was high offered the hope of minimising wage increases and thus inflationary pressures.[149] A zero-sum mentality was therefore at work. For the north to 'win' and macroeconomic stabilisation to become more straightforward, the booming South and Midlands had to lose. An example of this logic can be seen in the records of the Board of Trade, where discussions around the introductions of tougher controls at the end of the 1950s concluded

[147] A. Owen, "The Social Consequences of Industrial Transference", *Sociological Review* 29, no. 4 (1937): 335.
[148] Rosevear, "Regional policy and the British motor vehicle industry 1945-64: a study in selective intervention and the economics of industrial location", 41.
[149] Scott, "Regional development and policy", 332.

> The Midlands is itself one of the great industrial concentrations in the world, and its expansion from 1953-56 must have been good for the UK economy, but if the area is to continue to make a contribution, the expansion must at least marginally be halted.[150]

In seeking to explain this attitude, traditional accounts of postwar policy have tended to focus on the *Royal Commission on the Distribution of the Industrial Population* (Barlow Report), which was convened in 1937 under the chairmanship of Sir Montague Barlow and reported at the end of 1939 (although the report only hit the printers in early 1940 owing to the war). Wide ranging in focus, the report's conclusions were even more robust in their treatment of the major cities

> It is not possible from the evidence submitted to us to avoid the conclusion that the disadvantages in many, if not in most of the great industrial concentrations [cities], alike on the strategical, the social, and the economic side, do constitute serious handicaps and even in some respects dangers to the nation's life and development, and we are of the opinion that definite action should be taken by the Government towards remedying them.[151]

Among these proposed remedies were the very controls on the location of industry that were implemented in 1947. That the report took this view is hardly surprising; its original terms of reference – which asked the Commissioners to 'consider what social, economic or strategical *disadvantages* arise from the concentration of industries or of the industrial population in large towns or in particular areas of the country' (italics added for emphasis) – were entirely negative from the outset.[152] The commission itself had been appointed in the aftermath of comments made by Sir Malcom Stewart, Commissioner for the Special Areas in England and Wales, in his 1936 report, in which he had argued that London's growth constituted a 'national menace' and that controls ought to be used to divert industry to the Special Areas.[153] The central thrust of the Barlow Report's conclusions were therefore largely predetermined.

[150]TNA, BT 177/1786, Notes on a tougher location policy, 10 April 1957; quoted in Rosevear, "Regional policy and the British motor vehicle industry 1945-64: a study in selective intervention and the economics of industrial location", 155.

[151]Parliamentary Papers, *Royal Commission on the Distribution of the Industrial Population*, (HC 1939-1940 6153) (London: House of Commons, 1940), 195.

[152]Parliamentary Papers, 1.

[153]Parliamentary Papers, *Third Report of the Commissioner for the Special Areas (England and Wales)*, (HC 1936-1937 5303) (London: House of Commons, 1936), 9.

It was not just the planners who linked the success of some parts of the country, particularly London, to the weakness of others. Labour's Hugh Dalton, who later had a hand in the development of postwar regional policy, described London as a 'geographical abortion' in comments lamenting the capital's growth up to the mid-1930s and a need for control and dispersion.[154] The 1934 report of Conservative MP Euan Wallace on Durham and Tyneside, which played an important role in the National Government's decision to bring forward the first Special Areas Bill, similarly prefaced its argument in favour of 'some form of national planning of industry' by saying of London

> The evils, actual and potential, of this increasing agglomeration of human beings are so generally recognised as to need no comment…the time has come when the Government can no longer regard with indifference a line of development which, while it may possess the initial advantage of providing more employment, appears upon a long view to be detrimental to the best interests of the country.[155]

Other practical arguments used to justify policies to impair the growth of London and, later, other large urban areas centred on their vulnerability to air attack as well as the issue of 'congestion'. Improvements in nuclear arms made the former set of arguments largely redundant, however congestion remained a key justification for industrial dispersal until the 1970s. Under this logic, even without the possibilities for the spatial rebalancing of the economy, dispersing major cities was actually in their own best interests. The concern about congestion had two dimensions. On one the hand, planners and policymakers were worried about the movement of people within urban areas, especially at peak times. On the other was a more nebulous set of fears relating to the occupancy of commercial and industrial buildings, population density, and demands on services and infrastructure.

But they were concerns that rested on relatively limited quantitative evidence. Although it showed slightly elevated death rates in urban areas, the differences in human

[154]Hansard, HC Deb 2 March 1936 vol 309 c1026; quoted in Pitfield, "Labour Migration and the Regional Problem in Britain, 1920-1939", 367.

[155]Parliamentary Papers, *Reports of Investigations into the Industrial Conditions in certain Depressed Areas*, vol. II, (HC 1933-1934 4728) (London: House of Commons, 1934), 107.

health outcomes discussed in the Barlow Report were by no means dramatic. Concluding that 'the diversity of the factors involved is such that congestion cannot be a matter of exact or mathematical determination or classification', the report also made no attempt to measure the impact of the problem, and even seven years later it appears that the government had no official statistics on delays caused by congestion in major cities.[156] Statistics were still scarce decades later. Using prior work by the Road Research Laboratory, the Buchanan Report on road traffic estimated the cost of traffic congestion to have risen from around £140 million in 1958 to over £250 million in 1963.[157] This would, on the basis of rough calculations, suggest an economic cost in the range of 0.5 to 1.0 per cent of GDP – a figure well within (if slightly below) the 'normal' range typically found within the wide, uncoordinated literature on modern traffic congestion.[158] Nevertheless, in parliamentary debates and most official publications the existence of problematic levels of congestion was taken as a given. A good example of this can be seen in the text of the *South East Study*, which was published in 1964 in response to overinflated fears about future population growth in the region and contained little statistical evidence on congestion. Indeed, it simply stated that

> Anybody who works in London needs no figures to convince him that there has been an increase in commuting travel over the last decade. The evidence is there in the road congestion, in the crush on the Underground, and in the overloading of some of the suburban rail services at peak hours.[159]

Key elements of Britain's post-1945 regional policy settlement were, therefore, guided by a received wisdom about the functioning of urban forms that asserted that the spatial distribution was not socially optimal. Policymakers believed that economic growth in

[156]Parliamentary Papers, *Royal Commission on the Distribution of the Industrial Population*, 157; Hansard, HC Deb 24 February 1947 vol 433 c1677.

[157]Ministry of Transport, *Traffic in towns: A study of the long term problems of traffic in urban areas* (London: Her Majesty's Stationery Office, 1963), 15.

[158]Figures vary wildly depending on which externalities are included when calculating costs. A recent study put the cost of congestion on communities alone at 1.6 per cent of GDP. See P. Anciaes et al., "The cost of the wider impacts of road traffic on local communities: 1.6% of Great Britain's GDP", *Transportation Research Part A* 163 (2022): 266–287; calculations for 1958 and 1963 rely on figures from Thomas and Dimsdale, *A Millennium of UK Data*, Table A15.

[159]Ministry of Housing and Local Government, *The South East Study, 1961-1981* (London: Her Majesty's Stationery Office, 1964), 42.

London and Birmingham was unfair not just because it limited the resources open to the rest of the country, but also because congestion – however defined – put burdens on the people in the cities themselves in terms of both personal inconvenience and costs.[160] But in taking the view that the state had a duty to intervene and the capability to do so successfully, policymakers were also implicitly making claims about the nature of industry and its locational preferences. Perhaps the most important of these was that agglomeration economies either did not matter or could be offset easily, and that businesses were, by extension, highly mobile. Most of these arguments centred on transportation costs, which were low, as well as the decreasing specialisation of regional economies, which was taken as proof that location was relatively unimportant.[161]

The assumptions made by planners and policymakers did not stop there. Alongside their view that firms could be moved and that there were national benefits to be accrued from moving them, policymakers believed that intervention was also in the best interests of the firms themselves. This was a view held at both national and regional levels. Planners in Manchester and Leeds, for example, firmly believed that uprooting existing industrial enterprises and moving them to planned suburban industrial estates would enhance their productivity, even if central government officials were unconvinced about the desirability of doing so.[162] Needleman and Scott's oft-cited 1964 study of dispersal policy concluded that the approaches taken by firms to choosing locations were 'haphazard' and 'seem rarely to be based on detailed calculations of the costs of operating at the different sites involved'; they continued

> These findings have great significance for location of industry policy. It has been argued that measures that restrain industrial expansion in the prosperous areas are ill-advised, first, because businessmen know better than any

[160]F Osborn, an influential planner, summarised this argument nicely in his evidence to the Barlow Commission: 'so long as the distribution of industry depends solely upon the decision of industrialists, so long must the community as a whole bear the burden of any harmful results of their interests'. Cited in M. Ray, P. Hall and D. O'Donoghue, "The elusive quest for balanced regional growth from Barlow to Brexit: Lessons from partitioning regional employment growth in Great Britain", *Growth and Change* 50, no. 1 (2019): 268.

[161]A. Brown, *The Framework of Regional Economics in the United Kingdom* (Cambridge: Cambridge University Press, 1972), 323.

[162]A. Kefford, "Disruption, destruction and the creation of 'the inner cities': the impact of urban renewal on industry, 1945–1980", *Urban History* 44, no. 3 (2017): 503.

> civil servant how to choose the most efficient least-cost location, and second, that if they have to set up plant at other locations the loss in efficiency may be substantial. The findings of the empirical studies case doubt on both these assumptions.[163]

Thirty years earlier, Stewart's report had also cast scorn on industrialists' locational acumen, stating

> much of the growth of Greater London is not based on strictly economic factors; psychology plays an important part in the matter…industrialists should be required to state their reasons for seeking to establish themselves in Greater London; if these reasons are not found to be valid, then they should be restrained from so doing.[164]

Not every policymaker took the view that there were information problems that left firms incapable of making decisions in their own best economic interests. Nevertheless, the idea that they were was useful in that it sidestepped difficult questions as to why theoretically mobile firms were willing to pay a premium to conduct their operations in the Midlands and South East. It also lowered the risk associated with state intervention. If firms were mindlessly establishing themselves in large urban areas, causing congestion and depriving struggling regions of the employment they desperately needed in doing so, the benefits from moving them would far outweigh any potential costs.

An interesting example of the degree of official commitment to this line of thinking can be seen in the creation and operation of the Location of Offices Bureau (LOB). Established in 1963, the main purpose of the LOB was to encourage firms located in central London to migrate elsewhere. In that task it was supported by the creation of 'Office Development Permits' (ODPs), modelled on the IDC, under the Control of Office and Industrial Development Act 1965. With the exception of an article by Pickvance, which argued that it was established with the cynical aim of boosting the capital's attractiveness to global capital, the LOB has tended to be either ignored or derided by historians

[163]L. Needleman and B. Scott, "Regional Problems and Location of Industry Policy in Britain", *Urban Studies* 1, no. 2 (1964): 16.
[164]Parliamentary Papers, *Third Report of the Commissioner for the Special Areas (England and Wales)*, 7.

and commentators.[165] This is largely because the number of jobs involved was relatively small (the LOB's own figures put it at 121,640 between 1963 and 1975), and also because office moves did little from a regional policy perspective.[166] The LOB's prominence has also been diminished by a general lack of interest in service industries, especially from officials.[167] Even as late as 1966, the Wilson government chose to impose a tax on service employment (the Selective Employment Tax) on the basis that it was on manufacturing, rather than any other sector, that the future growth of the economy depended.[168]

Yet, whatever its failings, the publications and records of the LOB show how the economic justifications that underpinned anti-urban interventions in the industrial economy were rigidly held among planners and policymakers – even when they were presented with evidence to the contrary. They also demonstrate the degree of acceptance of these ideals in local government. Initially excluded from ODP control, Birmingham became subject to restrictions from August 1966. Bringing forward the necessary statutory instrument, George Darling, a Board of Trade minister, argued that population and employment growth had led to the emergence of a 'threatening situation' in the city, and expressed concern at the demand for labour which had 'kept unemployment as low as 0.6 per cent'.[169] Concerns about the success of the city's growing service sector were being raised in the years prior; the earliest letters from the local authority to the LOB stressed the city's growth problem.[170] Writing in 1964, T. Parkinson, the Town Clerk, informed the LOB that

> I do not think that the transfer of commercial firms from London to Birmingham would be welcomed…

[165]C. Pickvance, "Policies as chameleons: an interpretation of regional policy and office policy in Britain", in *The Geography of De-industrialisation*, ed. R. Martin and R. Rowthorn (Basingstoke: Macmillan, 1986), 257; Hazeldine's strongly pro-intervention history describes the LOB as nothing more than 'a harmless publicity outfit' T. Hazeldine, *The Northern Question: A History of a Divided Country* (London: Verso, 2020), 130

[166]Location of Offices Bureau, *Office Relocation Facts and Figures: LOB Statistical Handbook* (London: LOB, 1975), 43; J. Rhodes and A. Kan, *Office Dispersal and Regional Policy* (London: Cambridge University Press, 1971), 99.

[167]Within the academy, the work of Daniels, who was publishing from the late 1960s and contributed a chapter to *The Geography of De-Industrialisation* on services, is the only real exception.

[168]Parliamentary Papers, *H.M. Treasury. Selective employment tax*, (HC 1966-1967 2986) (London: House of Commons, 1966), 3.

[169]Hansard, HC Deb 3 November 1965 vol 718 c1164.

[170]TNA, AH 5/45, letter from N. Borg to E. Sturgess, LOB, 17 October 1963.

> In fact, it may well be that in the not too distant future, Birmingham will be faced with precisely the same problem as London so far as offices are concerned and that it will be necessary for your Bureau to direct its attention to the removal of commercial firms from Birmingham…
>
> I hope that those responsible for operating the Bureau do not think I am trying to be unhelpful but I must be quite frank and say I think it would be the antithesis of good planning if you were to persuade firms to move from London to Birmingham.[171]

Not all local authorities invited dispersion to the same degree. London was initially supportive, but as the decline of its inner city took hold in the mid-1970s, the relationship between it and the LOB began to sour.[172] Liverpool took the opposite view. Its leaders involved the LOB extensively in a proposed waterfront office redevelopment scheme, and in its opening correspondence sought to remind the Bureau of its obligations to struggling urban areas.[173] The reply they received underscores the power of the implicitly anti-urban assumptions that drove official thinking

> We excluded large conurbations because it seemed to us likely that they had their own congestion and overspill problems. This may have been a mistake – I certainly take your point about the need to revitalise the economies of some of the older areas.[174]

That these views were held so persistently over time is somewhat surprising for two reasons. First, unlike industrial enterprises, which have large and complex floorspace, energy, and transportation needs, service firms place fewer burdens on their local environment. Second, the LOB collected little evidence to suggest that firms were actually suffering because of congestion or a lack of knowledge. The LOB's first annual report, which published data on research they commissioned from the Economist Intelligence Unit, showed that the overwhelming majority (78 per cent) of service businesses based in central London said they were there at least in part to maintain contact with external organisations – an agglomeration economy that is difficult to replace.[175] A later study

[171]TNA, AH 5/45, letter from T. Parkinson to J. Morton, LOB, 25 February 1964.
[172]TNA, AH 5/56, correspondence between LOB and LCC, 1963-1964; TNA, AH 5/57, correspondence between LOB and GLC, 1964-1979.
[173]TNA, AH 5/53, correspondence between LOB and Liverpool Council.
[174]TNA, AH 5/45, letter from J. Morton, LOB, to W. Bor 24 September 1963.
[175]TNA, AH 1/1, LOB Annual Report, 1963-64, 31 March 1964.

of firms in Leeds established 'the overwhelming importance of the face-to-face element in contact with customers or clients' as a reason for choosing central locations, and reported that 97 per cent of office establishments favoured this personal contact over any alternative indirect method.[176]

Their evidence in relation to congestion was even more derisory. Of the reasons given by firms that completed moves away from London and Birmingham up to 1975, 'traffic congestion/parking' and 'staff welfare/commuting' accounted for 2.3 and 1.2 per cent of responses respectively; by contrast, 'economy' and 'expansion' (which would have been inhibited by ODPs) accounted for 30.6 and 27.2 per cent.[177] Workers were similarly uninterested in the issue of congestion. A LOB survey of London and Liverpool reported that workers felt few strong emotions about their commutes. The report put this down to 'stoicism' on the behalf of commuters, and did not entertain other explanations.[178] In its discussion of the issues of career development and pay, the report dismissed the evidence it had gathered on professionals' preference for Greater South East locations by saying

> It would be a mistake to attach too high a degree of economic rationality to these decisions since, after deduction of fares, many commuters to Central London would be better off working near their homes in the OMR [Outer Metropolitan Region].[179]

1.7.2 Planning lives, reinforcing urban deindustrialisation

It is in the context of this line of thinking that policymakers felt safe to subordinate the location of industry to objectives in the realm of physical planning. While the degree to which planners acted undemocratically and dogmatically after 1945 is questioned in some quarters, there is little doubt that the war turbocharged their ability to reshape the country.[180] Wartime experiences underpinned the initial execution of regional policy,

[176]Location of Offices Bureau, *Offices in a Regional Centre: a Study of Office Location in Leeds* (London: LOB, 1968), 101.
[177]Location of Offices Bureau, *Office Relocation Facts and Figures: LOB Statistical Handbook*, 32.
[178]Location of Offices Bureau, *White Collar Commuters: A Second Survey* (London: LOB, 1967), 37.
[179]Location of Offices Bureau, 50.
[180]A. Beach and N. Tiratsoo, "The planners and the public", in *The Cambridge Urban History of Britain*, ed. M. Daunton, vol. III (Cambridge: Cambridge University Press, 2001), 525–550.

and support for robust intervention was widespread even among Conservative MPs.[181] For example, speaking in favour of the Distribution of Industry Bill, Harrow MP Norman Bower argued that

> One of the few things for which we have to be grateful to Hitler and the Germans is that they have given us the opportunity of replanning our towns and cities and redistributing our industry on a scale which we should probably never have contemplated had it not been for the destruction caused by enemy action. We ought to take full advantage of that opportunity.[182]

Bower's comments were of course not a statement of government policy, but they were instructive of how questions of economic and physical planning became enmeshed in the years after the Second World War. This trend had serious consequences for the major cities, which were viewed unfavourably by the planning establishment and its fellow travellers in various governments. Having spawned out of the proposals of Ebenezer Howard, an idealist who dreamed of dismantling existing conurbations and replacing them with networks of smaller, low-density 'garden cities', the planning profession had never been especially enamoured with cities, which it felt were incompatible with a proper standard of living and ruined the countryside with 'sprawl'.[183]

The predictable result was the creation of plans for cities that placed considerable emphasis on depopulation. Both the County of London Plan 1943 and the subsequent Greater London Plan 1944 made decentralisation a top priority, and the West Midlands Plan 1946 set a target population for Birmingham of just 990,000 – 223,000 fewer people than actually lived in the city in 1951.[184] The resulting national 'overspill' – the term used for people made surplus to requirements by planners – was enormous. Even in 1960, the planned overspill of London alone was between 660,000 and 690,000 strong; Liverpool, Birmingham, and Manchester each had around 120,000, and Bristol, New-

[181]L. Gooberman, "The Emergence of Regional Industrial Policy in Britain: The Case of Wales, 1939 to 1947", *Enterprise & Society*, 2023, 1–22.
[182]Hansard, HC Deb 21 March 1945 vol 409 c911.
[183]C. Couch, *Planned Urban Development: Learning from Town Expansion Schemes in the UK and Europe* (Cheltenham: Edward Elgar Publishing, 2021), Chapter 2.
[184]R. Smith, "Post-War Birmingham: Planning and Development", *Town Planning Review* 45, no. 2 (1974): 190.

castle, and Sheffield more than 30,000.[185] These figures corresponded to between 8 and 18 per cent of these cities' 1951 populations.

There were practical reasons for doing this. Large portions of the major cities had been flattened during the Blitz, and a substantial amount of the housing left standing was located in slums. The scale of the challenge was significant. More than one million unfit dwellings in England and Wales were cleared between the mid-1950s, when clearance programmes resumed in earnest, and the early 1970s alone.[186] Yet the need to actively depopulate the major cities rested squarely in the designs of planners. Convinced of the dual evils of living at high densities and the expansion of cities into surrounding countryside, planners made rehousing people displaced by clearance programmes within contiguous urban development impossible.[187] The solution was a series of New and Expanded Towns located some distance from their original conurbations.

It is at this juncture that the impact of physical planning on the reorganisation of the industrial economy becomes apparent. Because planners wished to use the New and Expanded Towns programmes to solve a number of problems simultaneously – housing, congestion, and a life in close proximity to countryside – cities were not permitted to replace the people and activity they lost. The New Towns were also not permitted to be 'dormitory' estates for major cities, as the flows of commuting that such an arrangement would have created would have added to the congestion they feared. The result was a curious situation in which physical planning schemes compelled the authorities to move industrial enterprises to towns in order to facilitate the depopulation of major cities. The government-backed development corporations even built 'advance factories' – production units constructed before tenants were secured – in order to expedite the process. One of the most famous examples of this phenomenon was at Harlow, Essex,

[185]G. Dickinson, "Overspill and Town Development in England and Wales, 1945-1971", *Town Planning Review* 33, no. 1 (1962): 52.

[186]J. Yelling, "The incidence of slum clearance in England and Wales, 1955-85", *Urban History* 27, no. 2 (2000): 238.

[187]This particular complication to slum clearance programmes was longstanding. In the interwar period, Liverpool – something of a pioneer in working-class municipal housing – was forced into a 'dual locational' strategy in order to cater for the assumed suburban tastes of upper working-class families. B. Dockerill, "A Comparative Study of the Origins and Development of Municipal Housing in Liverpool and Newcastle, c.1835-1914" (PhD diss., University of Liverpool, 2021), 441.

but advance factories were constructed in New and Expanded Towns across the country well into the 1970s.[188]

The degree to which New and Expanded Towns actively stole industrial employment from major cities is contested, with Fothergill and his coauthors concluding that they accounted for just 12 per cent of the jobs lost by major cities between 1960 and 1978.[189] However, the fact that the new settlements were seen as promising locations for industrial development, especially in the 1960s, and because their employment needs were so great, the New and Expanded Towns were still an indirect drain on major cities as policy interventions that could have targeted declining conurbations went to their outlying areas instead. This is especially the case in relation to the New Towns in the Greater South East, which Scott notes received such preferential treatment in terms of the type of enterprises and the nature of the workers sent to them during the 1950s that their development represented a 'growth point' policy long before one was adopted at a national level.[190]

1.8 Conclusion

It is in these ways that policymakers worked to reinforce the drift away from the cities that was central to the mid-century industrial boom. Although they were often derided (the poet John Betjeman famously called for Slough to be blown to smithereens by 'friendly bombs' in 1937) the rapidly growing towns of the post-1921 period were the backbone of the emerging industrial economy. It was in these settlements that the brief era of working-class prosperity based on stable employment in expanding industries was forged. The arrival of this era was most evident in the South East – first in Outer London and then in the rest of the region – but every region took part. Older industrial regions such as Lancashire and County Durham had large amounts of employment in the expanding industries, and the state, where it could, supported their growth in order

[188]P. Slowe, *The Advance Factory in Regional Development* (Aldershot: Gower, 1981).
[189]S. Fothergill, M. Kitson and S. Monk, "The impact of the New and Expanded Town programmes on industrial location in Britain, 1960-78", *Regional Studies* 17, no. 4 (1983): 258.
[190]P. Scott, "Dispersion versus decentralization: British location of industry policies and regional development 1945-60", *Economy and Society* 26, no. 4 (1997): 579–598.

to ease the pain of deindustrialisation.

The only areas that completely missed out in the emerging industrial economy were London and the big cities, which lost their lead in expanding industries and suffered relative and absolute demographic decline. The fall of the big cities was largely a result of 'natural' forces, but unlike in other parts of the industrial economy, the state did little to arrest the deindustrialisation process. Indeed, in most cases, it chose to support it, largely because of weak economic assumptions and an ideological conception of what a good quality of life looked like. Chief among these was an assumption that manufacturing employment would keep on growing or, at the very least, not decline in the medium term, giving the state a free hand to take firms attracted to London and deposit them in towns in struggling regions. While this was reasonable in the era of Barlow, it is hard to see why this view was still so entrenched by the 1960s – a decade in which manufacturing employment was in absolute decline.

Together, the findings of this chapter make two main contributions. First, thanks to the collection and harmonisation of large amounts of official data, it provides a detailed view of patterns of deindustrialisation and renewal that occurred in the fifty years before 1971. Key insights gained from this are the extent to which old industrial centres in the periphery were successful in attracting employment in expanding industries, as well as the degree to which the decline of the major cities was rooted in their inability to do so. Second, the chapter brings into focus how these changes, as well as the government policy that supported them, laid the groundwork for what followed. The industrial economy of the 1970s was spatially and sectorally different from that of the 1920s. Although they still employed close to 1.5 million people, the role of industries such as clothing, textiles, coal, and shipbuilding was much diminished. In their place had risen a gaggle of new industries, including vehicles and electrical engineering, on which a new generation of town-dwelling (and often southern) working-class people had built their material prosperity.

Yet the settlement created by the reorganisation of the industrial economy would

prove to be fragile. Unlike the structural change of the previous 50 years, the deindustrialisation of the 1970s and 1980s affected almost every single industrial activity. This, in conjunction with the fact that industry had become so geographically dispersed, meant that the new 'elimination phase' of deindustrialisation would have an impact in nearly every part of the country. This is the subject of the next chapter.

Chapter 2

Types of deindustrialisation in the 1970s and 1980s

2.1 Introduction

In the late 1960s, the processes of sector turnover and spatial reorganisation that had for fifty years prevented a catastrophic collapse in industrial employment ran out of steam. Some formerly growing industries, such as vehicles and metals manufacturing, began to contract in the 1960s, and by 1966 the industrial sector as a whole was in retreat. Between 1971 and 1991, around 3 million jobs were lost in manufacturing alone, ending the postwar era of mass working-class prosperity.[1]

This was the beginning of the 'elimination phase' of deindustrialisation, the moment when losses in some parts of the industrial sector were no longer offset by growth elsewhere. As argued at the beginning of Chapter 1, this is the period on which both scholars and commentators tend to put the greatest emphasis. Part of the reason for this is political. The elimination phase coincided with, and was certainly influenced by, the nebulously-defined 'neoliberal' turn in British politics, first under Callaghan and then

[1] C. Berry, "UK manufacturing decline since the crisis in historical perspective", *SPERI British Political Economy Briefs*, no. 25 (2016): 6.

during the various Thatcher ministries.[2] The period was also marked by considerable industrial turmoil, culminating in the defeat of the National Union of Mineworkers during the miners' strike of 1984-85 that was symbolic of both the decline of industrial Britain and the victory of Thatcherite statecraft.[3]

But perhaps more importantly, deindustrialisation in the 1970s and 1980s often caused massive, geographically concentrated, job losses. An immediate consequence of this was the reappearance of unemployment blackspots, as well as the strong reassertion of Britain's underlying 'north-south' divide.[4] The best available evidence shows that the return to growth after the early-1980s recession, during which a large number of industrial jobs were lost, did not entail a corresponding rise in employment.[5] A series of papers by Beatty, Fothergill, and their co-authors have shown that deindustrialisation in the same period led to rising economic inactivity (especially in the coalfields), and that the quality of jobs available today in the hardest-hit places remains below that obtainable elsewhere.[6] Rice and Venables have similarly shown that places which endured serious shocks during the 1970s today see higher rates of deprivation than other parts of the country.[7]

Yet accounts of ruination and decline present only a partial picture. Alongside archetypal struggling places were dozens of others that deindustrialised much more smoothly, despite in many cases losing thousands of industrial jobs. Using a dataset specially harmonised for the purpose, this chapter offers a new typology under which these different

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[2] B. Jackson, "Currents of Neo-Liberalism: British Political Ideologies and the New Right, c.1955–1979", *The English Historical Review* 131, no. 551 (2016): 823–850.

[3] A. Gamble, *The Free Economy and the Strong State: The Politics of Thatcherism*, 2nd ed. (Basingstoke: Macmillan, 1994).

[4] J. Lewis and A. Townsend, eds., *The North-South Divide: Regional Change in Britain in the 1980s* (London: Paul Chapman Publishing, 1989); R. Martin and P. Tyler, "The Regional Legacy", in *The Economic Legacy 1979-1992*, ed. J. Michie (London: Academic Press Ltd, 1992), 140–167.

[5] M. Paker, "The jobless recovery after the 1980-1981 British recession", *Explorations in Economic History* 90 101545 (2023).

[6] C. Beatty and S. Fothergill, "Labour Market Adjustment in Areas of Chronic Industrial Decline: The Case of the UK Coalfields", *Regional Studies* 30, no. 7 (2006): 627–640; C. Beatty, S. Fothergill and R. Powell, "Twenty years on: has the economy of the UK coalfields recovered?", *Environment and Planning A: Economy and Space* 39, no. 7 (2007): 1654–1675; C. Beatty and S. Fothergill, "The Long Shadow of Job Loss: Britain's Older Industrial Towns in the 21st Century", *Frontiers in Sociology* 5, no. 54 (2020): 1–12.

[7] P. Rice and A. Venables, "The persistent consequences of adverse shocks: how the 1970s shaped UK regional inequality", *Oxford Review of Economic Policy* 37, no. 1 (2021): 132–151.

deindustrialisation experiences can be explained. It is shown that many of the negative outcomes ascribed to deindustrialisation were the product of a specific manifestation of the process, rather than structural change *per se*. Together, the findings offer strong backing for the arguments of Tomlinson, whose discussion of Dundee, High Wycombe, and London highlighted the diversity of deindustrialisation processes at regional and local scales.[8]

The chapter begins with a discussion of the sources and the considerable work involved in harmonising them across space and over time. From there, the discussion then turns to the identification of industrial areas and measurement of the deindustrialisation they experienced. At the level of local labour markets, at least three different paths to deindustrialisation occurred. These three paths form the basis of a typology presented in the subsequent section. The typology draws distinctions between 'thriving', 'surviving', and 'declining' industrial labour market areas; declining areas suffered most from deindustrialisation, while thriving and surviving areas enjoyed more orderly transitions. The final part of the chapter uses a shift-share framework to examine the sectoral underpinnings of the various types. It is shown that the areas which were hit hardest were largely prisoners of their industrial structures, and that more successful places stayed afloat largely through the transfer of labour into low-end service activities. These explanations hold even when confined to women's employment alone. Contrary to the notion that deindustrialisation in this period only affected men, women in industrial areas suffered similar structural disadvantages.

2.2 Data and harmonisation

The analysis contained within this chapter relies on a number of data sources. Chief among them is the Census of Employment – a jobs survey compiled by the Central Statistical Office (a forerunner of the Office for National Statistics) – as well as the 1971, 1981,

[8] J. Tomlinson, "De-industrialization: strengths and weaknesses as a key concept for understanding post-war British history", *Urban History* 47, no. 2 (2020): 199–219.

and 1991 censuses.[9] Alongside these sources is information on male wages derived from historical New Earnings Survey data by Hilber and Vermeulen, national-level data from the Millennium of Macroeconomic Data, employment data from the 2021 census, and figures on deprivation for 2019.[10] All are available online, most of them through services provided by the Office for National Statistics.

Taken annually between 1971 and 1981, and then again in 1984, 1987, 1989, and 1991, the Census of Employment contains the best local employment data available for the 1971-1991 period. With the exception of 1981, which was a full census of businesses across the country, Census of Employment data were constructed from samples of Pay-As-You-Earn registered firms. Usefully, the job counts made available can be broken down by sex and by people who were employed on either a full- or part-time basis. There are, however, three unavoidable problems with the source. First, despite its granularity, the Census of Employment does not capture self-employment, which became more popular over time. Second, the data for 1979 and 1980 are not presently available, precluding an analysis of the beginning of the early-1980s recession. Third, comparisons with the figures provided by the 'Workforce Jobs' dataset suggest that the Census of Employment numbers are probably undercounts.[11] Although this could theoretically distort the picture provided, the fact that the differences between the two sources are consistent over time suggests that the Census of Employment was not biased in a way that would upend the sort of analysis conducted here.

The geographical units used by this study are 'Travel-to-Work Areas' (TTWAs) in their 1984 formulation.[12] The decision to use these TTWAs over other geographical units

[9] Central Statistical Office, *Census of Employment 1971-1991* (NOMIS: https://bit.ly/3uXq7QO); Office of Population Censuses and Surveys, *1971 Census: Aggregate Data; Great Britain* (UK Data Service Casweb: SN5563, DOI: 10.5257/census/aggregate-1971-1, 2020); Office of Population Censuses and Surveys, *1981 census - small area statistics* (NOMIS: https://bit.ly/3uXq7QO); Office of Population Censuses and Surveys, *1991 census - small area statistics* (NOMIS: https://bit.ly/3uXq7QO).

[10] C. Hilber and W. Vermeulen, "The Impact of Supply Constraints on House Prices in England – supporting information", *The Economic Journal* 126, no. 591 (2016): 358–405; Thomas and Dimsdale, *A Millennium of UK Data*; Office for National Statistics, *Census 2021: Create a custom dataset* (https://bit.ly/49ZgXCe); S. Noble et al., *The English Indices of Deprivation 2019: Research report* (London: Ministry of Housing, Communities / Local Government, 2019).

[11] R. Jump, "A Dataset of Workforce Job Counts for British Local Authority Districts, 1981-2018", *SSRN Working Papers*, 2021, 17.

[12] The original TTWA boundaries are available in the 1984 *Employment Gazette*. See Department of Em-

was largely determined by data availability (detailed sub-regional data for the 1970s are only available at this level), although there are practical advantages. Unlike local government boundaries such as districts or counties, TTWAs are a 'statistical' geography constructed by researchers. A key feature of TTWAs is that they are broadly self-contained; people who live in the area also mostly work there. For this reason, TTWAs are regarded as a useful way of aggregating economic data. Whereas data for a town may be skewed by commuting flows, this is much less likely to happen in a TTWA that should, in principle, reflect the true geography of the local labour market.

Since 1983, TTWAs have been constructed on behalf of the government by researchers at Newcastle University's Centre for Urban and Regional Development Studies (CURDS). However, the idea behind them is much older. Official statistics on 'paupers' were reported for the 'chief industrial districts' in *The Labour Gazette* as early as 1893, and Civil Servants were using units similar to TTWAs in unpublished research from the early 1950s.[13] Since the researchers at CURDS took over the process of drawing TTWA boundaries, there have been five standards (1984, 1998, 2007, and 2015). Each of these standards has taken data regarding people's residences and workplaces at the level of wards (or, in more recent years, neighbourhood-sized 'Lower Super Output Areas' or 'LSOAs') and constructed TTWAs on the basis of the implied commuting flows.[14] The advent of this approach was a major improvement on those that had existed previously. The 1978 standard, for example, had relied on commuting matrices between pre-1974 local authority districts, rather than wards, and were constrained by the boundaries of 'Employment Office Areas'.[15]

The robustness of the approach used to draw TTWAs has not, however, prevented criticisms being made of their usefulness to researchers. Striking a balance between

ployment, "Revised travel-to-work areas", *Employment Gazette Occasional Supplement No. 3* 92, no. 9 (1984): 8–9.

[13] M. Coombes and S. Bond, *Travel-to-work areas: the 2007 review* (London: Office for National Statistics, 2007), 5; D. Webster, "Travel to Work Areas (TTWAs) and Local Unemployment Statistics: a Glasgow View", in *Travel-to-Work Areas and the Measurement of Unemployment: Conference Proceedings*, ed. I. Turok (Glasgow: Centre for Housing Research / Urban Studies, 1997), 2.

[14] Coombes and Bond, *Travel-to-work areas: the 2007 review*, 12–13.

[15] M. Coombes, A. Green and S. Openshaw, "New Areas for Old: A Comparison of the 1978 and 1984 Travel-To-Work Areas", *Area* 17, no. 3 (1985): 216.

self-containment and internal cohesion is difficult, and if done incorrectly can result in TTWAs constituting little more than averaged-out 'commuting sheds' instead of true labour markets.[16] It is, for example, possible to construct TTWAs that vary considerably in shape and size by the skill levels (and even the sex) of the workers considered, as different groups commute over different distances.[17] A second problem is stability. CURDS have constructed multiple standards because patterns of commuting have changed over time. TTWAs have tended to become geographically larger as people have begun to commute further, and some have come in and out of existence as the economy has changed. The London TTWA, for example, has grown and then shrunk again since the 1980s as the neighbouring Heathrow TTWA was abolished before being recreated (albeit on slightly different lines) in 2015.[18]

Considering the extent of structural change, it is probable that some of these problems (not least changes in commuting flows) exist in the data concerning the 1971-1991 period, yet there is relatively little that can be done about them considering the limitations on data availability. Nevertheless, some confidence can be drawn from the fact that the data behind the 1984 standard (which came from the 1981 census) were collected relatively early in the most serious period of upheaval and, as discussed, the standard itself was constructed in a methodologically robust way.

In order to align the boundaries with the Census of Employment data as they are presently available, eight of the 1984 TTWAs had to be merged (although this had no impact on the analysis).[19] Integration of 1971 census data, which are not accessible at TTWA geographies, was achieved by aggregating wards up to the larger TTWA geographies with GIS software. A similar procedure was used to match the wage and deprivation data, which are best available at the level of 2001 districts and LSOAs respectively.[20]

[16] Webster, "Travel to Work Areas (TTWAs) and Local Unemployment Statistics: a Glasgow View".

[17] A. Green, M. Coombes and D. Owen, "Gender-specific Local Labour Market Areas in England and Wales", *Geoforum* 17, no. 3 (1986): 339–351.

[18] M. Coombes and Office for National Statistics, *Travel to Work Areas: Research undertaken with and for the Office for National Statistics* (London: Her Majesty's Stationery Office, 2015).

[19] The mergers were Bideford and Torrington TTWAs, Barnstaple and Ilfracombe and South Molton TTWAs, Skipton and Settle TTWAs, and Kendal and Windermere TTWAs.

[20] The various boundary data used in this chapter come from University of Edinburgh, Census Support, *Census Support Digitised Boundary Data, 1840- and Postcode Directories, 1980-* (UK Data Service: SN5819,

Unfortunately, the employment data are not available under a common classification system. Data for the period 1971-1981 were recorded under the 1968 SIC while the 1984-1991 data were recorded under the 1980 SIC.[21] Just as TTWAs change in response to commuting patterns, SICs evolve as the sectoral composition of employment changes. Because of the growth of new industries and the changing priorities of the authorities in the intervening period, the 1980 SIC constituted a significant change in the way industries were classified by the state. Even at the lowest levels of aggregation, classifications under the 1968 SIC were frequently merged or broken up. The resulting difficulties in building a consistent series at anything below the broadest of sector groups has led most studies to abandon doing so altogether. Where this has been achieved, it has been done by scholars working in conjunction with economic consultants who retain the data privately.[22]

Nevertheless, with careful work, I have managed to construct a new harmonised standard for the 1971-1991 period consisting of 126 sectors subdivided into 8 groups that are broadly aligned with the UK's 2007 SIC and A*10 aggregation of the EU's NACE (Rev. 2) system.[23] Tedious and complicated, this was a lengthy process that required a great deal of cross-checking. Because of the dissimilarity between the classification systems, the new standard has fewer sectors than are available under the SICs themselves. However, the new standard is more detailed than the aforementioned proprietary dataset (which is broken down into 82 sectors), and relies less on estimation. The one sector for which estimation was unavoidable was telecommunications. Whereas it is now considered to be an industry in its own right, under both the 1968 and 1980 SICs it was

DOI: 10.5255/UKDA-SN-5819-1, 2008).

[21] For details about the two SICs, see Central Statistical Office, *Standard Industrial Classification 1968*; Central Statistical Office, *Standard Industrial Classification 1980* (London: Her Majesty's Stationery Office, 1980).

[22] The various publications emanating from the 'City Evolutions' project use such data. For a summary of their work, see R. Martin et al., "Levelling Up Left Behind Places: The Scale and Nature of the Economic and Policy Challenge", *Regional Studies Policy Impact Books* 3, no. 2 (2021): 1–135. Technical notes on the construction of their standard can be seen in the online supplementary data of P. Tyler et al., "Growing apart? Structural transformation and the uneven development of British cities", *Cambridge Journal of Regions, Economy and Society* 10, no. 3 (2017): 425–454.

[23] Office for National Statistics, *UK SIC 2007: Summary of structure* (London: Her Majesty's Stationery Office, 2007); European Commission, "Commission Regulation (EU) No 715/2010", *Official Journal of the European Union*, no. 210 (2010).

merged with postal services. Alone, this would not have ordinarily been a problem; however, postal and telecommunications activities now fall within different 'sections' of the 2007 SIC, and more problematically, different broad groups within the standard constructed here.[24] As a result, data from the 2012 EU KLEMS database, which possesses consistent employment estimates for sectors across the 1970s and 1980s and separates postal and telecommunications activities, were used to separate the two.[25] Although imperfect – the estimation process meant that the two categories had to be (somewhat implausibly) divided in the same way in every TTWA – the solution was the best available.

While they did not solve the problem of the the breaking up of small categories, a look-up table produced by Smith, as well as original documents from the Central Statistical Office, proved useful in the construction of the new standard.[26] Recategorisation was conducted conservatively. First, activities under both the 1968 and 1980 SIC (including the estimated postal and telecommunications sectors) were allocated to one of the broad categories. Only thereafter were smaller sectors identified. In some cases, direct matches were possible. However, for the most part, the 126 activities were constructed from a number of sectors. National employment totals for 1981, broken down by sector, are available under both SICs. In light of this, along with cross-checks with the EU KLEMS estimates, the consistency of the new classification system was checked by the assembling of the 1981 totals from data classified under both the 1968 and 1980 SICs.

A full list of sectors can be found in the appendix to this thesis. The eight broad groups are construction, transport and distributive services, public services, professional and technical services, 'FIRE' (finance, insurance, and real estate) industries, the C-THEM (coal, textiles, heavy engineering, metals) group of manufacturing activities, other industrial sectors, and other services. Industrial work is therefore split into two categories

[24] The 2007 SIC is initially divided into 26 sections before being further sub-divided.

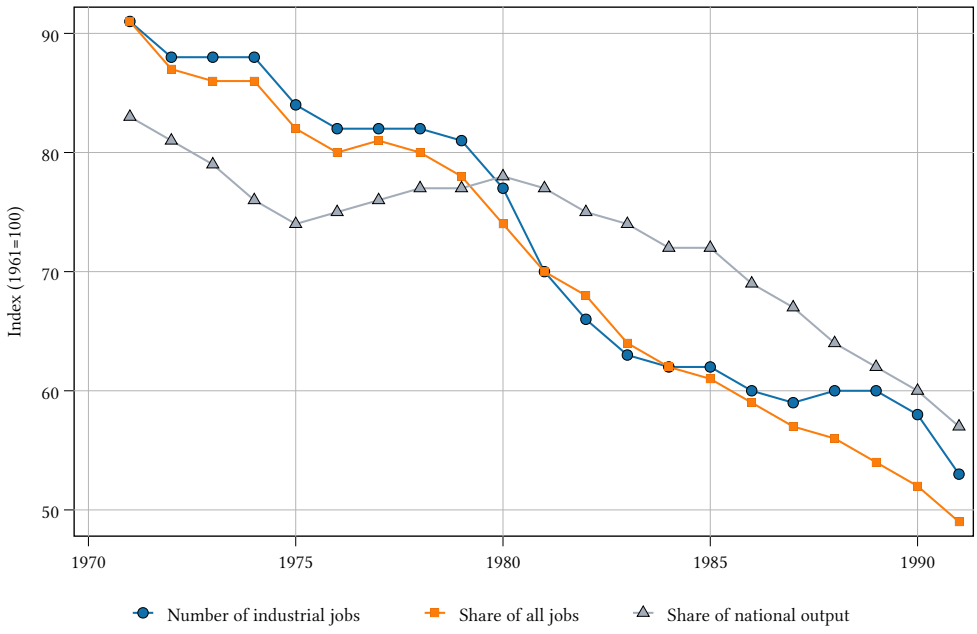
[25] M. O'Mahony and M. Timmer, "Output, Input and Productivity Measures at the Industry Level: the EU KLEMS Database", *The Economic Journal* 119, no. 538 (DOI: 10.34894/FZRMHU) (2009): 374–403.

[26] J. Smith, Mapping between SIC 1968 and SIC 1980 (Warwick: https://bit.ly/49E2xrb); Central Statistical Office, Standard Industrial Classifications: Reconciliation of SIC(R) Headings with 1968 Headings and Sub-divisions (1980).

along lines similar to those seen in Chapter 1. The difference in this case is that the C-THEM group consists of both the old declining industries and a number of formerly expanding industries, such as vehicles, whose mass production methods were proving difficult to sustain by the end of the 1970s. The scale of job losses in these activities during the 1970s and 1980s made them central to the story of the elimination phase of deindustrialisation, especially at sub-regional scales. Agricultural activities are excluded as counts are not available across the entire 1971-1991 period. Moreover, other attempts at sub-regional harmonisation have revealed reliability problems with agricultural employment counts generally.[27]

2.3 National trends

Figure 2.3.1: National growth in industrial employment, 1971-1991



Series derived from 'A Millennium of UK Data' (Tables A16 and A53) and indexed to 1961.

Falling from around 8.3 to just under 5 million workers, employment in Britain's industrial sector contracted by 40 per cent between 1971 and 1991. Its share of all employment fell similarly strongly. A sense of the progression of these two variables can

[27] Jump, "A Dataset of Workforce Job Counts for British Local Authority Districts, 1981-2018", 15–16.

be seen in Figure 2.3.1, which is an extension of Figure 1.3.1 from Chapter 1. Whereas industrial employment stood at more than 90 per cent of its 1961 level at the beginning of the 1970s, it was just over half its 1961 level two decades later. The decline in industrial employment occurred in three phases. On an annualised basis, losses between 1971 and 1979 occurred at a rate of around 1.4 per cent per year. This accelerated to 5.9 per cent per year between 1979 and 1983, before settling down to 2.1 per cent per year for the rest of the period.[28]

The industrial sector's share of national output also decreased, but the pattern was somewhat different. Having fallen at an annualised rate of around 2.1 per cent per year since 1961, the industrial sector's share of national output stabilised between 30 and 32 per cent from the mid-1970s, before plunging at 2.9 per cent per year from 1980 to 1991.[29] Industry's share of output therefore fell significantly faster than employment between 1971 and 1975 and then more slowly thereafter. Even its post-1980 decline was slower than that seen in the industrial sector's share of employment, which fell at an annualised rate of 3.6 per cent per year over the same period. These differences in the rates of decline of output and employment align reasonably well with the emergence and subsequent closing of the Anglo-German labour productivity gap in manufacturing reported by Broadberry. The gap widened as the industrial sector's share of national output fell faster than its share of employment, only to close once again as significant job losses restored competitiveness from the 1980s onwards.[30]

As Table 2.3.1 shows, most of the jobs lost in the industrial sector sat within the 'other industrial' category. Of the 69 industries within that group, just 6 – petroleum, pharmaceuticals, computers, two types of printing activities, and plastics – saw expansion over the 1971-1991 period. Considered in relation to their size in 1971, some of the most substantial losses occurred in general chemicals, mechanical engineering, and electrical engineering industries; between them, these activities shed more than half a

[28] All data are derived from Thomas and Dimsdale, *A Millennium of UK Data*, Table A53.

[29] The stabilisation of industry's share of output in the mid-1970s may owe something to North Sea Oil which, albeit from a very low base, began flowing at that time. A. Kemp, *The Official History of North Sea Oil and Gas*, vol. I (Oxford: Routledge, 2012), xii.

[30] Broadberry, *The Productivity Race: British manufacturing in international perspective, 1850-1990*, 36.

million jobs. While its total losses were smaller, the C-THEM group of industrial activities saw a proportionally larger decline than the rest of the industrial sector. Here, losses were led by the vehicles manufacturing industry, iron and steel, and coal, each of which shed around a quarter of a million workers.

Table 2.3.1: Employment in sector groups in England and Wales, 1971-1991

Industry	1971	1991	Δ (raw)	Δ (%)
C-THEM	2,433,840	962,650	-1,471,190	-60.4
Other industrial	5,477,510	3,570,815	-1,906,695	-34.8
Construction	1,062,725	877,445	-185,280	-17.4
Transport & distributive	4,473,611	5,292,850	819,239	+18.3
FIRE	639,880	1,187,830	547,950	+85.6
Professional & technical	919,704	1,538,550	618,846	+67.3
Public sector	3,595,125	4,251,735	656,610	+18.3
Other services	671,445	1,603,450	932,005	+138.8

National-level tabulation of Census of Employment data by sector group.

With employment in construction also contracting, growth between 1971 and 1991 was confined exclusively to service activities. Most of these were in low-end service activities contained within the transport and distributive and other services categories, although there was also impressive growth in the relatively knowledge-intensive professional and technical and FIRE activities. Between them, these industries added over one million jobs.

Britain was not alone in facing substantial deindustrialisation in the 1970s and 1980s. Other major developed countries, such as the United States, France, and West Germany similarly saw declines at this time. Yet the industrial job losses seen in Britain far outstripped those seen in comparator countries, with France and West Germany, for example, seeing contractions in industrial employment between one half and one quarter as steep.[31] As discussed in the introduction to this thesis, the arguments surrounding why this was the case are fraught and politically charged. The Thatcher governments certainly played a critical role, but other factors, whether they be the impact of greater competition following Britain's accession to the European Economic Community, or the

[31] Figures calculated using EU KLEMS data. For further details, see S. Nickell, S. Redding and J. Swaffield, "The Uneven Pace of Deindustrialisation in the OECD", *World Economy* 31, no. 9 (2005): 1154–1184.

way in which Britain's industrial relations model allowed the oil shocks of 1973 and 1979 to translate into significant crises, also probably mattered. The fact that so many problems within British industry had been 'stored up' in the pre-1980 period likely exacerbated matters further.[32]

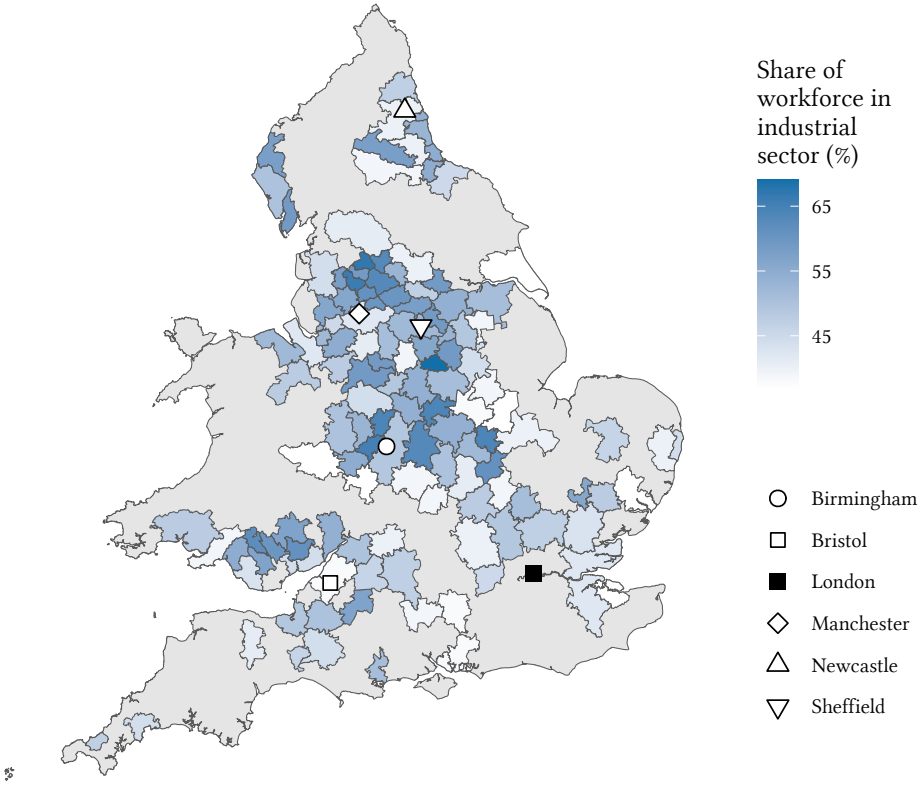
2.4 The nuances of deindustrialisation at regional scales

Just as in the 1921-1971 period, reductions in industrial employment and broader changes in the composition of local economies did not occur evenly across the country. This is not least because, even after decades of decentralisation, the industrial sector was still much more prominent in some areas than others. On average, 38 per cent of TTWAs' non-agricultural workers were employed in industry in 1971, with a standard deviation of around 15 per cent. Three-quarters of TTWAs fell within a range of 26 to 52 per cent, although the differences between the tails of the distribution were large. In Alfreton and Ashfield, the most heavily industrialised labour market area in 1971, 69 per cent of the non-agricultural workforce had an industrial job. By contrast, in Fishguard – located in rural Pembrokeshire – just 3 per cent were employed in industry.

Variation in the industrialism in labour market areas has important implications for capturing the historical significance of deindustrialisation. Technically, any place in which the industrial sector's share of employment fell underwent deindustrialisation, yet it is obvious that such declines mattered far more in places such as Alfreton and Ashfield than in Fishguard. As a result, for the purposes of this study, the character and impact of deindustrialisation is assessed only in the TTWAs which were in the top 50 per cent most industrialised (measured in terms of employment) in 1971. These 129 labour market areas accounted for 57 per cent of all jobs, and 70 per cent of all industrial jobs, in England and Wales in 1971.

[32] Crafts, *Adapting Well to New Circumstances? UK Experience in Changing Times.*

Figure 2.4.1: Industrialism of TTWAs in 1971



Employment data from the Census of Employment and map data from the ONS. As noted in Section 2.2, a number of TTWAs had to be merged for consistency reasons.

The geography of industrial England and Wales can be seen in Figure 2.4.1. While they were mostly located in the Midlands and North of England, industrialised labour market areas could be found in all parts of the country. In line with the results of Chapter 1, one of the striking features of the map is the degree to which the major cities had already deindustrialised relative to their peripheries. Such was the extent of the difference that by 1971, neither the Liverpool nor London TTWAs were among the most industrialised labour market areas in the country. The rest of the major cities – Birmingham, Bristol, Leeds, Manchester, Newcastle, Nottingham, and Sheffield – each had at least one TTWA in their peripheries that was more industrialised than themselves.

2.4.1 Measuring regional deindustrialisation

In their 2008 article on deindustrialisation in 18th and 19th century India, Clingingsmith and Williamson draw a distinction between 'strong' and 'weak' deindustrialisation.[33] While both refer to the movement of labour away from manufacturing, strong deindustrialisation measures the process in absolute numbers whereas weak deindustrialisation refers to the decline in the industrial sector's share of total employment.[34] As the plots in Figure 2.3.1 and 1.3.1 in Chapter 1 show, the two measures are related but distinct from one another, with weak deindustrialisation being partially determined by developments in the rest of the economy. For example, growth in services meant that, at a national level, weak deindustrialisation began in the mid-1950s while strong deindustrialisation did not occur until the 1960s. The difference between the two measures lies at the core of Tomlinson's arguments about the chronology of deindustrialisation in Britain.[35] They also feature in the discussions of cities in Chapter 1, where Tables 1.5.2 and 1.5.3 show that cities generally endured steeper weak and strong deindustrialisation than their peripheries between 1921 and 1971.

For most purposes, the two measures can easily coexist. However, over smaller geographical areas the differences between them are much more significant. A sense of the problem can be gleaned from the maps in Figure 2.4.2, where weak and strong deindustrialisation across TTWAs is presented. Two observations are important. First, all industrial areas underwent at least some weak deindustrialisation during the 1970s and 1980s. The average decline across industrialised TTWAs was 18 percentage points, although in some cases it was much larger. For example, Coventry and Hinckley, Rochdale, and Barnsley deindustrialised to the tune of more than 27 percentage points. Others got off much more lightly; for example, deindustrialisation in Barrow-in-Furness, Portsmouth, and Yeovil was contained to under 15 percentage points.[36] All but eleven industrialised

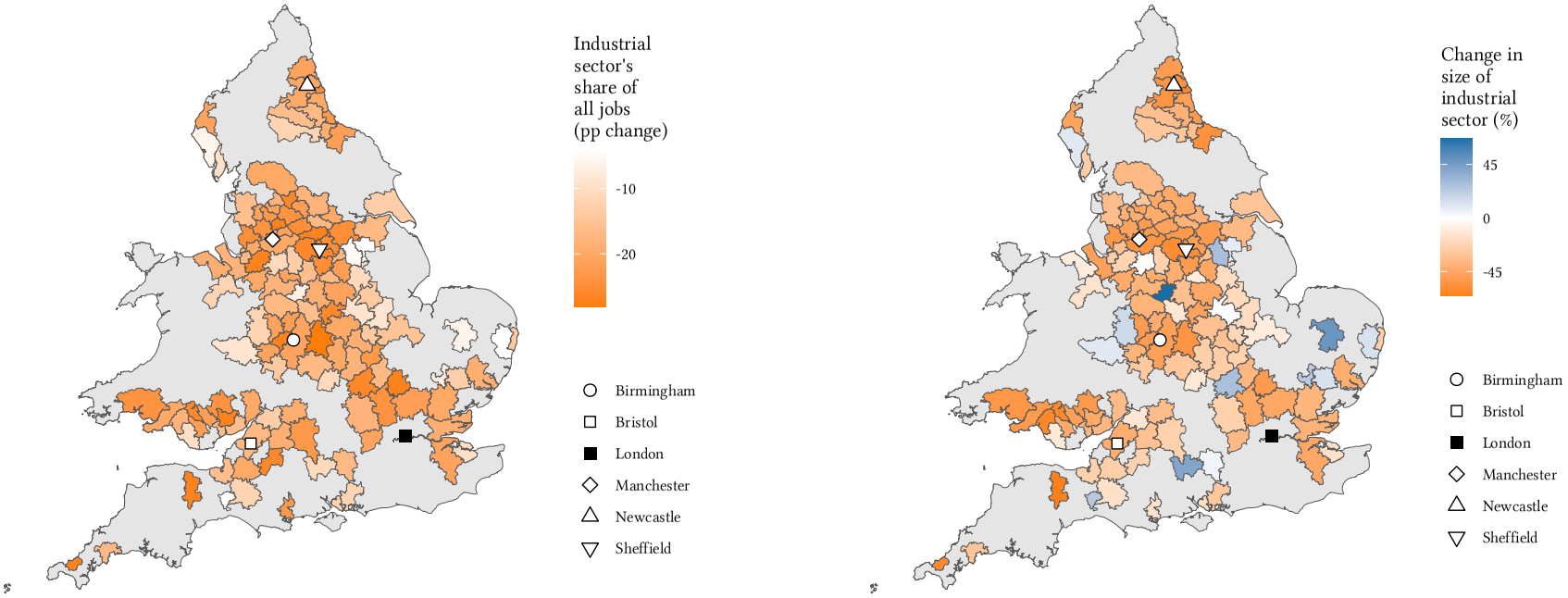
[33] D. Clingingsmith and J. Williamson, "Deindustrialization in 18th and 19th century India: Mughal decline, climate shocks and British industrial ascent", *Explorations in Economic History* 45 (2008): 210.

[34] Clingingsmith and Williamson, 210.

[35] Tomlinson, "De-industrialization Not Decline: A New Meta-narrative for Post-war British History".

[36] One possible explanation for the strength of the latter three lies in their strategic importance. Portsmouth contains Royal Navy's primary home base and – despite losing 10,000 shipbuilding jobs – saw strong growth in computers and other electronics, Barrow in Furness is the home of nuclear submar-

Figure 2.4.2: Two measures of deindustrialisation across industrialised TTWAs, 1971-1991



(a) Weak deindustrialisation

(b) Strong deindustrialisation

labour market areas had undergone at least some weak deindustrialisation by 1978. In that period, the average decline in industry's share of employment across TTWAs was 5.4 percentage points, and in the cases where deindustrialisation was avoided – such as in Crewe or Neath and Port Talbot – increases in industrialism were low.[37]

Second, strong and weak deindustrialisation were frequently misaligned. Indeed, more than one in ten industrialised TTWAs did not see strong deindustrialisation at all, and even among those that did, changes in other sectors altered the corresponding amount of weak deindustrialisation. For example, whereas Crewe's avoidance of deindustrialisation up to 1978 can be attributed to an expansion in computers, vehicles, and arms manufacturing, that of Port Talbot cannot. There, the number of industrial workers fell slightly, but the industrialism of the labour market rose because employment in other sectors fell even more. Many similar examples exist. Milton Keynes – by far the most successful New Town in the country – endured weak deindustrialisation as great as that of Sheffield and well in excess of that seen in archetypal post-industrial places such as Oldham, Bradford, and Middlesbrough. Conversely, even though the former endured greater strong deindustrialisation, Leeds and Northampton saw equivalent weak deindustrialisation as a result of differences in growth in other sectors.[38] Subdued growth in services in Leeds reduced the city's weak deindustrialisation, while strong services growth in Northampton deepened it.

Focusing on these nuances may seem pedantic, but they matter for two related reasons. First, they show that places deindustrialised in different ways. This was especially the case in relation to weak deindustrialisation, which was arrived at via a number of channels mediated by the success or failure of other sectors. Second, neither strong nor weak deindustrialisation can capture these nuances adequately. Measuring deindustrialisation in terms of job losses alone excludes places that managed to transition away

ine construction, and Yeovil was the home of Westland Helicopters. Despite reductions in the defence budget, Britain's arms sector was, and remains, relatively large and well shielded.J. Lovering, "The Changing Geography of the Military Industry in Britain", *Regional Studies* 25, no. 4 (1991): 279–293.

[37] Less than one percentage point in Neath and Port Talbot and 2.9 percentage points in Crewe.

[38] Industry's share of all employment dropped from around 40 to 22 per cent in both Northampton and Leeds, yet the number of industrial workers in Leeds fell by 44 per cent compared to just 26 per cent in Northampton.

from industry smoothly, yet the idea that the experiences of Milton Keynes and Sheffield were somehow equivalent because they endured a similar amount of weak deindustrialisation is clearly nonsense. Grouping deindustrialisation processes into types is valuable because it can cast light on how and why post-industrial places have such different outcomes. However, in order to do so successfully, it is necessary to balance the strong and weak dimensions to the process.

2.5 Identifying 'types' of regional deindustrialisation

Typologies of deindustrialisation have been constructed before. Prominent examples concerning national deindustrialisation processes include that of Rowthorn and Wells, who in the 1980s argued that deindustrialisation could be 'positive' or 'negative'.[39] More recent examples include typologies constructed by Tregenna, who places emphasis on the disconnect between industrial output and employment, especially in developing countries.[40] In the case of deindustrialisation within countries, typologies are most prominent within the field of urban economics. A study of urban economies over a 100-year period produced by the Centre for Cities grouped places into 'reinventors' and 'replicators'.[41] The City Evolutions project identified 'clubs' of cities on the basis of their output growth relative to the national average (with half a standard deviation thresholds).[42] Drawing inspiration from a framework created by Power *et. al.* that separated out 'dominant', 'secondary', and 'struggling' post-industrial cities, the Joseph Rowntree Foundation drew a distinction between 'core', 'over-shadowed', and 'freestanding' cities in a report on urban decline.[43] Hobor's study of a selection of cities in the American rust

[39] Rowthorn and Wells, *De-industrialization and foreign trade*, 5–6.

[40] F. Tregenna, "Characterising deindustrialisation: An analysis of changes in manufacturing employment and output internationally", *Cambridge Journal of Economics* 33, no. 3 (2009): 446; F. Tregenna, "A new theoretical analysis of deindustrialisation", *Cambridge Journal of Economics* 38, no. 6 (2014): 1373–1390; F. Tregenna and A. Andreoni, "Deindustrialisation reconsidered: Structural shifts and sectoral heterogeneity", *UCL Institute for Innovation and Public Purpose Working Paper Series* 2020-06 (2020): 12.

[41] P. Swinney and E. Thomas, *A century of cities: urban economic change since 1911* (London: Centre for Cities, 2015), 9.

[42] Tyler et al., "Growing apart? Structural transformation and the uneven development of British cities", 431–433.

[43] A. Pike et al., *Uneven growth: tackling city decline* (York: Joseph Rowntree Foundation, 2016), 23; A. Power, J. Plöger and A. Winkler, *Phoenix Cities: the fall and rise of great industrial cities* (Bristol: Policy Press, 2010), 288–289.

belt deployed a 'fuzzy sets' methodology to build eight groups of post-industrial cities and show their trajectories.[44] Recent work from a project at the University of Newcastle has also deployed an eight-category framework, dividing areas across Europe into one of eight 'clusters' depending on their employment structures and post-1980 trajectories.[45]

These typologies all have their value, but none of them were designed to address the measurement problems discussed in this chapter. They also tend to depend on complex criteria and value judgements – reducing their clarity and limiting their applicability. In order to address these problems, this chapter presents a new typology of deindustrialisation processes that groups places by whether not the number of industrial workers in the area fell, and whether reductions were offset by growth in other sectors. The advantage of the approach is that it separates places that underwent both strong and weak deindustrialisation from those that only endured weak deindustrialisation, whilst remaining sensitive to the role of other sectors. It does not, therefore, measure weak deindustrialisation directly. Rather, the typology forms groups on the basis of whether or not local labour markets were able to absorb industrial job losses. Considering the well-known impact of worklessness on incomes, happiness, and health, it is reasonable to assume that this distinction mattered for the people living in areas undergoing deindustrialisation. Bluestone's pathbreaking research certainly took this view. Indeed, even in 1984 he argued that 'the proper measure' ought to consider 'how rapidly employment is shrinking in certain sectors of the economy and how rapidly workers are being reabsorbed' rather than manufacturing investment, output, or employment alone.[46]

An overview of the typology is presented in Table 2.5.1. Industrialised TTWAs are categorised either as Type 1 'thriving' areas, Type 2 'surviving' areas, or Type 3 'declining' areas depending on their performance across the two criteria. These terms are used interchangeably for the rest of the thesis. Having gone through a form of deindus-

[44] G. Hobor, "Surviving the Era of Deindustrialization: The New Economic Geography of the Urban Rust Belt", *Journal of Urban Affairs* 35, no. 4 (2013): 419.

[45] S. Velthuis et al., "Geographically uneven structural change in EU15 regions from 1980 to 2017: a cluster analysis", *Beyond 'Left Behind Places' Working Paper Series* 01/22 (2022): 7–9.

[46] B. Bluestone, "Is deindustrialization a myth? Capital mobility versus absorptive capacity in the US economy", *Annals of the American Academy of Political and Social Science* 475, no. 1 (1984): 51.

trialisation that did not involve absolute reductions in industrial employment, thriving areas present a 'best-case scenario'. There, deindustrialisation was merely a product of other sectors growing more quickly than industry. Unlike thriving areas, surviving and declining TTWAs experienced both strong and weak deindustrialisation between 1971 and 1991. The difference between them lies in the fact that surviving areas were able to absorb industrial job losses while declining areas were not. Type 3 deindustrialisation processes therefore constitute the 'worst-case scenario' in which workers displaced from industry were left with relatively few other options.

Table 2.5.1: Types of deindustrialisation in England and Wales, 1971-1991

Type	Name	Description	*N*
1	*Thriving*	No reduction in industrial employment, faster growth in services*	15
2	*Surviving*	Reduction in industrial employment, compensatory growth in services	60
3	*Declining*	Reduction in industrial employment, too little compensatory growth in services*	54

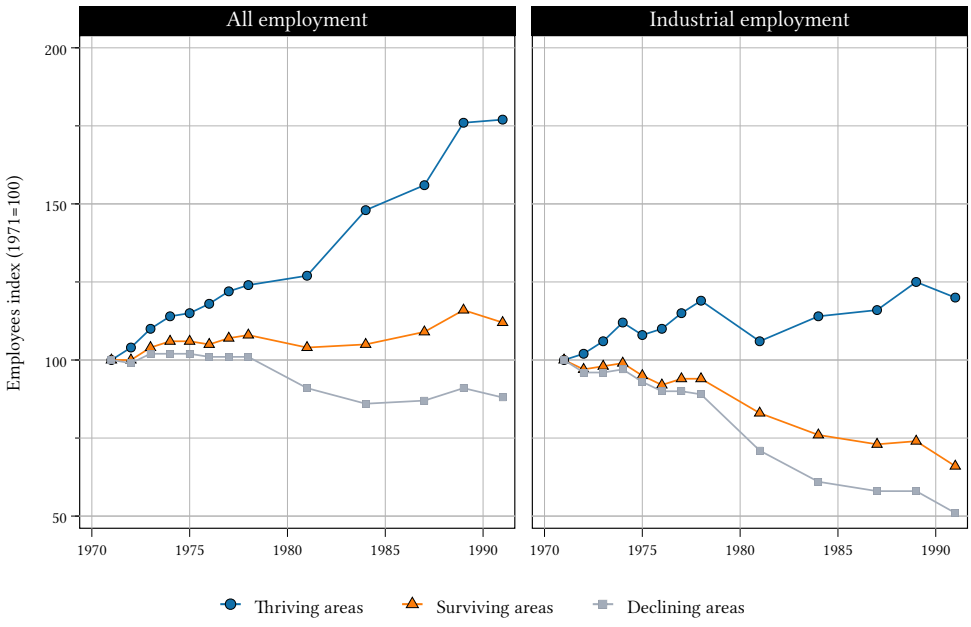
Calculations based on Census of Employment data. * 'Weak industrialisation' – an increase in industry's share of employment – could have theoretically occurred in these two categories. In the case of thriving areas, weak industrialisation would have occurred if employment in industry grew more quickly than in other sectors. For declining areas to have seen weak industrialisation, the number of industrial workers would have to have fallen more slowly than other sectors. Although this happened in Port Talbot up to 1978, there were no examples of this over the full 1971-91 period.

Changes in employment, both in industry and across the types of areas as a whole, are plotted in Figure 2.5.1. Within the graphs it is possible to discern the existence of three broad phases – the 1970s up to 1978, the recession and 'jobless recovery' between 1978-1984, and the mid-1980s through to 1991.[47] The divergence between declining and surviving areas, which involved a 12 per cent reduction in employment in the former by 1991 and 12 per cent growth in the latter, appears to have been determined by the first two phases. Between 1971 and 1978, employment in surviving areas grew at an annualised rate of 1.1 per cent per year compared to just 0.2 per cent per year in declining

[47] Paker, "The jobless recovery after the 1980-1981 British recession".

areas. This gave surviving a cushion ahead of the early-1980s recession, meaning that while the number of workers fell, total employment never dipped below its 1971 level. Despite this, had surviving areas endured a contraction in employment equivalent to that seen in declining areas during the recession, they too would have struggled to maintain their employment levels. Between 1978 and 1984, employment in declining areas fell at an annualised rate of 3.9 per cent per year compared to just 0.6 per cent per year in surviving areas. The contraction endured by declining areas was therefore six and half times steeper than that seen in surviving areas – intensifying the preexisting differences between the two sets of industrialised TTWAs. Differences in strong deindustrialisation clearly played a role in this divergence over the two periods. At 1.6 and 9.1 per cent per year respectively, the contraction in industrial employment seen in declining areas was twice that of surviving areas in the 1970s and 72 per cent higher during the recession years.

Figure 2.5.1: Employment growth across industrialised TTWAs, 1971-1991

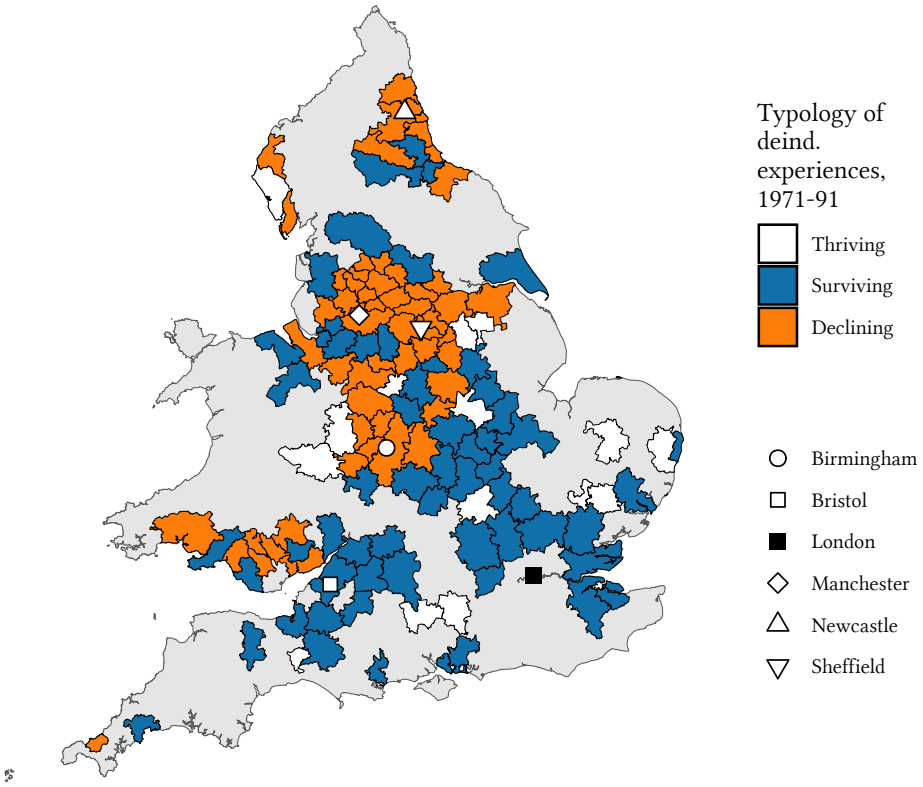


Data from the Census of Employment. The data in the chart are summed by deindustrialisation type.

Enjoying employment growth even during the recession, the data in Figure 2.5.1 show thriving areas to be quite different from the rest of the industrialised TTWAs.

Between 1971 and 1991, the number of workers in thriving areas grew by 77 per cent. In contrast with surviving and declining areas, industrial employment also increased by over one fifth. In conjunction with their relatively small size (at around 11,000, the average number of workers in a thriving area in 1971 was well short of that in surviving and declining areas, which had 45,000 and 67,000 workers on average respectively), the picture of thriving areas that emerges from the statistics bears considerable resemblance to that of the booming small towns of the 1921-71 period discussed in Chapter 1. In this sense, it is possible that most thriving areas were the final beneficiaries of urban-rural shift, which only went into reverse from the late 1990s onwards.[48]

Figure 2.5.2: Map of deindustrialisation types



Based on Census of Employment data. Map data from the ONS.

[48] A. Rae, "English urban policy and the return to the city: A decade of growth, 2001-2011", *Cities* 32 (2013): 94–101.

One of the most important observations to be drawn from Table 2.5.1 is the degree to which Type 3 deindustrialisation was in the minority. In other words, despite the severe downturn in the fortunes of the industrial sector, most industrialised labour market areas managed to maintain their employment levels. However, there was a geography to these trends. As Figure 2.5.2 shows, declining areas were located almost exclusively north of the north-south socioeconomic divide that runs diagonally from the Severn to the Humber.[49] While surviving deindustrialisation was not an exclusively southern phenomenon, industrialised TTWAs in the south of the country appear to have fared better at replacing the industrial jobs they lost than their northern counterparts. Unlike the previous few decades, decline appears to have struck cities and towns equally. While Birmingham, Manchester, Newcastle, and Sheffield all endured Type 3 deindustrialisation during this period, places in their immediate vicinities also suffered. For example, employment fell proportionately more sharply in Burnley and Oldham than in Manchester, in Sunderland and South Tyneside more than Newcastle, and in Coventry and Wolverhampton than Birmingham.

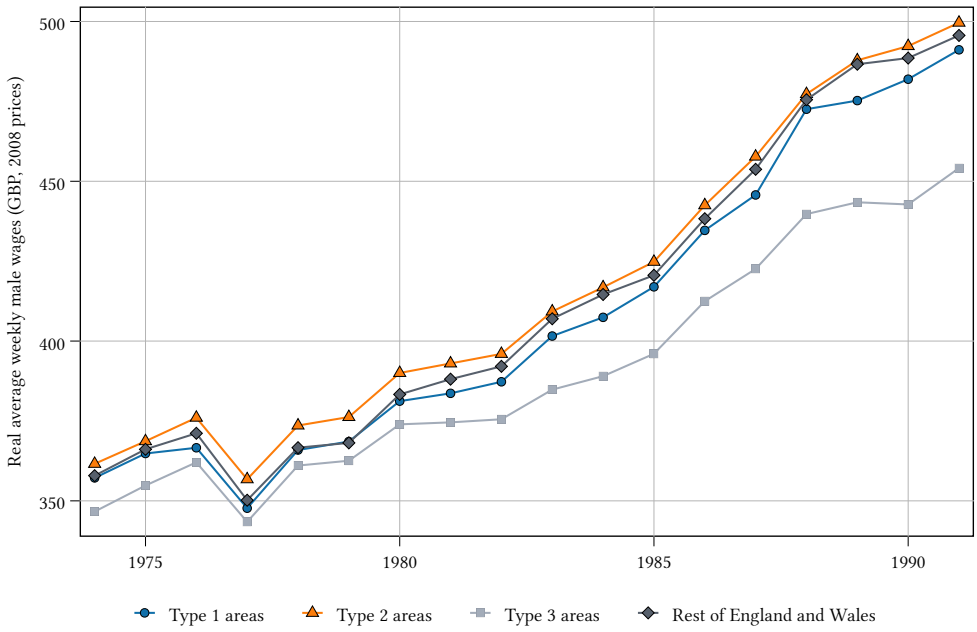
2.5.1 Differences in outcomes between types

Considering Britain's contemporary geographical imbalances, the fact that declining areas were concentrated on one side of the north-south divide suggests that there are links between the types of deindustrialisation and socioeconomic outcomes. Evidence in support of this interpretation can be seen in Figure 2.5.3, where data on average gross weekly male wages for thriving, surviving, and declining areas – as well as the rest of England and Wales – are presented. A dip in the mid-1970s notwithstanding, wages grew in real terms across the country throughout the 1970s and 1980s. Declining areas followed this trend, although growth was somewhat more modest. Having started the period with real wages between 3 and 4 per cent lower than in the other areas displayed in the chart, declining areas entered the 1990s with average wages that were around 8 per cent lower than everywhere else. Extending the chart to the years that followed reveals

[49] D. Dorling, "Persistent North-South divides", in *The Economic Geography of the UK*, ed. N. Coe and A. Jones (London: SAGE, 2010), 27–40.

even larger divides. On the eve of the late-2000s global financial crisis, average gross male wages in declining areas were 10 per cent lower than in the rest of England and Wales. In monetary terms, this differential amounted to £63 per week. Neither surviving nor thriving areas saw any interruption to real wage growth throughout the period, even though the former saw absolute reductions in industrial employment.

Figure 2.5.3: Wage growth by deindustrialisation types



Based on New Earnings Survey data harmonised by Hilber and Vermeulen. Inconsistencies in boundaries mean that the data cannot be easily computed for specific TTWAs. As a result, the data presented here are averages across different types of labour market areas taken as a whole.

The best explanation for these trends lies in differences in the demand for labour. Despite job losses in the industrial sector, the fact that surviving areas maintained their employment levels suggests that there was enough demand for workers to prevent a relative decline in wages from occurring. In declining areas, by contrast, industrial job losses were not offset, increasing the power of employers in the labour market. Bolstering this was the weakening position of trade unions both by the state and deindustrialisation itself.[50] Evidence from the United States suggests that the interaction between deindustrialisation and the decline of trade unions was more important than determining

[50] Dorey, "Weakening the Trade Unions, One Step at a Time: The Thatcher Governments' Strategy for the Reform of Trade-Union Law, 1979–1984".

income inequality than deindustrialisation itself during the 1947-2015 period.[51] Assessing the importance of these dynamics is beyond the scope of this chapter. Nevertheless, it is reasonable to assume that similar processes could have occurred in declining areas as structural change made preexisting employer-worker relationships and patterns of collective bargaining redundant.

Table 2.5.2: Average unemployment rates for deindustrialisation types by sex and census

Year	T1 areas (%)	T2 areas (%)	T3 areas (%)	T3 vs T2 areas (%)
		Total		
1971	3.5	3.4	4.2	+23.5
1981	7.0	7.8	10.3	+32.1
1991	6.8	7.6	10.3	+35.5
		Female		
1971	3.9	3.6	3.9	+8.3
1981	5.7	6.0	7.6	+26.7
1991	5.3	5.6	7.1	+26.8
		Male		
1971	3.3	3.3	4.4	+33.3
1981	7.8	8.9	12.0	+34.8
1991	7.8	9.1	12.7	+39.6

Calculations based on Census of Population data.

Differences between the types can also be seen in relation to unemployment. As Table 2.5.2 shows, while unemployment was always somewhat elevated in declining areas, the gap between them and the rest of the industrialised TTWAs widened over the period. This widening occurred despite the fact that declining areas were not the main victims of the early-1990s recession, and can probably be explained by the way in which the early-1980s recession affected the underlying rate of unemployment in northern industrial areas.[52] Interestingly, while the total unemployment rate was driven by men, some of the most dramatic changes between declining areas and the rest were among women.

[51] C. Kollmeyer, "Trade union decline, deindustrialization, and rising income inequality in the United States, 1947 to 2015", *Research in Social Stratification and Mobility* 57 (2018): 1–10.

[52] R. Audas and R. MacKay, "A Tale of Two Recessions", *Regional Studies* 31, no. 9 (1997): 867–874; M. Baddeley, R. Martin and P. Tyler, "Transitory shock or structural shift? The impact of the early 1980s recession on British regional unemployment", *Applied Economics* 30, no. 1 (1998): 19–30.

From 1981 onwards, female unemployment rates in declining areas were substantially higher than those observed elsewhere. While they remained below those seen amongst men, the fact that women's unemployment rates rose so much supports the view that deindustrialisation did not represent a straightforward 'win' for women in the labour market.[53]

One of the great challenges in using unemployment statistics when comparing locations, particularly when studying industrial decline, is their tendency to mask long-term unemployment and chronic worklessness.[54] Partly because of the structure of Britain's welfare system, and partly because serious health problems take time to emerge, people unable to find work over long periods are often bumped over onto incapacity benefits, changing their status from unemployed to economically inactive. This 'hidden' unemployment, which is often geographically concentrated, has been one of the most persistent consequences of deindustrialisation in Britain, and has recently been intensified by the COVID-19 pandemic.[55] Inactivity as a result of permanent sickness – the most common channel through which the long-term unemployed become inactive – is not observable in the 1971 census, but data are available for 1981 and 1991. However, economic activity can be estimated for all census years. The general trend in economic activity observed across the country was decline between 1971 and 1981 followed by a recovery in the 1981-1991 period. An important exception to this trend was the group of declining areas, where economic activity rates fell slowly but surely across the three censuses. In 1971, around 62 per cent of working-age adults in thriving, surviving, and declining areas were, on average, economically active. By 1991, the average economic activity rate of declining areas had dropped to around 59 per cent, whilst those of the thriving and surviving areas held steady at their 1971 levels.

However, beneath the headline statistics lies a much more interesting story about

[53] E. Kongar, "Is deindustrialization good for women? Evidence from the United States", *Feminist Economics* 14, no. 1 (2008): 73–92.

[54] Beatty and Fothergill, "Labour Market Adjustment in Areas of Chronic Industrial Decline: The Case of the UK Coalfields".

[55] C. Beatty and S. Fothergill, "The persistence of hidden unemployment among incapacity claimants in large parts of Britain", *Local Economy* 38, no. 1 (2023): 42–60.

gender and participation in the labour force. It is well known that during the second half of the twentieth century, women entered the workforce in large numbers while rates of economic activity among men declined from over 90 per cent to under 80 per cent in the early 1990s.[56] Much of this was to do with the increased availability of part-time work (women did around 80 per cent of the part-time work available in the economy during the 1970s and 1980s) and the need to supplement insecure male incomes with 'component wages', but most of the rise in women's employment since the mid-1980s can be attributed to their employment in full-time roles.[57] From a national perspective, women's employment appears to have had structural advantages. Women were much better represented in growing industries than the rest of the economy, and their share of employment within them continued to rise. According to the Census of Employment data used in this study, men held 47 per cent of all jobs in growing sectors in 1971. Two decades later, their share had dropped to 41 per cent. Men lost ground especially quickly in accountancy services and research and development; women also ended the period constituting the majority of workers in insurance, real estate, and banking and finance. A necessary caveat here is that these statistics do not speak to the quality of jobs in these sectors – men certainly did not relinquish their control of the upper echelons. Nonetheless, they do show that women further down the occupational rankings were grasping new opportunities more readily than men.

[56] B. Francis-Devine and G. Hutton, "Women and the UK economy", *House of Commons Library Research Briefings*, no. 6368 (2024): 7.

[57] J. Humphries and J. Rubery, "The Legacy for Women's Employment: Integration, Differentiation and Polarisation", in *The Economic Legacy 1979-1992*, ed. J. Michie (London: Academic Press Ltd, 1992), 236–254; B. Roantree and K. Vira, *The rise and rise of women's employment in the UK* (London: Institute for Fiscal Studies, 2018), 4.

Table 2.5.3: Labour market participation by sex, and deindustrialisation types, across censuses

	Female			Male		
Year	T1	T2	T3	T1	T2	T3
	Estimated average economic activity rates (%)					
1971	40.0	42.0	42.7	85.1	84.6	83.3
1981	43.2	44.5	44.8	78.7	78.2	77.2
1991	50.4	50.6	48.1	75.3	74.4	71.2
	Number of employees					
1971	91,445	1,573,965	2,417,120	159,225	2,671,840	4,134,885
1981	131,730	1,865,670	2,495,875	186,205	2,549,105	3,459,515
1991	204,050	2,305,970	2,766,750	238,490	2,468,885	2,999,645

Economic activity rates are based on calculations from Census of Population data. The raw numbers of employees come directly from the Census of Employment. The difference in sources, along with the fact that the upper panel is composed of averages, means there is a slight mismatch in the data, although the trends are the same.

Despite all this, men's and women's employment patterns still differed across the deindustrialisation types, with both men and women in declining areas participating in the labour market at lower rates. As Table 2.5.3 shows, despite having been higher in 1971, women's economic activity rates in declining areas fell behind those seen in other industrialised TTWAs by 1991. Men's employment fell across all three types of industrialised labour market area, although in declining areas the decrease was proportionally larger. Whereas male employment was down by around 4 per cent in thriving and surviving areas (taken as a whole), the number of men in work in declining areas was 27 per cent below the level seen two decades earlier.

In line with the literature, the statistics compiled here in relation to employment, unemployment, and economic activity suggest that complete disengagement from the labour market was a common response to deindustrialisation in declining areas over the period 1971-1991. Further evidence in favour of this interpretation can be found in the statistics on permanent sickness, which provide a proxy for the pattern of unemployed people moving onto incapacity benefits outlined by Beatty and Fothergill. In 1981, 6.2 per cent of the working-age population in declining areas was economically inactive as a result of sickness, compared to 4.3 per cent in surviving areas. Sickness rose substan-

tially across the country over the next decade, although its rise in declining areas well outstripped that in other industrialised TTWAs. By 1991, 13.5 per cent of the working-age population in declining areas was inactive owing to permanent sickness, compared to just 7.9 per cent in surviving areas. The rise was again stronger among men than women. By 1991, 21.8 per cent of men who were economically inactive in declining areas owed their inactivity to permanent sickness – up from 13.5 per cent just ten years earlier.

There is also strong alignment between the groupings isolated by the typology and poverty. Since the work of Townsend and Carstairs in the late 1980s and early 1990s, official measures of poverty in Britain have been structured around the concept of 'multiple deprivation'.[58] In a multiple deprivation framework, poverty is thought to manifest itself across a number of dimensions, such as housing, employment, and health, rather than monetary factors alone. The modern embodiment of this approach is the 'index of multiple deprivation' (IoMD), which is calculated separately for Wales, Scotland, England, and Northern Ireland every few years.[59] The IoMD is a relative measure that uses seven 'domains' (including income, employment, education, and health) to rank uniform neighbourhood-sized geographical units (LSOAs in the case of England and Wales) from most to least deprived in the country.[60] Poverty in larger areas, such as TTWAs, can be assessed by calculating the proportion of the area's LSOAs that fall into the most deprived decile or quintile in the country.[61]

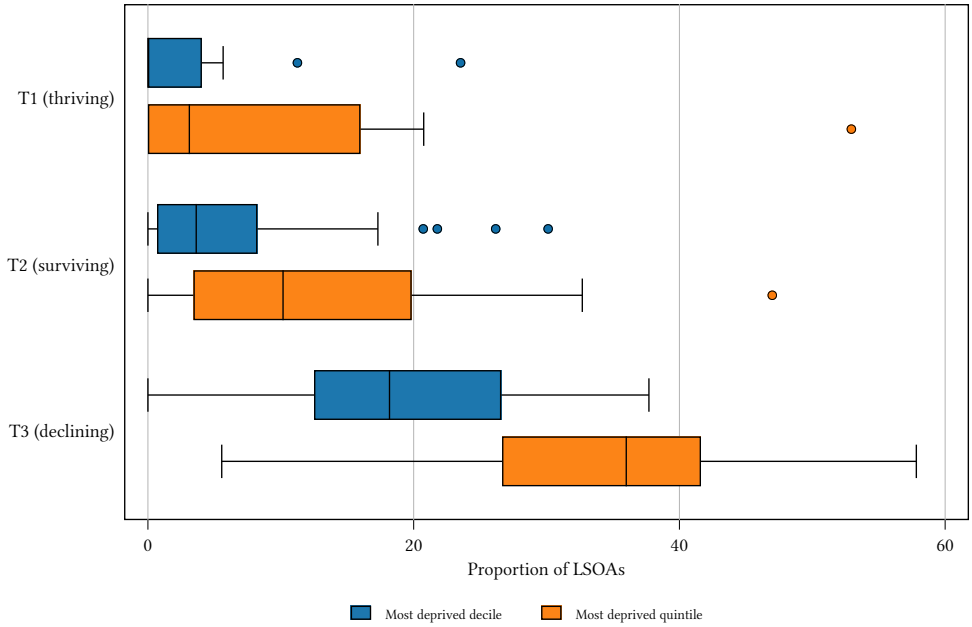
[58] P. Townsend, A. Beattie and P. Phillimore, *Health and Deprivation: Inequality and the North* (London: Croom Helm, 1988); V. Carstairs and R. Morris, *Deprivation and Health in Scotland* (Aberdeen: Aberdeen University Press, 1991).

[59] The separation of the UK into its constituent parts means that the data used in this chapter concern England only.

[60] S. Noble et al., *The English Indices of Deprivation 2019: Research report* (London: Ministry of Housing, Communities / Local Government, 2019), 11–18.

[61] Noble et al., 24–32.

Figure 2.5.4: Deprivation across former industrialised TTWAs



Data from the English IoMD 2019. Outliers are included as dots.

The results of applying the IoMD decile methodology to the industrialised TTWAs can be seen in Figure 2.5.4. Under both metrics, the amount of poverty in the different groupings rises by the severity of the deindustrialisation experienced. Nevertheless, declining areas appear to suffer far more than the rest; on average, just under 20 per cent of all the LSOAs located within declining areas are in the most deprived decile nationally, whereas in surviving areas only 5.5 per cent are in that category. Moreover, over a third of declining areas' LSOAs are in the most deprived quintile compared to around one tenth of those located in surviving areas. The stark divide between declining areas and the rest highlights the importance of the elimination phase of deindustrialisation in determining outcomes over the long run. Places that struggled to maintain their employment levels during the 1970s and 1980s remain scarred to this day. The results in Figure 2.5.4 corroborate the findings of Rice and Venables who, using a different approach, showed that sharp reductions in male employment in the 1970s had an impact on the 2015 English deprivation data.[62]

[62] Rice and Venables, "The persistent consequences of adverse shocks: how the 1970s shaped UK regional inequality", 143–147.

The final outstanding question in relation to the association between deindustrialisation types and socioeconomic outcomes is its robustness. After all, it is possible that the effects noted above are instead a product of another factor – such as extent of strong and weak deindustrialisation experienced by declining areas relative to thriving and surviving ones. In order to eliminate this possibility, it is necessary to turn to simple regression models, as described in Equation 2.1, for these are able to isolate the impact of the deindustrialisation types whilst holding other variables constant. The main variables of interest are those relating to deindustrialisation type. As the greatest differences observed in the data are between declining areas and the rest, the model holds declining areas as a reference category. The main control variables include the share of all employment in industry in 1971, measures of strong and weak deindustrialisation, and the size of the labour market in 1971 and 1991. The dependent variables are the outcomes described thus far in relation to employment, economic activity, and poverty in 2019.

$$OUTCOME = a + \beta_1(TYPE) + \beta_2(CONTROLS) + \epsilon \tag{2.1}$$

As the results displayed in Table 2.5.4 show, the typology holds up fairly well even with the introduction of controls. Unfortunately, none of the coefficients in relation to thriving areas are statistically significant. A possible explanation for this is that thriving areas were few in number; nevertheless, it is also possible that the results reflect the fact that thriving areas were a somewhat unusual and disparate grouping. Despite this, with the exception of changes in women's economic activity rates between 1971 and 1991, all the coefficients for surviving areas are large and statistically significant. Therefore, even with controls, the models predict that the Type 3 deindustrialisation of declining areas had a significant, negative impact on their outcomes relative to those of surviving areas. By virtue of maintaining their employment levels, surviving areas had lower levels of unemployment in 1991, saw slower rises in inactivity owing to permanent sickness, slower declines in male economic activity, and today see dramatically lower levels of deprivation than declining areas.

Moreover, compared to the control variables, the differences associated with types

of deindustrialisation are large. In relation to poverty, for example, the coefficients associated with Type 2 deindustrialisation are between 46 and 52 times larger than those for industry's share of employment in 1971, between 21 and 26 times larger than those associated with strong deindustrialisation, and 12 to 16 times larger than those for weak deindustrialisation. Large differences in magnitude can be observed across all the variables in the table. Considering that the average amount of strong and weak deindustrialisation experienced across industrialised TTWAs stood at 30 per cent and 18 percentage points respectively, the models suggest that the type of deindustrialisation a place endured was a critically important factor in determining its socioeconomic outcomes – in many cases as important as the extent of deindustrialisation itself.

More evidence regarding the impact of deindustrialisation can be gleaned by comparing the coefficients in relation to strong and weak deindustrialisation. As can perhaps be expected, where they are statistically significant, the coefficients in relation to strong deindustrialisation are associated with worsening outcomes. For example, all else being equal, places that lost more industrial jobs had higher unemployment in 1991, more poverty in 2019, and less positive developments in economic activity and permanent sickness. Despite this, the coefficients for weak deindustrialisation move in the opposite direction. In other words, once variables such as the raw number of industrial jobs lost or the type of deindustrialisation are factored in, steeper weak deindustrialisation is associated with improved outcomes. Although it is merely indicative, this finding supports the argument that deindustrialisation in terms of a drop in industry's share of employment is not necessarily harmful to a local economy.

Table 2.5.4: Linear regression models of the impact of Type 3 deindustrialisation on various outcomes

	(1) Δ AR (total)	(2) Δ AR (female)	(3) Δ AR (male)	(4) IoMD decile	(5) IoMD quintile	(6) Δ sick (total)	(7) Δ sick (female)	(8) Δ sick (male)	(9) UR 1991 (total)	(10) UR 1991 (female)	(11) UR 1991 (male)
Type 1	0.488	-0.028	1.270	-6.394	-9.752	-0.104	-0.081	-0.085	0.136	-0.061	0.215
(thriving)	(1.059)	(1.416)	(1.416)	(5.978)	(8.483)	(0.725)	(0.744)	(0.827)	(1.296)	(0.749)	(1.723)
Type 2	0.949**	0.600	1.345**	-10.072***	-14.837***	-0.736**	-0.717**	-0.848**	-1.346**	-0.676**	-1.847**
(surviving)	(0.477)	(0.638)	(0.638)	(2.634)	(3.737)	(0.327)	(0.336)	(0.374)	(0.583)	(0.337)	(0.776)
Type 3 (declining)	-	-	-	-	-	-	-	-	-	-	-
Strong	-0.049***	-0.068***	-0.025	0.194**	0.318**	0.032***	0.033***	0.037***	0.056***	0.027**	0.076***
deind (%)	(0.016)	(0.022)	(0.022)	(0.091)	(0.129)	(0.011)	(0.012)	(0.013)	(0.020)	(0.012)	(0.027)
Ind. emp.	-0.091***	-0.172***	0.014	0.386***	0.699***	0.048***	0.051***	0.051***	0.063**	0.054***	0.069*
share (1971)	(0.025)	(0.033)	(0.033)	(0.136)	(0.192)	(0.017)	(0.018)	(0.020)	(0.030)	(0.018)	(0.040)
Weak	0.160***	0.206***	0.106*	-0.624**	-1.188***	-0.072**	-0.075**	-0.084**	-0.095	-0.080**	-0.105
deind. (pp)	(0.047)	(0.063)	(0.063)	(0.250)	(0.354)	(0.032)	(0.033)	(0.037)	(0.058)	(0.033)	(0.077)
Emp. 1971	-0.024**	-0.017	-0.031**	-0.066	-0.100	0.000	-0.002	0.002	0.003	0.002	0.003
(000s)	(0.012)	(0.015)	(0.015)	(0.061)	(0.086)	(0.008)	(0.008)	(0.009)	(0.014)	(0.008)	(0.019)
Emp. 1991	0.021	0.007	0.034**	0.087	0.132	-0.001	0.001	-0.003	0.001	0.001	0.002
(000s)	(0.013)	(0.017)	(0.017)	(0.066)	(0.094)	(0.009)	(0.009)	(0.010)	(0.015)	(0.009)	(0.021)
Constant	1.474	14.798***	-13.808***	1.099	3.714	0.594	1.106	0.948	5.860***	4.211***	7.065***
	(1.403)	(1.876)	(1.876)	(7.988)	(11.335)	(0.961)	(0.987)	(1.098)	(1.716)	(0.992)	(2.282)
Dep. var. mean	-1.414	7.472	-10.953	11.103	20.950	2.164	2.836	2.573	8.642	6.192	10.430
R^2	0.555	0.557	0.251	0.47	0.513	0.384	0.377	0.389	0.418	0.398	0.422
N	129	129	129	112	112	129	129	129	129	129	129

Figures derived from the IoMD 2019, Census of Population, and Census of Employment. Definitions: 'AR' = activity rate, 'sick' = inactivity owing to permanent sickness, 'UR' = unemployment rate. In models (4) and (5), the dependent variable is the share of a TTWA's LSOAs that are in the most deprived decile and quintile nationally respectively. The coefficients for thriving and surviving areas should be interpreted in relation to declining areas. Standard errors are given in brackets. $^{*}p < 0.1$, $^{**}p < 0.05$, and $^{***}p < 0.01$.

It is in the statistics pertaining to the various socioeconomic outcomes that the true value of the typology becomes apparent. The reason why places such as Merthyr, Chesterfield, and Workington are emblematic of industrial decline whilst Southend, Aylesbury and Wycombe, and Bristol have fewer such associations is not because the former experienced deindustrialisation while the latter were somehow spared.[63] Rather, it is because the former places endured a type of deindustrialisation that was qualitatively worse than that experienced by the latter, with job losses in industry not being assuaged by growth elsewhere. The typology is valuable because it can accommodate both these paths to deindustrialisation, and in doing so explain why the downsides of structural change have fallen so unevenly. The main conclusion to be drawn is a straightforward one; a place's ability to maintain its employment levels determined the impact of deindustrialisation – industrialised areas where the shock was cushioned did better than those where no relief valve existed. In this finding, this chapter corroborates recent work by Martin and Sunley, who showed that resilience to the last four recessions has been crucial for growth across British cities.[64]

2.6 Explaining divergence

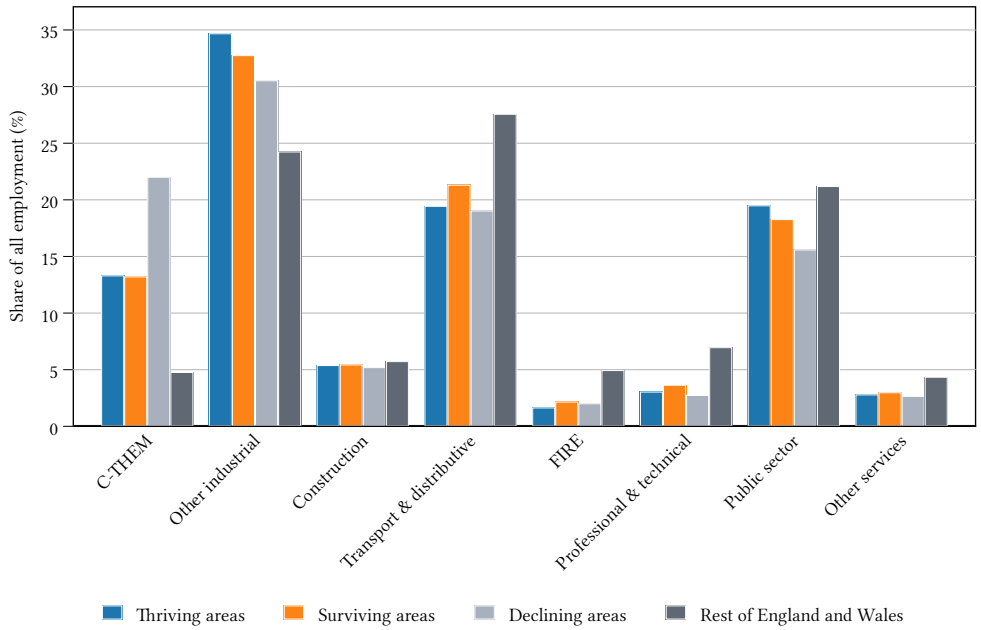
How, then, did non-declining areas maintain their employment levels throughout the 1970s and 1980s? In the first instance it is reasonable to assume that the divergence may be attributable to differences in the size and composition of the industrial sector between places. The evidence presented in Figure 2.5.1 certainly supports this theory; strong deindustrialisation in declining areas outstripped that seen in surviving areas from 1971 up to the mid-1980s. The acceleration of this process during the early-1980s recession also appears to have been the factor that pulled total employment in declining areas down below its 1971 level. Further evidence in favour of this interpretation can be seen in

[63] Indeed, the image of places like Workington is so embedded that Onward, a centre-right think tank, used the term 'Workington Man' to describe a type of older, socially conservative, working-class voter that the Conservatives needed to win over ahead of the 2019 general election.W. Tanner and O'Shaughnessy, *The politics of belonging* (London: Onward, 2019), 19.

[64] R. Martin and B. Gardiner, "The resilience of cities to economic shocks: A tale of four recessions (and the challenge of Brexit)", *Papers in Regional Science* 98, no. 4 (2019): 1801–1832.

Figure 2.6.1, where the composition of thriving, surviving, and declining areas by sector group is displayed. Two things in the plot are striking. First, despite the differences in their outcomes, industrialised labour market areas were structurally more similar to each other than to the rest of England and Wales in 1971. Aside from the obvious differences in the importance of industrial employment, industrialised TTWAs had significantly fewer workers in transport and distribution and high-end FIRE and professional and technical services than the rest of the country.

Figure 2.6.1: Sector composition of the different types in 1971



Data from the Census of Employment. The data in the chart are summed by deindustrialisation type.

Second, despite the similarities between them, declining areas were more heavily industrialised than thriving and surviving areas in 1971. Whereas the share of the non-agricultural workforce in thriving and surviving areas employed in industry stood at 48 and 46 per cent respectively, 53 per cent of workers in declining areas had industrial jobs in 1971. Importantly, most of this difference was in the C-THEM group of industrial activities, which accounted for over 40 per cent of industrial jobs in declining areas but under 30 per cent in thriving and surviving ones. Declining areas actually had proportionally fewer jobs in other industrial activities than their thriving and surviving counterparts.

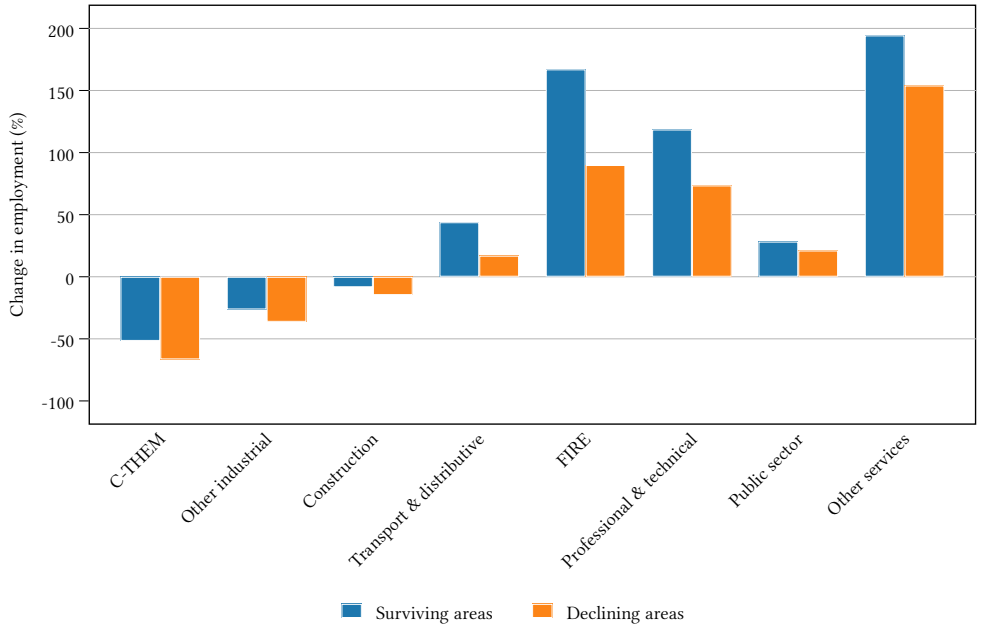
The difference is obvious when consideration is given to each TTWA's largest industrial employer. While a smattering of heavy industrial activities (such as the manufacturing of vehicles) existed in places which experienced Type 2 deindustrialisation, the most common sources of industrial employment were chemicals, electrical engineering, food processing, and the manufacturing of footwear. In declining areas, the number of people employed in these industries was dwarfed by those in coal mining, the manufacturing of metals, shipbuilding, and textiles.

The fact that C-THEM activities were so prominent in declining areas, as well as the fact that popular conceptions of deindustrialisation are bound up so closely with ruination and misery, helps explain why those industries are commonly associated with deindustrialisation itself. Burdened with industries that were in the process of losing tens of thousands of jobs, declining areas were always going to face a tougher struggle to maintain their employment levels than elsewhere, and thus suffer the associated consequences.[65] Surviving areas with a greater share of their workforces in C-THEM activities similarly faced an uphill struggle. In places such as Bedford, Derby, Preston, and Stockton-on-Tees – where C-THEM activities were prominent – employment growth was closer to the declining areas average than that seen across surviving areas.

Yet the difficulties faced by declining areas were not confined to the industrial sector alone. Instead, what appears to have happened is that declining suffered both stronger declines in industry and weaker growth in services over the 1971-1991 period. Overall, expressed as a proportion of their total workforces in 1971, declining areas lost the equivalent of 27 per cent of their employees and saw growth equivalent to 15 per cent. Surviving areas, by contrast, lost the equivalent of just 16 per cent of their total stock of jobs and growth to the tune of 28 per cent. A crude calculation based on these numbers suggests that although declining areas were indeed held back by a collapse in industrial employment, the gap between them and surviving areas in relation to new jobs growth was proportionally even larger.

[65] For figures on job losses by sector, see Table 2.3.1 above.

Figure 2.6.2: Changes in employment by sector group and deindustrialisation types, 1971-1991



Data from the Census of Employment. The data in the chart are summed by deindustrialisation type. For legibility, thriving areas and the rest of England and Wales are excluded.

A full breakdown of the performance of different sectors across surviving and declining areas is given in Figure 2.6.2. It is clear from the chart that declining areas underperformed across the board, seeing greater reductions in industrial employment and construction, and much less growth in the various service activities. Declining areas clearly struggled to create new jobs in high-end FIRE and professional and technical services, yet the largest underperformance was in the less prestigious transport and distributive services category, which expanded by just 17 per cent compared to surviving areas' 44 per cent. Only in public services, where employment is often merely a function of population, were the two sets of areas vaguely equivalent. The consequence of this was that even though jobs growth in the public sector was slower in declining areas than surviving areas, it accounted for a greater share of new jobs declining areas received.

2.6.1 Shift-share analysis

The extent to which the divergence between thriving, surviving, and declining areas was determined by sector composition is, therefore, somewhat unclear. The best way

to gain insights into the problem is through the use of tools developed in economic geography, namely 'shift-share' analyses, which are able to more precisely isolate the impact of sector composition on employment growth. Shift-share analyses have a long pedigree stretching all the way back to the Barlow Report, where they were used to quantify the dispersion of employment.[66] Because they failed to account for changes in structure over time, early shift-share analyses were flawed. Nevertheless, the advent of 'dynamic' shift-share techniques, such as those used by Gardiner *et al.*, correct this problem by continually adjusting the sector calculations over time.[67] The essence of the procedure is the breaking down of change in an economic variable over time (in this case, employment) into 'national', 'industry mix', and a 'residual' effect (sometimes termed a 'local' or 'regional' effect). These different effects demonstrate the extent to which an area's net employment position can be attributed to national economic trends, the sectoral make-up of the local labour market, and unobserved location-specific factors respectively.[68]

The calculation and correct interpretation of the residual has often been controversial, especially since the emergence of shift-share instrumental variable regression models.[69] Some of the criticism has been rooted in technical factors; various researchers have shown that the separation of the industry mix and residual effects is imperfect, and have offered alternative methods of calculation.[70] The best-known of these techniques is called 'multi-factor partitioning', which purports to address the measurement problems by altering the calculation of the industry mix effect and introducing an interaction term that captures links between the two.[71] Other problems result from economists' and economic

[66] M. Lahr and J. Ferreira, "A reconnaissance through the history of shift-share analysis", in *Handbook of Regional Science*, 2nd ed., ed. M. Fischer and P. Nijkamp (Berlin: Springer, 2021), 38.

[67] B. Gardiner et al., "Spatially unbalanced growth in the British economy", *Journal of Economic Geography* 13, no. 6 (2013): 905.

[68] Recent work that makes use of the technique include publications emanating from the City Evolutions project, as well as Paker's study of the early-1980s recession from which the precise formulation used here is derived. Paker, "A Problem of Industries and Regions: Unemployment and Structural Change in Britain During the Interwar Years and 1980s", 190–191.

[69] R. Adão, M. Kolesár and E. Morales, "Shift-Share Designs: Theory and Inference", *Quarterly Journal of Economics* 134, no. 4 (2019): 1949–2010.

[70] L. Artige and L. van Neuss, "A New Shift-Share Method", *Growth and Change* 45, no. 4 (2014): 667–683.

[71] D. Ray, R. Lamarche and M. Beaudin, "Economic growth and restructuring in Canada's heartland and hinterland: From shift-share to multifactor partitioning", *Canadian Geographies/Géographies canadiennes* 56, no. 3 (2012): 296–317.

geographers' preferred interpretation of the residual as a sign of the non-structural characteristics of a local or national economy, such as education, infrastructure, financial capital, or non-tangible factors such as governance, policy, or 'entrepreneurship'.[72] These interpretations are not entirely unreasonable, but the difficulty in pinning down the exact nature of the residual means they are potentially risky. In light of these considerations, it remains sensible to heed Fothergill and Gudgin's 1979 argument that local effect really is just a residual, with the advantage of shift-share being its ability to strip away national and industrial effects alone.[73]

Decomposition of the change in employment *e* in industry *i* and location *j* from time *t* to *t+n* is given by the formula below. Note that in these analyses, calculations are performed for thriving, surviving, and declining areas as a whole rather than their constituent units. Industries are however defined in terms of the 126 sector structure created for this chapter.

$$e_{ij}^{t+n} - e_{ij}^{t} = \sum_{k=t+1}^{t+n} (NE)_{ij}^{k} + \sum_{k=t+1}^{t+n} (IM)_{ij}^{k} + \sum_{k=t+1}^{t+n} (LE)_{ij}^{k}$$

where $(NE)_{ij}^{k}$ is the national effect from period *k* - 1 to *k*, defined as:

$$(NE)_{ij}^{k} = e_{ij}^{k-1} * g_{n}^{k}$$

and $(IM)_{ij}^{k}$ is the industry mix effect from year *k* - 1 to *k*, defined as:

$$(IM)_{ij}^{k} = e_{ij}^{k-1} * (g_{in}^{k} - g_{n}^{k})$$

[72] In the case of the impact of policy in the period studied in this chapter, see B. Fingleton, "The Location of High-technology Manufacturing in Great Britain: Changes in the Late 1980s", *Urban Studies* 31, no. 1 (1994): 47–57.

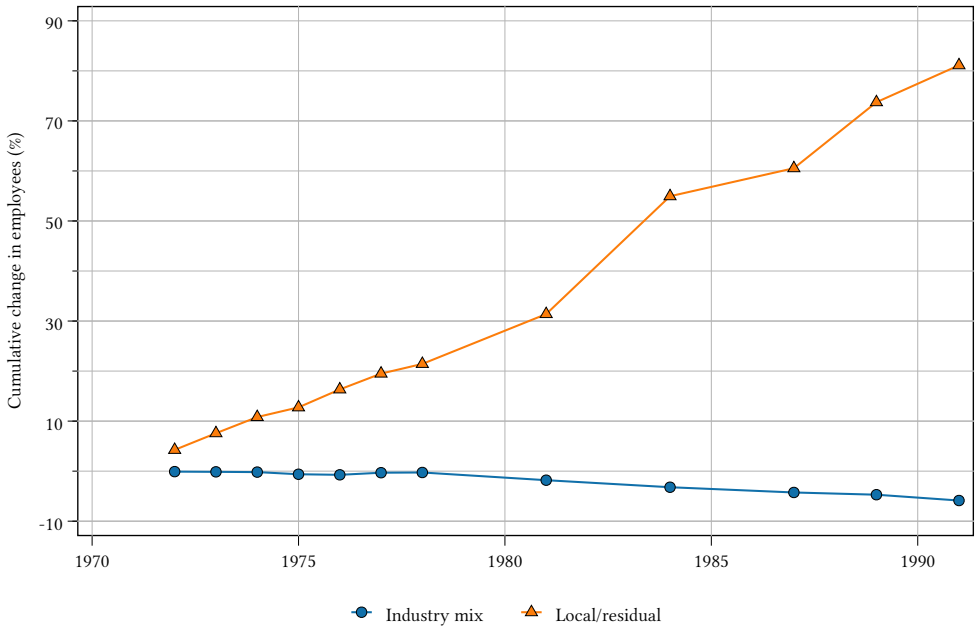
[73] S. Fothergill and G. Gudgin, "In Defence of Shift-Share", *Urban Studies* 16, no. 3 (1979): 310.

and $(LE)_{ij}^{k}$ is the local effect from year *k* - 1 to *k*, defined as:

$$(LE)_{ij}^{k} = e_{ij}^{k-1} * (g_{ij}^{k} - g_{in}^{k})$$

Note that g_{n}^{k} is the national growth rate of employment, g_{in}^{k} is the national growth rate of employment in industry *i*, and g_{ij}^{k} is the growth rate of employment in industry *i* in location *j* over the period *k* - 1 to *k*. Effects for each year, or group of years, are summed in order to generate a total shift-share over the 1971-1991 period.

Figure 2.6.3: Shift-share analysis of employment in thriving areas, 1971-1991



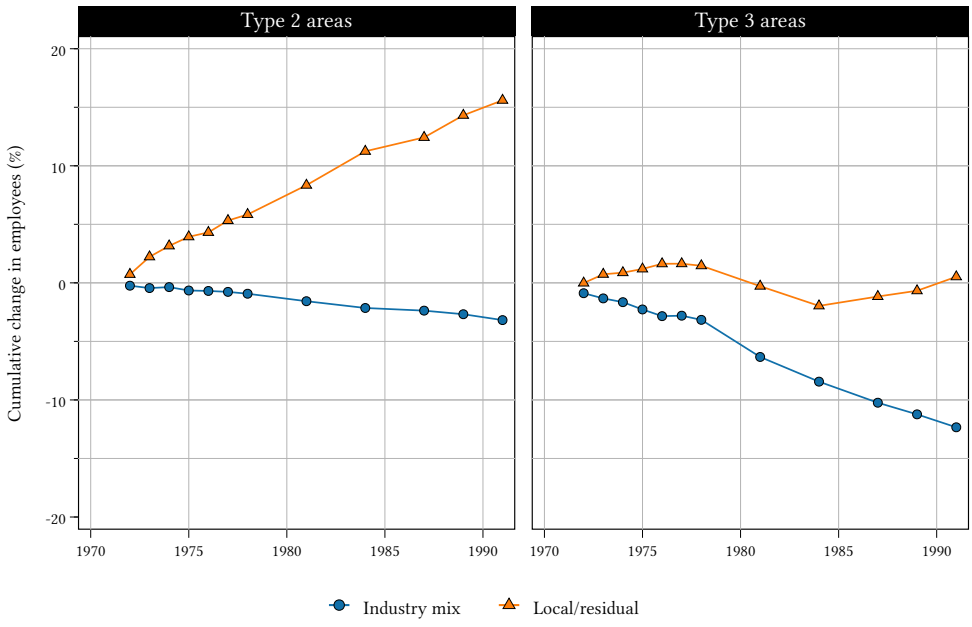
Data from the Census of Employment. National effects, which had a negligible cumulative impact by 1991, are excluded from the plot.

The results of the shift-share analysis for thriving areas are presented in Figure 2.6.3. The most important feature of the plot is the relative unimportance of structural factors in determining thriving areas' success. Indeed, standing at -5.9 per cent, the cumulative impact of the industry mix effect was actually negative. This means that growth in thriving areas was not a product of their possessing favourable sector structures. Rather, the

spectacular growth they saw was confined to the residual which, while not necessarily attributable to anything specific, indicates that thriving areas were attractive to employers despite their existing sectoral mix. The sheer scale of this attractiveness is further evidence of the fact that thriving areas were something of a special case.

But what of the more directly comparable surviving and declining areas? The results of the shift-share analysis for these areas are displayed in Figure 2.6.4. Two things are evident in the plots. First, as in thriving areas, the success of surviving areas cannot be attributed to structural factors. Between 1971 and 1991, the cumulative impact of the industry mix effect in surviving areas was negative to the tune of just over 3 per cent. The overall growth in the combined labour force of surviving areas was therefore attributable to the residual alone, the cumulative size of which stood at around 15 per cent. Declining areas, by contrast, saw almost no cumulative residual growth at all, and during the early-1980s recession the residual was negative. Instead, declining areas were prisoners of their economic structures; employment in declining areas fell as their industries fell.

Figure 2.6.4: Shift-share analyses of employment in surviving and declining areas, 1971-1991



Data from the Census of Employment. National effects, which had a negligible cumulative impact by 1991, are excluded from the plot.

An important conclusion to be drawn from these findings is that while the industry mix effect in declining areas was especially large (-12 per cent overall), no part of industrial England and Wales had a favourable employment structure. Indeed, the industry mix effect actually had a larger negative effect in thriving areas than in surviving areas. This negative industry mix effect persisted year on year, despite the fact that the industry mix was being continually altered by an influx of residual new jobs which, theoretically, could (and perhaps should) have improved the employment structures of thriving and surviving areas over time. There was, therefore, no structural reason as to why surviving areas survived and thriving areas thrived. Declining areas were, by contrast, the only part of industrial England and Wales to follow the destiny laid out for them by their structural inheritance.

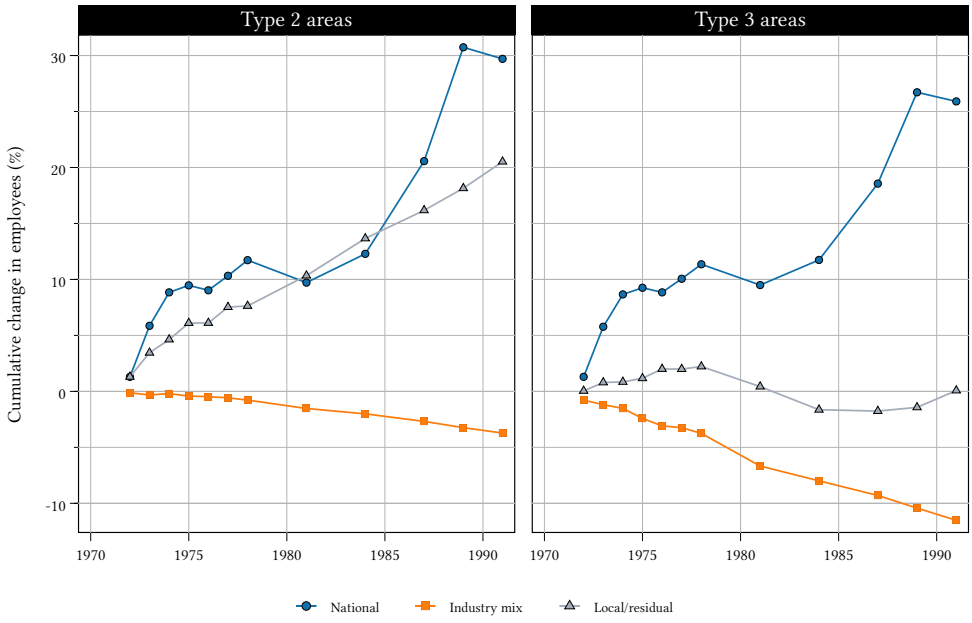
Interestingly, these results hold even if the shift-share analyses are confined to women's employment alone. As is argued throughout this thesis, the idea that deindustrialisation primarily affected men has a long pedigree. Studies of the early-1980s recession have long supported this position, and recent evidence for the English and Welsh coalfields suggest that the integration of male and female labour markets in post-industrial areas has taken decades.[74] Nevertheless, just under 30 per cent of the women in work in 1971 were employed in the industrial sector, and the number of female industrial workers in the economy numbered 2.2 million. Dropping to 1.3 million two decades later, female industrial employment fell at an annualised rate of 2.6 per cent per year – a figure only just short of the 2.8 per cent per year contraction seen amongst men.

A version of the shift-share analyses presented in Figure 2.6.4, this time calculated on the basis of women's employment alone, is displayed in Figure 2.6.5. National effects are included in the plots because of the general expansion in women's employment observed during the period. In both cases, national effects were actually the largest single component – increasing women's employment by 30 and 26 per cent in surviving and

[74] J. Miller, "Women's Unemployment Patterns in Postwar Business Cycles: Class Difference, the Gender Segregation of Work and Deindustrialization", *Review of Radical Political Economics* 22, no. 4 (1990): 87–110; C. Beatty, "Two become one: the integration of male and female labour markets in the English and Welsh coalfields", *Regional Studies* 50, no. 5 (2016): 823–834.

declining areas respectively.[75] However, despite the differences in relation to the national component of the shift-share analyses, the same picture for the two sets of places emerges. Surviving areas survived despite their economic structures, and declining areas declined – or, at least, grew more slowly – because of them.

Figure 2.6.5: Shift-share analyses of women's employment in surviving and declining areas



Data from the Census of Employment.

Therefore, despite the received wisdom regarding women's employment, and the large national effects driving its growth, it is clear that women's work in industrialised labour market areas possessed no structural advantages during the 1971-1991 period. Indeed, at -3.7 and -11.5 per cent for surviving and declining areas respectively, the cumulative impact of industry mix was almost perfectly in line with that seen as a whole for the two sets of places. Far from being exempt from the structural forces that were pushing men out of work during the elimination phase, women in industrialised labour market areas faced almost identical pressures.

[75] The differences between the two figures' national effects relate to differences in the economic structures of the two sets of places.

2.6.2 Robustness checks

Before examining these findings in closer detail, it is necessary to ensure that the results are robust to two potentially confounding factors. The first emanates from the harmonised industrial classification. As the shift-share uses the full 126-sector classification, it is possible that inaccuracies in the harmonised standard affect the shift-share calculations. The second relates to geographical units. As the map in Figure 2.5.2 shows, three major cities – Birmingham, Manchester, and Sheffield – were declining during the 1971-1991 period. Research from the early 1990s showed that the processes of urban-rural shift discussed at length in Chapter 1 continued throughout the 1980s, and it is possible that the inclusion of these places in the totals for declining areas distorts the results.[76]

In relation to the problems emanating from the classification system, the only way to assess the validity of the shift-share is to calculate the various effects under the two original SICs and then make comparisons. A lack of overlap between the two SICs (at least at small geographies) between 1981 and 1984 means that these calculations have to be performed piecemeal for the 1971-1981 and 1984-1991 periods respectively. While this is not ideal, there are enough observations to ensure that the harmonised classification does not distort the findings under either SIC.

The results of the calculations can be seen in Table 2.6.1. The figures in the first three columns were derived using the harmonised classification developed for this chapter and the final three use the 1968 and 1980 SICs for the 1971-1981 and 1984-1991 periods respectively. There are differences between the two approaches; the harmonised classification appears to overstate the industry mix effect for surviving areas between 1984 and 1991, and the residual for declining areas during the 1970s. Nevertheless, the differences neither result in a difference in sign nor are large enough to be of historical significance. While the years between 1981 and 1984 are not observable, there is scant evidence that unavoidable inaccuracies in the harmonised classification fundamentally

[76] A. Townsend, "The urban-rural cycle in the Thatcher growth years", *Transactions of the Institute of British Geographers* 18, no. 2 (1993): 207–221.

change the story of divergence between the constituent parts of industrial England and Wales.

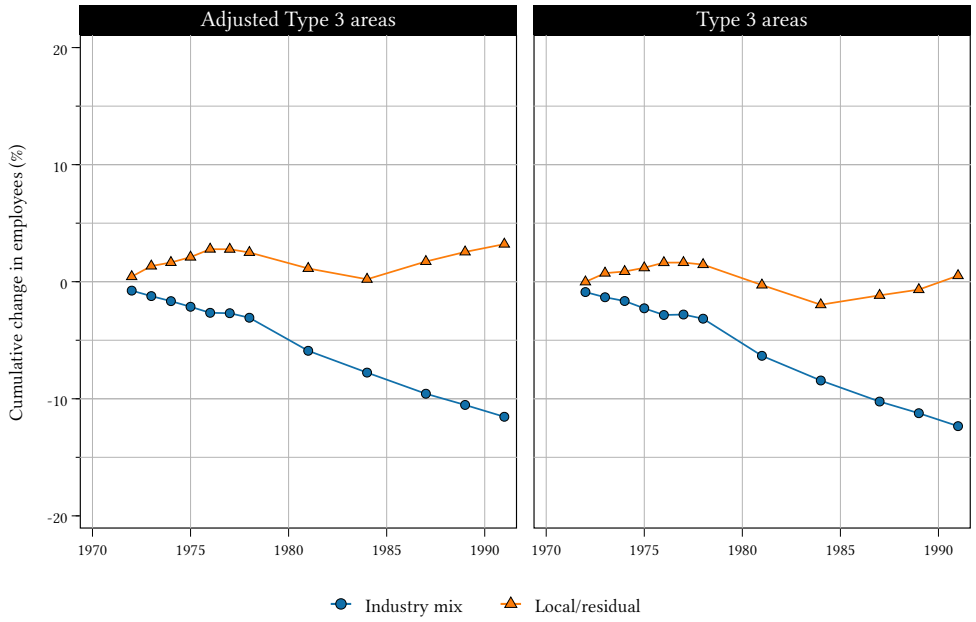
Table 2.6.1: Industry mix and local/residual effects calculated using different SICs (%)

	Main shift-share			Truncated shift-share		
Period	T1	T2	T3	T1	T2	T3
			Industry-mix			
1971-1981	-1.80	-1.56	-6.33	-1.95	-1.33	-6.55
1984-1991	-1.79	-0.98	-4.52	-0.84	-0.71	-4.60
			Local/residual			
1971-1981	31.40	8.34	-0.28	31.59	8.23	-0.04
1984-1991	17.68	4.13	2.88	16.50	3.86	2.96

Data from the Census of Employment. Calculations in the main shift-share panel are performed using the harmonised dataset while those in the truncated shift-share use the original SICs. For the 1971-1981 period this was the 1968 SIC, for 1984-1991 the 1980 SIC was used instead. For the 1971-1981 period, percentages are calculated relative to 1971; for the 1984-1991 period, the figures are instead calculated relative to 1984.

Assessing the impact of including the major cities in the totals for declining areas is a much more straightforward exercise. Here, the risk is centred on the potential impact of urban-rural shift on the residuals which, combined with the fact that the major cities accounted for more than a quarter of all jobs in declining areas in 1971, is potentially significant. The solution to the problem is to repeat the shift-share analysis for declining areas without the major cities and compare the outcomes to the original. The results of the exercise can be seen in Figure 2.6.6, where 'adjusted' declining areas are presented alongside the original shift-share analysis. The figure shows that while excluding the major cities slightly reduces the cumulative industry mix effect and raises the residual, the exercise does little either to the shape of the plots or the underlying result. Indeed, while the cumulative residual for adjusted declining areas was almost three percentage points higher than for declining areas in general, the industry mix effect was almost identical. Therefore, with or without the major cities, declining areas declined as a result of their employment structures and enjoyed little residual growth.

Figure 2.6.6: Shift-share analyses of declining areas with and without major cities



Data from the Census of Employment. National effects, which had a negligible cumulative impact by 1991, are excluded from the plot. 'Adjusted Type 3 areas' exclude the Birmingham, Manchester, and Sheffield TTWAs.

2.7 Explaining the differences

2.7.1 The role of policy in the collapse of declining areas

How, then, did surviving and thriving areas beat the odds and generate such large amounts of residual growth, and why were declining areas unable to do so? In the case of declining areas, the depth of the collapse probably owed something to changes in regional and industrial policy. After decades of attempts to assuage job losses in declining industries and maintain employment levels – as discussed in Chapter 1 – regional policy began to unravel in the 1970s as the national economy descended into crisis.[77] Thatcher, whose politics were long in development but strongly influenced by her time under Heath, and by the 1970s in general, had little interest in abating this trend; her

[77] Scott, "Regional development and policy", 355; Taylor and Wren nevertheless argue that policies adopted during the 1970s had a long-term impact on the economic structure of assisted regions. See C. Wren and J. Taylor, "Industrial structuring and regional policy", *Oxford Economic Papers* 51 (1999): 487–516.

simplistic, partly psychological reading of British economic history did not view regional interventions as necessary or helpful.[78] Combined with prior failures and an increasingly shaky intellectual diagnosis of the problem, these changes in governmental priorities had, by the early 1980s, left regional policy 'in crisis'.[79]

In practice, the winding down of regional policy during the Thatcher years began with the cutting of grants and scrapping of the punitive IDCs and ODPs.[80] In the period that followed, the system of Development Areas that by 1979 had covered 42 per cent of the country began to be rolled back, and by 1988 little of the regime of geographically-targeted assistance that dated back to the 1930s remained.[81] Instead, the focus of policy-makers turned to the inner cities which, as Chapter 1 shows, had long been neglected. The reasons for this were neither confined to the Thatcher ministries and nor were they merely economic. The consensus among planners and policymakers about the necessity of intervention and the tools available had begun to shift from the mid-to-late 1970s.[82] Interventions were also associated with longstanding fears about race and disorder brought to the fore by riots in Brixton and Toxteth in 1981.[83] Nevertheless, urban areas went on to receive the lion's share of targeted economic assistance, and major (and costly) redevelopment projects in Canary Wharf and Salford were undertaken. Yet the governments' urban policies were confused and often mired in their highly political conflict with local government – the most well-known manifestation of which were the abolition of the metropolitan governments under the Local Government Act 1985.[84] Even at the time, it was broadly agreed that urban policy fell short of what was needed.[85]

[78] R. Saunders, "'Crisis? What crisis?' Thatcherism and the seventies", in *Making Thatcher's Britain*, ed. B. Jackson and R. Saunders (Cambridge: Cambridge Univeristy Press, 2012), 40.

[79] R. Martin and J. Hodge, "The Reconstruction of British Regional Policy: 1. The Crisis of Conventional Practice", *Environment and Planning C: Government and Policy* 1, no. 2 (1983): 134.

[80] Balchin, *Regional policy in Britain: the North South divide*, 68.

[81] R. Martin et al., "Learning from Past Policies for "Levelling Up" and "Left Behind Places" in the UK", *Regional Studies Policy Impact Books* 3, no. 2 (2021): 93–94.

[82] O. Suamarez Smith, "The Inner City Crisis and the End of Urban Modernism in 1970s Britain", *Twentieth Century British History* 27, no. 4 (2016): 578–598.

[83] J. Rhodes and L. Brown, "The rise and fall of the 'inner city': race, space and urban policy in postwar England", *Journal of Ethnic and Migration Studies* 45, no. 17 (2019): 3243–3259.

[84] O. Suamarez Smith, "Action for Cities: the Thatcher government and inner-city policy", *Urban History* 47 (2020): 274–291; M. Parkinson, "The Thatcher Government's Urban Policy, 1979-1989: A Review", *Town Planning Review* 60, no. 4 (1989): 421–440.

[85] P. Lawless, "Urban Policy in the Thatcher Decade: English Inner-City Policy, 1979-90", *Environment and Planning C: Government and Policy* 9, no. 1 (1991): 15–30; B. Robson, "Urban policy at the crossroads",

Among the most important reasons for this failure were the ideological constraints under which the various Thatcher ministries operated. Suspicious of interventionism, flagship schemes such as the creation of 'Enterprise Zones' were fundamentally negative in character; defined more in terms of removing constraints than state-backed investment.[86] Unsurprisingly, the decision to roll back formal regional policy resulted from similar considerations. An overview of the government's analysis can be seen in the *Regional Industrial Development* white paper of December 1983.

> Imbalances between areas in employment opportunities should in principle be corrected by the natural adjustment of labour markets. In the first place, this should be through lower wages and unit costs than comparable work commands elsewhere. Wage flexibility, combined with a reputation for good work and a constructive attitude to productivity and industrial relations, would increase the attractiveness to industry of areas with high unemployment.[87]

Here was the Thatcherite dispensation in a nutshell. Rather than attempts to improve the competitiveness of struggling regions, their future prosperity was to depend on docile labour forces accepting their diminished place in the world economy. Those unwilling would be pushed either into the labour force by repressive measures or, indeed, encouraged to move – a suggestion from the 1944 White Paper on employment policy personally favoured by Thatcher.[88] 'Right to Buy' – the programme through which millions bought their council homes at bargain prices – was designed to further this aim; yet, ironically, the available evidence that people who acquired their homes under the scheme were less likely to move for work than other homeowners.[89] The governments' 'success' on the matter of wages was clearer. Contemporary analyses, as well as the data

Local Economy 9, no. 3 (1994): 216–223.

[86] S. Wetherell, "Freedom Planned: Enterprise Zones and Urban Non-Planning in Post-War Britain", *Twentieth Century British History* 27, no. 2 (2016): 266–289.

[87] Parliamentary Papers, *Regional Industrial Development*, (HC 1983-1984 1983 (London: House of Commons, 1983), 3.

[88] B. Rieger, "Making Britain Work Again: Unemployment and the Remaking of British Social Policy in the Eighties", *The English Historical Review* 133, no. 562 (2018): 634–666; J. Tomlinson, "Deindustrialisation and 'Thatcherism': moral economy and unintended consequences", *Contemporary British History* 35, no. 4 (2021): 626–627.

[89] M. van Ham et al., "Right to buy … time to move? investigating the moving behaviour of right to buy owners in the UK", *Journal of Housing and the Built Environment* 28 (2013): 129–146.

presented in Figure 2.5.3, suggest that wage rates in struggling areas were beginning to diverge by the 1990s, albeit largely on north-south lines.[90]

Allied to the new policy direction was a change in attitude towards the nationalised industries and trade unions that had hitherto played crucial roles in managing deindustrialisation processes. As argued in Chapter 1, by the 1970s nationalisation had become a tool used by the state to prevent the collapse of enterprises deemed too big to fail. While the policy did little to address the underlying problems, it did sustain industries and places (overwhelmingly declining areas) dependent on them longer than would have otherwise been the case. This is especially so considering that many nationalised industries were probably overmanned – a factor that increased their importance to local economies and reduced their competitiveness in equal measure.[91] Placing more emphasis on flexibility and exposing industries (both public and private) to competition, the Thatcher ministries ended these practices and, despite not entering government in 1979 with a promise to do so, embarked on a significant programme of privatisation.[92] Over the following decade, 60 per cent of state-owned industries were sold off, raising about £7 billion in the process (a figure equivalent to about 10 per cent of the total tax take).[93] A summary of the reasons for privatisation are not necessary here, but a desire to raise revenues and de-burden the state of large, troublesome workforces were among the most important.[94] In this aim the government was broadly successful. Hundreds of thousands of jobs in state-owned corporations were lost both in preparation for and in the aftermath of privatisation.[95]

Therefore, even if the Thatcher governments were themselves not responsible for

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[90] G. Gudgin, "Regional Problems and Policy in the UK", *Oxford Review of Economic Policy* 11, no. 2 (1995): 18–63.

[91] This statement is, of course, politically controversial. Nevertheless, figures on the left and right both were coming to the view that there were serious problems building by the mid-1970s. D. Parker, *The Official History of Privatisation: The Formative Years 1970-1987*, vol. I (London: Routledge, 2009), 12–18.

[92] M. Chick, "Industrial Policy in Britain since 1970: Changing Values, Assumptions and Mechanisms", *Jarbuch für Wirtschaftsgeschichte* 58, no. 1 (2017): 35–57.

[93] P. Addison, *No Turning Back: The Peacetime Revolutions of Post-War Britain* (Oxford: Oxford University Press, 2010), Chapter 9.

[94] D. Marsh, "Privatization under Mrs Thatcher: a review of the literature", *Public Administration* 69, no. 4 (1991): 423–547.

[95] Addison, *No Turning Back: The Peacetime Revolutions of Post-War Britain*, Chapter 9.

the onset of deindustrialisation or the geography of the industrial economy, it is easy to see how policy changes affected the progression of the process in declining areas. With the state largely disengaging from employment-maximising initiatives (both in terms of industrial and regional policy), declining areas were left to the mercy of their unfavourable industrial structures with little hope of assuagement. Yet neglect was not the only challenge rooted in policy decisions that declining areas faced. As argued in the introduction to this thesis, the Thatcher ministries promotion of the London-based financial sector, desire to expose the industrial sector to foreign competition, reliance on North Sea oil revenues, and deliberate worsening of the early-1980s recession in the name of reducing inflation also had a devastating impact on the C-THEM activities on which declining areas depended. Other governments would have faced similar pressures, but it is unarguable that the decisions made after 1979 had a strongly negative impact on certain parts of the country.[96]

2.7.2 Did surviving areas reinvent themselves?

Where policy developments have less explanatory power is in relation to the residual-led success of thriving and surviving areas. There, the defiance of structural inheritance instead suggests a story of success through reinvention – a narrative that offers both a positive history and a potential lesson for policymakers. Explanations for growth in employment and output based on reinvention or 'churn' are common in the economic geography literature, and have solid microeconomic foundations. The basic premise of the theory is that shocks caused by innovation cause places to gain or lose industries, underpinning their subsequent growth.[97] Churning, especially in the sorts of tradable activities discussed in Chapter 1, also contributes to the sort of diversity-induced dynamism famously described by Jacobs in the 1970s.[98] Evidence from British cities, both in the 1951-1991 period and the century prior, suggests that these forces played an im-

[96] Martin, "The Political Economy of Britain's North-South Divide".
[97] G. Duranton, "Urban Evolutions: The Fast, the Slow, and the Still", *American Economic Review* 97, no. 1 (2007): 197–221.
[98] J. Jacobs, *The Economy of Cities* (London: Cape, 1970).

portant role in determining urban expansion.[99]

Most of these accounts give a privileged position to knowledge, human capital, and skills. Glaeser's oft-cited paper on the relationship between education and urban growth certainly takes this view, but the argument is itself much older.[100] For example, Chinitz's 1961 article on supply-side agglomeration economics argued that part of the weakness of Pittsburgh relative to New York lay in the way concentrated, homogenous firm structures inhibited entrepreneurship.[101] Since then, research has pointed out the long-term impact of education and low levels of human capital in holding back former mining areas.[102] Similarly, a recent paper on deindustrialisation across urban areas in Britain, France, Germany, Italy, Japan, and the US ties long-run employment growth to education. Using an instrumental variable technique based on the driving distance to historical colleges or universities, the paper argues that places with educated workforces were more resilient in the aftermath of deindustrialisation partly thanks to faster growth in high-end tradable service activities.[103] Nevertheless, there is some dissent within economic geography as to the importance of skills in determining outcomes. Although broadly supportive of the link between highly-skilled occupations and growth, Sunley *et al.* find that the effect has strong regional dimensions, with evidence of resurgence in northern cities being limited.[104] Stansbury *et al.* similarly question the importance of education in fostering regional growth, arguing that a lack of skills has not been a 'binding constraint' on prosperity since the late 1990s.[105]

Some of the best evidence in favour of the reinvention interpretation can be seen in the data presented in Figure 2.6.2. By pairing steep declines in industrial employ-

[99] Y. Altunbaş, E. Jones and J. Thornton, "Knowledge spillovers and the growth of British cities", *Applied Economics Letters* 20, no. 2 (2013): 162–166; S. Heblich et al., "The Death and Life of Great British Cities", *Universitat Pompeu Fabra Economics Working Papers*, no. 1867 (2023): 1–58.

[100] E. Glaeser and A. Saiz, "The Rise of the Skilled City", *NBER Working Papers*, no. 10191 (2003): 1–46.

[101] B. Chinitz, "Contrasts in Agglomeration: New York and Pittsburgh", *American Economic Review* 51, no. 2 (1961): 279–289.

[102] E. Esposito and S. Abramson, "The European coal curse", *Journal of Economic Growth* 26 (2021): 77–112.

[103] L. Gagliardi, E. Moretti and M. Serafinelli, "The World's Rust Belts: The Heterogenous Effects of Deindustrialization on 1,993 Cities in Six Countries", *NBER Working Papers*, no. 31948 (2023): 1–63.

[104] P. Sunley et al., "In search of the skilled city: Skills and the occupatioal evolution of British cities", *Urban Studies* 57, no. 1 (2020): 109–133.

[105] A. Stansbury, D. Turner and E. Balls, "Tackling the UK's regional economic inequality: binding constraints and avenues for policy intervention", *Contemporary Social Science* 18, nos. 3-4 (2023): 318–356.

ment with rapid growth in other sectors, surviving areas replaced the jobs they lost by breaking into new activities. Further supporting evidence can be gleaned from shifts in surviving areas' average relative specialisation, which fell over the period. Relative specialisation is best measured using the 'Krugman Index', displayed in Equation 2.2 below, which generates scores K for places p at time t by examining the share of employment in a place accounted for by sector i at a given time (s_{pit}) against the structure of a reference group (in this case, the combined structure of all other TTWAs) in the same year (S^*_{it}).[106] Scores can take a minimum value of zero up to around 2, depending on whether a place is structurally identical to the reference group or completely different from it.[107] Between 1971 and 1991, the average relative specialisation of surviving areas fell from 0.80 to 0.61.

$$K_{pt} = \sum_{i=1}^{N} |s_{pit} - s^*_{it}| \tag{2.2}$$

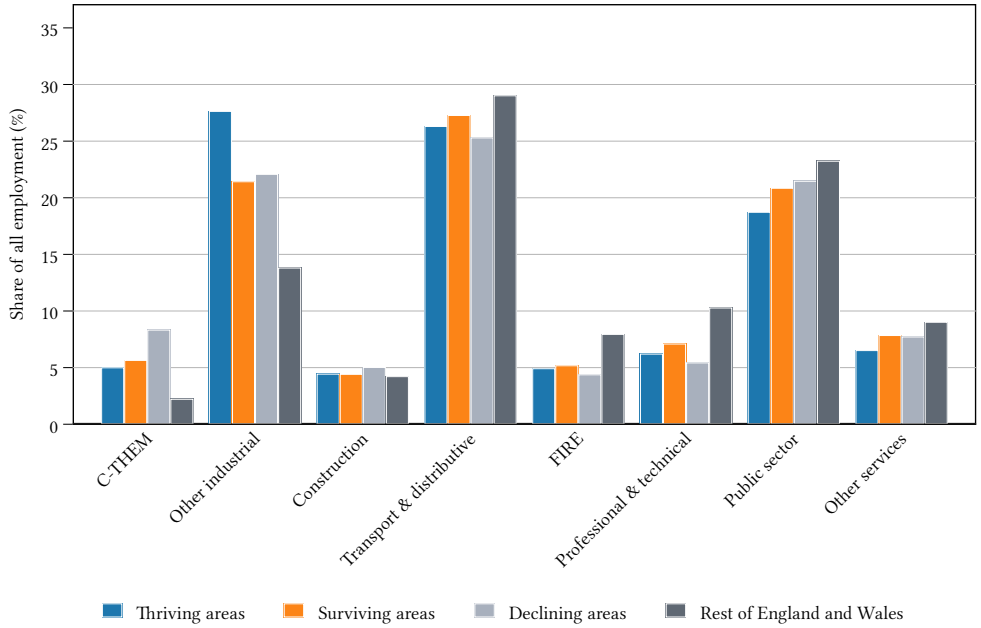
Together, the statistics suggest that surviving areas enjoyed a gradual transformation, replacing lost jobs in industry with new ones in services. As a result of this process, surviving areas' employment structures began to converge on that of the economy as a whole – a fact indicated by the reduction in relative specialisation. Yet it is important to avoid stretching the reinvention argument too far. As Figure 2.7.1 (which is a version of Figure 2.6.1 using 1991 data) shows, despite the considerable changes in the structure of employment over the 1970s and 1980s, surviving areas were still structurally more similar to other industrialised places than to the rest of England and Wales in 1991. The main reason for this was that surviving areas were not alone in converging on the structure of the wide national economy during the 1970s and 1980s.[108] Indeed, with their average Krugman Index score dropping from 0.85 to 0.64, declining areas roughly matched the convergence achieved by surviving areas during the period.

[106]For details regarding the index (and others), see N. Palan, "Measurement of Specialization: The Choice of Indices", *FIW Working Papers*, no. 62 (2010): 1–35.

[107]Technically, the upper limit is defined as $\frac{2(I-1)}{I}$, where I is the number of sectors. See Palan.

[108]This pattern of general convergence was also observed by Martin and his co-authors across cities. See R. Martin et al., "The city dimension of the productivity growth puzzle: the relative role of structural change and within-sector slowdown", *Journal of Economic Geography* 18, no. 3 (2018): 539–570.

Figure 2.7.1: Sector composition of the different types in 1991

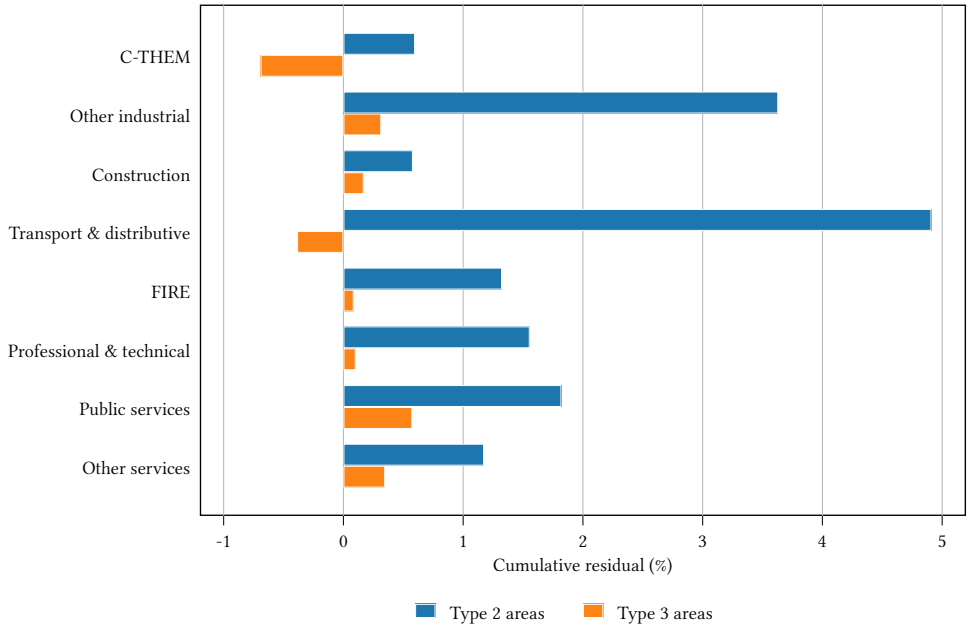


Data from the Census of Employment. The data in the chart are summed by deindustrialisation type.

More trouble for the reinvention theory can be found in the character of the residual growth on which the success of surviving areas depended. As Figure 2.7.2 shows, the C-THEM group and other industrial activities together accounted for 27.1 per cent of the net residual jobs possessed by surviving areas up to 1991. This means that either a large chunk of the churn experienced in surviving areas involved new industrial enterprises, or that the existing industrial sector of surviving areas was unusually resilient. Both options suggest that a great deal of the success of surviving areas depended, at least in the medium term, on optimising an existing industrialised model rather than developing something entirely new. The negative residual in the C-THEM group shows that declining areas, by contrast, moved in the opposite direction, with what were already declining industries performing even worse than expected.

If convergence was normal and a sizeable proportion of surviving areas' collective residual was accounted for by industrial activities, where does that leave the story of reinvention rooted in skills so dominant in the economic geography literature? In order to answer this question, it is necessary to return to the concept of tradables raised

Figure 2.7.2: Breakdown of residual effects for surviving (T2) and declining (T3) areas by sector group



Data from the Census of Employment. Shift-share residuals for each industry are summed into the eight-category standard created for this chapter.

in Chapter 1 to help explain the prosperity of small towns during the spatial and sectoral reorganisation of the industrial economy up to 1971. Tradables matter to local economies because their outputs are exported, thus earning income that can be spent in local businesses. As with all trickle-down theories, the degree to which this actually occurs is conditional on a host of variables, but countless research in the regional and urban economics literatures has shown that the relationship broadly holds true.[109] In a post-industrial economy, the most important tradables lie within high-end service activities such as the FIRE and professional and technical services groups. Employment within these sectors tends to be reasonably well paid, and although their growth has been linked to job polarisation, the available evidence suggests that a rise in the number of high-skilled knowledge jobs in a place is associated with a reduction in the number of people trapped in low-income occupations.[110] By contrast, places that fail to maintain

[109]M. Storper, *The Keys to the City: How Economics, Institutions, Social Interactions and Policies Shape Development* (Princeton: Princeton University Press, 2013), 33; R. Rowthorn, "Combined and Uneven Development: Reflections on the North–South Divide", *Spatial Economic Analysis* 5, no. 4 (2010): 363–388; R. Martin et al., "Divergent cities in post-industrial Britain", *Cambridge Journal of Regions, Economy and Society* 9 (2016): 279.

[110]A. von Borries, M. Grillitsch and K Lundquist, "Structural transformation, the knowledge economy, and

their tradable bases after deindustrialisation can get trapped in a low-income equilibrium with few opportunities for growth.[111]

From the perspective of tradables, the reinvention interpretation of surviving areas' growth appears to be on surer footing. Despite the fact that the combined weight of the main tradable activities (C-THEM, other industrial, FIRE, and professional and technical services activities) fell in both surviving and declining areas between 1971 and 1991, the drop was around 4 percentage points steeper in declining areas.[112] This, in combination with the fact that the tradable base of declining areas remained more conspicuously industrial, suggests that surviving areas did a better job in diversifying their trade through the introduction of high-end service activities and enjoyed more employment growth as a result.[113] Indeed, compared to declining areas, Type 2 deindustrialisation processes were associated with faster growth in the FIRE and professional and technical services activities (as Figure 2.6.2 shows), and even today the share of all jobs in FIRE activities in former surviving areas is 20 per cent higher than in former declining ones.[114] Around one fifth of the residual in surviving areas was accounted for by these sectors – a figure equivalent to approximately 130,000 jobs.

However, even if FIRE and professional and technical services were important, the extent to which they were the driving force behind the reinvention of surviving areas remains unclear. This is for two related reasons. First, despite the success of high-end services, the single biggest contribution to surviving areas' residual growth (31.1 per cent of the total) was actually made by transport and distributive services. Declining areas, by contrast, saw no residual growth in these sectors, in turn suggesting that the origin of the divergence between the two sets of places lay there, rather than in high-end services.

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the geography of low-income work", *Journal of Economic Geography* 24, no. 2 (2024): 285–308.

[111] A. Venables, "Why some places are left behind: urban adjustment to trade and policy shocks", *Oxford Review of Economic Policy* 36, no. 3 (2020): 604–620.

[112] Employment in these tradables accounted for 52 per cent of the labour force of surviving areas in 1971 and 39 per cent in 1991; the equivalent figures for declining areas were 57 and 40 per cent.

[113] Employment in these tradables accounted for 52 per cent of the labour force of surviving areas in 1971 and 39 per cent in 1991; the equivalent figures for declining areas were 57 and 40 per cent. In 1971, 92 per cent of declining areas' jobs in tradable sectors were industrial – a figure not much higher than the 89 per cent accounted for by the industrial sector in surviving areas. However, by 1991, 76 per cent of declining areas' tradable jobs were still in industry compared to just 69 per cent in declining areas.

[114] These figures come from 2021 Census data aggregated to historic boundaries.

Second, because some elements – particularly on the 'transport' side – are tradable, it is conceivable that (at least in the medium term) Type 2 deindustrialisation processes were defined by the replacement of one form of low-skilled, labour-intensive, tradable activity with another rather than a beneficial process of moving up the value chain towards more innovative activities.[115] The fact that surviving areas were often located in the London exurbs or along the 'logistics golden triangle' lying between the M1, M6, and M42 motorways supports this view. Surviving areas may have been saved simply by their ability to service the south's ongoing consumption boom, with the resulting demand for working-class labour then explaining their better performance across the various socioeconomic outcomes discussed in this chapter.

The importance of transport and distributive services therefore means that the reinvention of surviving areas can be interpreted in two ways. On one hand, rapid growth in these sectors may be attributable to the trickle-down impact of growth in high-end service activities on local consumption, meaning that the skills-based reinvention interpretation holds true. On the other, transport and distributive services may have themselves been the new tradable activity on which Type 2 deindustrialisation processes depended, questioning the notion that growth flows from positive reinvention alone. In reality, the 'correct' interpretation probably lies somewhere in between, with the experiences of some surviving areas being closer to one or the other. In any case, both formulations essentially explain the same outcome. The bulk of the residual jobs in non-industrial sectors that allowed surviving areas to defy their structural inheritances were in what the EU KLEMS data suggest were among the lowest paid and least productive industries in the economy. The scope for former industrial communities to reap the rewards of the emerging 'knowledge economy' was limited. For most individuals, surviving the deindustrialisation of their labour market appears to have involved swapping factory floors for warehouses rather than laboratories or boardrooms.

[115]The ability of places to move up these value chains is discussed in E. Moretti, *The New Geography of Jobs* (Boston, MA: Houghton Mifflin Harcourt, 2012), 75–82

2.8 Deindustrialisation, tradables, and the public sector

Whatever the shortcomings of reinvention in surviving areas, the statistics on socioeconomic outcomes presented in Section 2.5.1 suggest that, alone, maintaining employment levels provided an essential foundation for future growth. Indeed, the fact that surviving areas today have low rates of deprivation and possess leads in key areas such as FIRE industries suggest that their local economies have since managed to move up the value chain of production and towards self-sustaining prosperity. Declining areas, by contrast, seem to have become locked in a form of hysteresis where the shock of deindustrialisation created a new low-activity equilibrium.[116] An important effect of this has been that it has taken former declining areas a generation to achieve what surviving areas managed in the 1970s and 1980s. Over the last ten years, places that experienced Type 3 deindustrialisation have restored their employment levels with jobs transport and distributive services, with coalfields in particular becoming centres for warehousing and other back-office functions thanks to their relatively cheap land and low wages.[117]

Whether or not this has come too late, and declining areas have 'missed the boat' on growth, is unknown, but recent research on 'regional development traps' – an inability for a place to retrieve past dynamism after a shock – suggests that this may be the case.[118] There are political consequences for this. Because of the feeling of loss associated with a retreat from economic dynamism, places in regional development traps are more likely to see swings towards populist politics.[119] This is something that has certainly been borne out in the British context, with declining areas supporting Brexit in 2016, the Conservatives in 2019, and Reform Party candidates in 2024.

A lack of self-sustaining growth has also meant that declining areas have become

[116]For a discussion of hysteresis and regional resilience, see R. Martin, "Regional economic resilience, hysteresis and recessionary shocks", *Journal of Economic Geography* 12 (2012): 1–32.

[117]C. Beatty, S. Fothergill and T. Gore, *The State of the Coalfields 2019: Economic and social conditions in the former coalfields of England, Scotland and Wales* (Sheffield: Coalfields Regeneration Trust, 2019), 22; Evans and Swinney, "Just what should levelling up mean in the coalfields?"

[118]A. Diemer et al., "The Regional Development Trap in Europe", *Economic Geography* 98, no. 5 (2022): 487–509.

[119]A. Rodríguez-Pose, L. Dijkstra and H. Poelman, "The Geography of EU Discontent and the Regional Development Trap", *Economic Geography* 100, no. 3 (2024): 213–245.

highly dependent on the state both as a source of welfare and employment. The sorts of social problems related to deindustrialisation discussed in the introduction to this thesis, such as antisocial behaviour, substance abuse, ageing, and related 'deaths of despair' are difficult to manage. In response, states across the post-industrial world have had devote considerable resources to benefit payments, as well as employ large numbers of individuals to actually provide public services on the ground. In both Britain and other societies, this has turned the health and care professions into major employers in struggling regions.[120] It is also worth noting here that even when it does not provide jobs directly, the state has an important role in determining incomes thanks to policies such as tax credits and the minimum wage, both of which have greater significance, or 'bite', in struggling regions as so much work there is low paid.[121]

The extent to which this has had an impact on the economies of post-industrial places has been a matter of discussion in the literature, with figures such as Tomlinson arguing that the growth in public sector employment has been an important source of regional redistribution.[122] Though Tomlinson argues that this has occurred gradually as a result of the state taking on more social responsibilities rather than a specific desire to boost employment, arguments in favour of doing just that have been made both inside and outside the academy.[123] The logic behind this is that government expenditure, especially when it creates jobs, has a multiplicative effect on local economies.[124] Because most public spending is funded from central government tax revenues, with prosperous places being net contributors and weaker local economies being net beneficiaries, public sector jobs can be seen as a 'pseudo-tradable' activity with trickle-down or multiplier effects operating in a similar way to other tradables. Although the argument has been made that the rise in public sector employment may crowd out other activities, research examining the

[120]G. Winant, *The Next Shift: The Fall of Industry and Rise of Health Care in Rust Belt America* (Cambridge, MA: Harvard University Press, 2021).

[121]M. Stewart, "Estimating the Impact of the Minimum Wage Using Geographical Wage Variation", *Oxford Bulletin of Economics and Statistics* 64 (2002): 565–725.

[122]J. Tomlinson, "From 'distribution of industry' to 'local Keynesianism': The growth of public sector employment in Britain", *British Politics* 7 (2012): 210.

[123]See, for example, J. Marshall et al., "Relocation, relocation, relocation: Assessing the case for public sector dispersal", *Regional Studies* 39, no. 6 (2005): 767–787.

[124]K. Coutts, A. Glyn and R. Rowthorn, "Structural change under New Labour", *Cambridge Journal of Economics* 31, no. 6 (2007): 845–861.

2003-2007 period shows little evidence that this is the case.[125]

While these developments have been most prominent since the turn of the 21st century, it is clear from the data that they were under way even during the 1970s and 1980s. Although the public sector grew less in absolute terms in declining areas than in declining areas, the public sector's *share* of all jobs growth (both raw and residual) was much higher. Whereas the public sector's share of all employment in surviving areas rose by about 14 per cent between 1971 and 1991, its share of all jobs in declining areas rose by a whopping 38 per cent.[126] As Figure 2.7.2 shows, an unsurprising side-effect of this shift was that the public sector was the leading source of positive residual growth enjoyed by declining areas during the 1970s and 1980s.

2.9 Conclusion

At its core, the analysis in this chapter is designed to answer one important question. If the reorganisation of the industrial economy up to 1971 brought manufacturing to places beyond the northern heartlands, why were the consequences of the elimination phase of deindustrialisation, which affected every part of the industrial sector, felt so differently across labour market areas? The answer that emerges is a relatively straightforward one. Different places experienced different types of deindustrialisation; the negative outcomes traditionally ascribed to deindustrialisation – such as deprivation, unemployment, and poor health outcomes – are actually a result of a particular manifestation of the process, rather than structural change in general.

Coming to this conclusion has involved considerable work harmonising data from different sources as well as conceptual breakthroughs. Through the development of a new typology, this chapter offers scholars a way to reconcile the experiences of different parts of the country within a single framework. Moreover, if the results in Table 2.5.4

[125]G. Faggio and H. Overman, "The effect of public sector employment on local labour markets", *Journal of Urban Economices* 79 (2014): 91–107.

[126]Indeed, declining areas actually started with relatively less employment in public serices only to end up with proportionally more. The public sector's share of employment rose from 18.3 to 20.9 per cent in surviving areas and from 15.6 to 21.5 per cent in declining areas over the period.

are be to believed, the divergence in the fortunes of industrial places during the 1970s and 1980s was as much about their position within this framework as it was about the extent of deindustrialisation itself.

The key divide between relatively successful thriving and surviving areas and weaker declining areas appears to lie in labour market resilience in the face of deindustrialisation. Withstanding the loss of industrial jobs in the 1970s and 1980s appears to have given surviving areas the breathing space they needed to create self-sustaining growth over the long run. By contrast, declining areas have become locked in a kind of development trap where low pay abounds and most of the secure jobs are in the public sector. As the shift-share analyses show, the reason for these differences in resilience appears to be derived from structural factors. Whereas declining areas were prisoners of the composition of their labour markets, surviving (and, indeed, thriving) areas defied them. However, the degree to which this was a positive story of reinvention remains unclear. Growth in valuable tradable service activities has taken decades; most of the additional employment generated in surviving areas in the 1970s and 1980s was instead in industry and transport and distributive services.

Chapter 3

Industrial careers in a century of structural change

3.1 Introduction

> In the *Gazette* every night there were adverts for security guards: £1.60 an hour rising to £1.80 after three months. When I used to pop into the Job Shop, I used to cringe at the jobs advertised. I thought 'Christ, you can't expect anyone to work for that; you'd be better off turning to crime'.[1]

The notion that industrial workers displaced by structural change were forced to grapple with poorly-paid, insecure work in the service sector and suffer the accompanying social and psychological consequences is a familiar one within the deindustrialisation literature. The extent of the ignominy is frequently demonstrated through the use of personal accounts, such as that of a former miner recounted above, that emphasise the loss of a stable, 'honest' way of living in favour of degradation and despair. Such accounts help to explain the sense of grievance possessed by members of formerly industrial communities which, in turn, has been studied both on its own terms and in the name of explaining the shifts in social and political attitudes observed in Western

[1] Original testimony recorded in N. Jones N. Jones, "Coal Was Our Life" (PhD diss., University of Wales, Bangor, 1996), 233; quoted in H. Beynon and R. Hudson, *The Shadow of the Mine: Coal and the End of Industrial Britain* (London: Verso, 2021), 172.

democracies.[2]

Plenty of quantitative evidence supports the image of struggle put forward by individual accounts and cultural histories. During the early 1980s recession and subsequent 'jobless' recovery that followed, people working in the industrial sector were more likely to become unemployed than other groups.[3] Stories of individual closures and local economies also paint grim pictures. For example, nearly 40 per cent of the people put out of work by the 1993 closure of the Swan Hunter shipyard in Tyneside were still unemployed two years after the yard's closure.[4] In Liverpool, a city hit doubly by the closure of the docks and massive reductions in industrial employment, unemployment was twice the national average in 1985, and the proportion of the city's unemployed out of work for more than year was a staggering 53 per cent.[5] However, unemployment was just one problem facing former industrial workers. Indeed, joblessness was frequently temporary. In contrast to the Swan Hunter example, a study of the closure of the Longbridge car plant in Birmingham showed that around 90 per cent of the former workers were back in (overwhelmingly full-time) work three years after their employer's demise;[6] and evidence on workers from the early-to-mid 1990s suggests that unemployed spells lasted just 3 months on average.[7] A far greater problem was finding work of equivalent esteem and remuneration following redundancy. The average Longbridge employee was taking home annual wages £5,640 lower than their job at the plant three years after its closure, and the average wage penalty observed by Borland *et al.* in their aforementioned study of the early-to-mid 1990s data was 10 percentage points.[8] Evidence pertaining to mine-

[2] One good example, of many, would be M. Carreras, Y. Irepoglu Carreras and S. Bowler, "Long-Term Economic Distress, Cultural Backlash, and Support for Brexit", *Comparative Political Studies* 52, no. 9 (2019): 1396–1424.

[3] Paker, "A Problem of Industries and Regions: Unemployment and Structural Change in Britain During the Interwar Years and 1980s", Chapter 4.

[4] J. Tomaney, A. Pike and J. Cornford, "Plant Closure and the Local Economy: The Case of Swan Hunter on Tyneside", *Regional Studies* 33, no. 5 (1999): 407.

[5] M. Parkinson, *Liverpool on the Brink: One city's struggle against Government cuts* (Berkshire: Policy Journals, 1985), 13.

[6] D. Bailey, C. Chapain and A. de Ruyter, "Employment Outcomes and Plant Closure in a Post-Industrial City: An Analysis of the Labour Market Status of MG Rover Workers Three Years On", *Urban Studies* 49, no. 7 (2012): 1601.

[7] J. Borland et al., "They Get Knocked Down. Do They Get Up Again? Displaced Workers in Britain and Australia", in *Losing Work, Moving on: International Perspectives on Worker Displacement*, ed. P. Kuhn (Michigan: Kalamazoo, 2002), 336.

[8] Borland et al., 336.

workers in the 1980s shows similar patterns. Following the closure of their collieries, former miners who found new jobs saw immediate wage decreases of 40 per cent and long-term reductions of between 20 and 30 per cent.[9]

Factors such as sex, age, job tenure, occupational status, and education (both individually and in interaction with each other) – along with the absorptive capacity of the local labour market – have all been shown to influence these outcomes.[10] The greatest hardships appear to be borne by workers pushed into lower-skilled occupations, and both the cost and the likelihood of this occurring is higher during recessions than at other points in the business cycle.[11] Poletaev and Robinson, who used data on displaced workers from the period 1984-2000 to build measures of the distance between the skills required for different jobs, show that reductions in wages have been closely associated with workers moving between roles with differing skills portfolios.[12] According to their data, the average real wage loss experienced by a displaced worker was 9 per cent, while those who moved to jobs with radically different skills portfolios saw losses of 15 per cent.[13]

The findings of Chapters 1 and 2 offer some insights into these problems in the case of England and Wales. During the reorganisation of the industrial economy before 1971, dynamic local economies replaced outdated sources of industrial employment with new ones. The local character of the elimination phase that followed was defined by one of two evils; local economies either 'survived' as a result of painful switching away from the industrial sector, or they remained prisoners of their sector structures and 'declined' as a result. Only in 'thriving' areas were levels of industrial employment maintained. However, the insights of these analyses apply only in an aggregate sense. The sources used for spatial analyses can say little about what a model industrial career looked like.

[9] J. Rud et al., "Job Displacement Costs of Phasing Out Coal", *IDEAS Working Paper Series from RePEc*, no. 15581 (2022).

[10] R. Eriksson, M. Henning and A. Otto, "Industrial and geographical mobility of workers during industry decline: The Swedish and German shipbuilding industries 1970–2000", *Geoforum* 75 (2016): 88.

[11] C. Huckfeldt, "Understanding the Scarring Effect of Recessions", *American Economic Review* 112, no. 4 (2022): 1273–1310.

[12] M. Poletaev and C. Robinson, "Human Capital Specificity: Evidence from the Dictionary of Occupational Titles and Displaced Worker Surveys, 1984-2000", *Journal of Labor Economics* 26, no. 3 (2008): 387–420.

[13] Poletaev and Robinson, 416.

Questions about how changes in the economy altered the chances people built careers in certain sectors, determined the jobs they did when factories closed, and ultimately shaped their socioeconomic status, are thus unanswerable using aggregate data.

Addressing these challenges is the central goal of this final chapter. It does so using microdata – information on individuals rather than places – drawn from the British Household Panel Survey (BHPS) and allied studies.[14] In doing so it breaks from prior discussions of deindustrialisation that either fail to consider the individual angle or focus solely on the closure of a specific plant. In line with the rest of the thesis, it also deviates from the literature by putting less emphasis on unemployment, which (as noted) was often transitory, and giving greater prominence to the sectors of employment chosen by different groups under different circumstances. It does so in the hope of clarifying the degree to which the changes observed in Chapters 1 and 2 were driven by people actually moving between sectors (rather than by a combination of rising inactivity and new entrants to the workforce) and, by extension, answering the question 'what did industrial workers do when they stopped being industrial workers?'

The chapter begins with a discussion of the source and its merits relative to its competitors. Attention is then given to the identification of industrial workers and their characteristics relative to other types of workers present in the sample. Of particular interest are three facets of the industrial workforce commonly discussed by scholars and commentators – namely its gender balance, skills profile, and parentage. These factors are considered both individually and under a simple logistic regression framework that assesses their influence over who became an industrial worker during the twentieth century. The chapter then turns to a discussion of career stability. Here, the analysis is enabled by a new approach to quantifying work histories I developed for this chapter – the isolation of 'career-relevant spells' (CRS) – which is presented at the beginning of the section. It is shown that most people's careers were shaped by a handful of important roles, and that transitions between major jobs often entailed a change in sector and so-

[14] University of Essex, Institute for Social and Economic Research, *Understanding Society: Waves 1-11, 2009-2020 and Harmonised BHPS: Waves 1-18, 1991-2009*, 15th ed. (UK Data Service: SN6614, DOI: 10.5255/UKDA-SN-6614-16, 2022).

cioeconomic status. Steady jobs for life were by no means certain. The final part of the chapter returns to the notion of industrial workers as a discrete group within the workforce. It shows that whatever their ability to prosper in their jobs, industrial workers were much less likely to see upward social mobility than other groups.

3.2 Data sources

Among the sources of twentieth-century microdata used for longitudinal research by sociologists and economists, four studies – namely the National Child Development Study 1958 (NCDS), the British Cohort Study 1970 (BCS), the BHPS, and the census-based ONS Longitudinal Study – are prominent. The studies contain a wide variety of information on thousands of individuals and their households, each of whom have been enumerated multiple times over a period of decades. The studies were compiled using different methods. The NCDS and BCS are birth cohort studies structured around individuals born in a specific week. The ONS Longitudinal Study draws its sample from the census, and the BHPS is a more straightforward longitudinal study that took a sample of households and followed them annually thereafter. Information in the ONS Longitudinal Study is collected too infrequently for a study such as this, and while they have a longitudinal aspect, the two birth cohort studies are limited by the fact that all the respondents are the same age. By contrast, the BHPS included people of a variety of ages from the beginning, giving it greater coverage of people affected by both the reorganisation of the industrial economy before 1971 and the elimination phase that followed.

Data collection for the BHPS began in 1991 and ended in 2009. The original sample included 10,300 people across 5,500 households who were contacted again at each annual 'wave'. The survey was administered thoroughly by interviewers who recorded information in detailed questionnaires.[15] The robustness of the BHPS has made it popular with researchers in the fields of sociology, economics, politics, and even health and

[15] J. Brice, N. Buck and E. Prentice-Lane, *British Household Panel Survey User Manual Volume A: Introduction, Technical Report and Appendices*, ed. M. Taylor (Colchester: University of Essex, 2018), A-4. Questionnaires for each wave can be found online via https://bit.ly/3UlPk1E.

medicine.[16] It is, however, much less commonly used by historians, who have tended to favour the cohort studies or the cross-sectional General Household Survey (GHS), which began in 1971 and thus nominally has twenty years' more data than the BHPS. Yet it is possible to use the BHPS for deeper historical research, albeit carefully, thanks to the collection of information about respondents' entire previous careers at the second and third waves. These 'work history' data stretch the coverage of the survey far beyond that of the other studies.

There are, of course, still disadvantages with the BHPS compared to other sources. The sample size is smaller than the other datasets, and a reliance on respondents' recollections of their former jobs almost certainly introduces inaccuracies. Paull's analysis of BHPS work history data suggests that there is likely to be underreporting of unemployment (especially among women) in the work history data, and that there are inconsistencies in the precise timing and number of spells of work reported by respondents.[17] The comprehensive system of weights developed by the creators of the BHPS are also difficult to deploy with the work history data, as the attrition controlled for by longitudinal weights in the main survey is unobservable before the survey began and the cross-sectional weights can be used only on the assumption that the representativeness of the sample achieved in 1991 was the case in the decades prior. For these reasons, the quantitative analysis in this chapter is on the basis of the unweighted data, although cross-sectional weights were used in the regressions as a robustness check.[18]

The final problem with the data is organisational. Combined with the main BHPS waves, the work history data create a confused mess of files broken down not into convenient annual waves but rather a succession of spells of variable length. Fortunately, the process of combining these files into a coherent whole has been assisted greatly by the work of Halpin and Maré, who between them have created scripts designed to unify

[16] A full list of publications using BHPS data can be found online via https://bit.ly/3NaTy7V.

[17] G. Paull, "Biases in the Reporting of Labour Market Dynamics", *IFS Working Papers* W02, no. 10 (2002): 32–33.

[18] This approach matches that used by Malo and Muñoz-Bullón, who used cross-sectional weights in their analysis of work history data. See M. Malo and F. Muñoz-Bullón, "Employment status mobility from a life-cycle perspective: A sequence analysis of work-histories in the BHPS", *Demographic Research* 9, no. 7 (2003): 152.

the various files.[19] Maré's data and scripts, which are directly available via the UK Data Service, can be used to create consistent work-life histories for each person in the survey from the age of 16 through to their last appearance in the BHPS, handling overlaps and gaps between spells in a consistent manner depending on the instructions given.[20] As Maré himself notes, the process of dealing with internal consistencies 'will inevitably do some violence to reality', but the outcome – an internally consistent chain of spells including jobs, promotions, sickness, unemployment – is a significant reward.[21]

Table 3.2.1: Observed individuals by birth decade and sex

Birth decade	Female	Male	Total
1910	312	186	498
1920	511	413	924
1930	491	439	930
1940	753	631	1,384
1950	782	679	1,461
1960	811	637	1,448
1970	352	339	691
Total	4,012	3,324	7,336

Figures derived from BHPS work-life histories.

The approach to the BHPS data taken in this chapter is a relatively cautious one, with artificial breaks between jobs only being eliminated if two consecutive spells in the data clearly pertain to a single job. For individuals to be counted, they had to have been born between 1910 and 1979, and they had to have had at least ten years' worth of observations available in the dataset. This latter criterion ensures there is enough information about each individual to conduct meaningful analysis. On average, 38.2 years of a person's life was recorded in the BHPS, of which 25.8 were working years.[22]

[19] The procedures for Halpin and Maré are described in B. Halpin, "Unified BHPS work-life histories: combining multiple sources into a user-friendly format", *BMS: Bulletin of Sociological Methodology / Bulletin de Méthodologie Sociologique* 60 (1998): 34–79 and D. Maré, "Constructing consistent work-life histories: A guide for users of the British Household Panel Survey", *ISER Working Paper Series*, no. 2006-39 (2006): 1–83 respectively.

[20] D. Maré, *British Household Panel Survey: Programs for Generating Consistent Work-Life Histories: Waves 1-18, 1991-2009* (UK Data Service: SN7821, DOI: 10.5255/UKDA-SN-7821-1, 2015).

[21] Maré, "Constructing consistent work-life histories: A guide for users of the British Household Panel Survey", 4.

[22] Part-time spells were accounted for by assuming that 1 month of part-time work was equal to 0.5 months

As Table 3.2.1 shows, these cleaning processes leave 7,336 individuals in total. The modal decade of birth was the 1950s, although around one third of the sample was born before 1940. Women account for around 55 per cent of the sample; this imbalance holds across all cohorts other than 1910, where women account for nearing three-quarters of the observed individuals, and 1970, where the gender balance is almost 50:50. Fortunately, these imbalances are not inordinately large and can most likely be explained by the fact that women tend to live longer, and are thus more likely to have been around in the 1990s to be enumerated in the first place.

3.3 Career choices

Who, then, were Britain's industrial workers, and how accurate are the received wisdoms about their sex, qualifications, and familial backgrounds? In the first instance, answering these questions requires a working definition of what an 'industrial worker' was. To a degree, such a definitional question can only be settled in an arbitrary way, with some kind of threshold delineating a boundary between 'true' industrial workers and the rest. But where should this division lie? On this matter there is no settled opinion. Riddled with stereotypes, popular conceptions of industrial workers frequently drift into territory akin to that presented in the 1981 single 'Capstick Comes Home'. A satire of well-known, highly nostalgic, adverts for Hovis bread, the song features Mexborough-born comedian Tony Capstick – accompanied by the Carlton Main Frickley Colliery Band – describing the life of a young boy's first shift 'at pit'.[23] Beginning with a 72 hour shift and 43-mile walk home 'through snow in us bare feet', the track blends northern witticisms with all the supposed trappings of industrial life: pride, deprivation, and domestic abuse.

Scholars, and sociologists in particular, also tend to shun definitions of industrial workers based on occupation alone. Instead, broad (and often convoluted) definitions that consider the place of workers within the industrial system tend to be preferred. A

of full-time employment.

[23] The track, which can be found on YouTube, actually reached number three in the UK chart. "Tony Capstick", *The Guardian*, 27 October 2003, 21.

good example of this can be seen in the comments of the sociologist Paul Meadows, whose 1940s characterisation centred on the concept of the (male) 'productively disenfranchised' worker.

> the industrial worker is an adjunct of the machine, typically the machine in series and in mass, and this relationship determines the order and extent of his appearance…as such, then, the industrial worker is a relatively recent figure. He made his debut with classic industrialism, that is, with the coming of the factory system, the industrial city, the corporate enterprise.
>
> Propertylessness is the family name of the modern worker. He may own a home, a car, a workshop, a set of golf clubs; but these things yield him no "income," no "flow of beneficial events," as economists would say. Income, his claim on goods which he as an individual probably had not the slightest responsibility for making, must come from "the job".[24]

Holistic definitions such as these are good at capturing the essence of what it meant to be an industrial worker. However, the long list of criteria means that they tend to exclude people who fall short of the definition in some way or another, and they are extremely difficult to implement quantitatively. It is, therefore, far safer to define industrial workers in terms of their work histories – classifying them simply by whether or not they spent a significant chunk of their working lives in the industrial sector. This 'occupationally essentialist' approach makes quantitative measurement much easier. It is also much more inclusive. Whereas holistic definitions tend to reinforce the traditional image of the industrial workforce, occupational essentialism makes room for less prominent groups. Among these are women and middle-class industrial workers, both of whom depended on the industrial sector for their livelihoods yet are nevertheless frequently overlooked in accounts of deindustrialisation.

In adopting this view, this chapter follows the rest of the thesis in adopting a strict definition of what constituted the industrial sector. In doing so it excludes 'industrial-adjacent' activities such as dockside labour, and focuses on manufacturing, mining, and utilities alone.[25] Despite the exactness of this approach, the definition of industrial workers used gives some latitude to career changes. Demanding that workers spend their

[24] P. Meadows, "The Worker: Archetype of Industrial Man", *Social Forces* 25, no. 4 (1947): 441–442.

[25] The term 'industrial adjacent' sectors comes from Gibbs *et. al.* who, in a forthcoming article, argue that the similarities between industry and sectors such as the railways, dock working, and the utilities (the

entire careers in a sector in order for them to qualify is unrealistic. Instead, for the purposes of this study, industrial workers are defined as individuals who spent at least 50 per cent of their career (however long) in an industrial job, even if the specific role varied over time. Under this criterion, 1,684 of the individuals – 23 per cent of the sample – can be classified as 'industrial workers'. It is hoped that by identifying individuals who spent most of their careers in the industrial sector, the 50 per cent threshold identifies individuals who truly were industrial workers without unnecessarily ignoring people whose careers evolved over time.[26] Despite this low base threshold, the median industrial worker (across all birth cohorts) spent nearly 80 per cent of their career in industrial jobs. Non-industrial workers can be sorted into other sectors in a similar manner, with individuals who spent at least 50 per cent of their working lives in, say, the public sector being classified as 'public sector workers'.

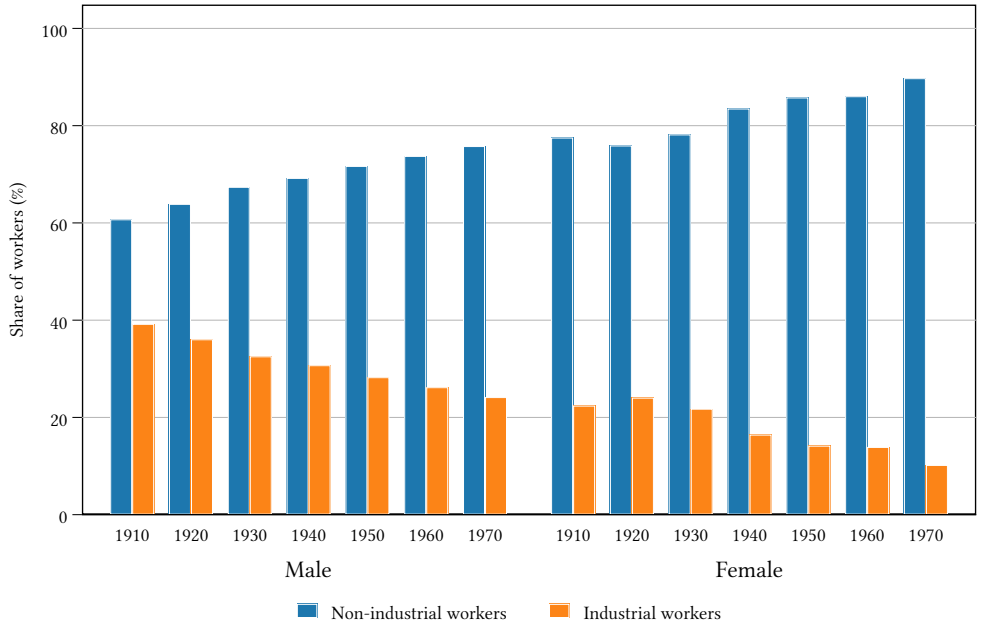
3.3.1 The disappearance of industrial careers

Career formation was, unsurprisingly, subject to the substantial changes in the economy that occurred over the twentieth century. As can be seen in Figure 3.3.1, the number of people who became industrial workers decreased steadily over time. Whereas nearly 40 per cent of men born between 1910 and 1919 became industrial workers, less than one third of men born in the 1960s did the same. Between the 1910 and 1970 birth cohorts, the proportion of women who became industrial workers halved. As a result, the average industrial worker was older than other individuals in the sample. The median industrial worker in the sample was born in 1945, five years earlier than the average non-industrial worker and some 10 and 12 years earlier than the average worker in professional and technical services and FIRE activities respectively.

latter of which I already subsume into the definition of the industrial sector throughout this thesis) had an impact on not only the timing but also the extent of deindustrialisation in different places.

[26] Stricter thresholds are of course defendable; requiring industrial workers to have spent at least three-quarters of their careers in industrial jobs would have reduced the count to just 968 individuals. Like restricting the definition to 'lifers', such a threshold would, however, limit the ability to study inter-sector switching.

Figure 3.3.1: Share of all workers with industrial careers by birth decade



Figures derived from BHPS work-life histories.

A snapshot of the shift in the popularity of careers in industry relative to other sectors can be seen in Table 3.3.1. Between the pre- and post-1940 birth cohorts, the share of the sample who became industrial workers fell by 28 per cent. Dropping by 38 per cent as opposed to just 21 per cent, this decline was far steeper among women than men. A possible explanation for this could be the relative diversity of career choices open to women in a deindustrialising economy as opposed to those of men, who were confined to certain kinds of jobs by both hiring practices and social pressure to avoid 'women's work'.[27] Another possible explanation lies in the dynamics of layoffs within the industrial sector. In a recent paper on the coal industry, Aragón *et. al.* found that men displaced by pit closures tended to push women out of jobs in local manufacturing firms.[28] These changes, which were an unusual reversion of a historical trend in which low-paid women tended to push out men, resulted from the falling cost of employing men relative to women, allowed men to stay in the industrial sector and left women to seek other forms

[27] A. Nayak, "Displaced Masculinities: Chavs, Youth and Class in the Post-industrial City", *Sociology* 40, no. 5 (2005): 817.

[28] F. Aragón, J. Rud and G. Toews, "Resource shocks, employment, and gender: Evidence from the collapse of the UK coal industry", *Labour Economics* 52 (2018): 54–67.

of employment.

In contrast to agriculture and industry, careers in FIRE activities and professional and technical services became comparatively more common, while the proportion of the population building careers in the public sector and, to a lesser extent, in construction remained broadly stable. As a result, the career paths of individuals born after the Second World War were far more varied than those seen before. This variation similarly extended within careers; already accounting for one fifth of the pre-1940 cohort, sector nomadism became the modal career path among individuals born in the years that followed.

Table 3.3.1: Share of pre- and post-1940 cohorts engaged in different careers (%)

Leading sector	Birth year $\leq$ 1939	Birth year $\geq$ 1940	Δ (%)
Agriculture	2.2	1.2	-43.6
Construction	4.6	4.2	-9.5
FIRE	2.1	4.6	+114.2
Industrial	28.3	20.4	-27.7
Other services	5.5	4.4	-19.9
Professional & technical	2.8	5.0	+76.1
Public sector	16.6	16.9	+1.9
Transport & distributive	17.3	20.3	+17.3
None	20.5	22.9	+11.7

Figures derived from BHPS work-life histories.

These findings provide important context for the social history of deindustrialisation. Close to 40 per cent of the industrial workforce was born before the beginning of the Second World War, and one quarter began their careers during the 'golden age' of industry-led growth that ran from 1945 until the mid-1960s. Unlike their parents, who entered the workforce in a difficult economic environment, these workers began to build their careers at a time when unemployment and inequality were falling and the industrial sector was able to provide stability and good wages. Unfortunately, these workers also went on to bear the brunt of the elimination phase of deindustrialisation, especially in parts of the country that had seen dramatic shifts in prosperity from the interwar period onwards. This waxing and waning of fortunes goes along way in explaining industrial

workers' determination to preserve the status quo during the 1970s and 1980s.[29]

3.3.2 Women as industrial workers

Both popular and scholarly accounts of industrial culture place considerable emphasis on masculinity. In *Coal is Our Life*, a sociological study of a Yorkshire pit village written in the 1950s, men and women are presented as almost occupying different worlds, with men engaged in 'productive' labour and women confined to their duties in the home.[30] While the image presented in the book may be somewhat exaggerated, the idea that industrial culture was dominated by men remains pervasive.[31]

Table 3.3.2: Individuals classified by their main sector of employment

Leading sector	Female	Male	Total
Agriculture	31	81	112
Construction	16	302	318
FIRE	156	121	277
Industrial	684	1000	1,684
Other services	293	55	348
Professional & technical	144	173	317
Public sector	873	362	1,235
Transport & distributive	793	626	1,419
None	1,022	604	1,626
Total	4,012	3,324	7,336

Figures derived from BHPS work-life histories. The broad sector classification used is the same as that developed for Chapter 2, differing only in the merging of the 'C-THEM' and 'Other Industrial' categories.

The quantitative evidence for such a position is, however, mixed. As both Figure 3.3.1 and Table 3.3.2 make clear, although it was less common career choice for women than men, plenty of women became industrial workers. Overall, just 59 percent of industrial workers in the sample were men, leaving the sector with a gender imbalance far below that of construction, which was 95 per cent male, and the public sector and other services

[29] Of course, the feeling among right-wing thinkers and the various Thatcher ministries was that this prosperity was artificial and unsustainable. For a summary, see Evans, *Thatcher and Thatcherism*, 11–12.

[30] N. Dennis, F. Henriques and C. Slaughter, *Coal is Our Life: An Analysis of a Yorkshire Mining Community* (London: Eyre & Spottiswoode, 1956), 184, 240.

[31] Strangleman, "The World We Have Lost: Reflections on Varieties of Masculinity at Work", 14.

activities, which were 71 and 84 per cent female respectively. 45 per cent of industrial workers born in the 1920s were women, and while their share of the total dipped to 37 per cent among those born in the 1950s, 40 per cent of industrial workers born in the 1960s were women. The average female industrial worker's time in the industrial sector accounted for three-quarters of her career.

This does not mean, however, that women were present to the same degree across all parts of the industrial sector. In total, women contributed around 210,000 of the 631,000 working months accrued in the industrial sector by individuals in the sample. They worked more than men in just 4 of the 30 industrial activities in which direct comparisons can be made – footwear and clothing, the production of man-made fibres, textiles, and 'other manufacturing' – and worked more than 40 per cent of the months in just 4 more (leather goods, food processing, tobacco, and office machinery manufacturing).[32] Other sectors in which women made a large contribution were the paper, electrical engineering, and chemical industries, although here their share of the total months worked in these sectors was between 35 and 38 per cent. By contrast, women's labour was far less prominent in non-textile C-THEM activities such as the various metals industries, mining, and vehicles

Therefore, while they do not cast doubt on the prominent position of men in the industrial sector, the BHPS data underscore the role of industrial employment in women's careers throughout the twentieth century. In doing so they also provide quantitative backing to the growing corpus of social history concerning women in industrial communities which has, for example, drawn attention to a long history of women's employment in the manufacturing sector in places such as pit villages.[33] While the work was underpaid and sometimes dangerous, women (especially young women) readily took the opportunity afforded by the industrial sector to avoid the agricultural and domestic service jobs foisted upon their foremothers.[34] The shift structure of industrial labour also

[32] The 'other manufacturing' class contains activities such as photographic laboratory processing and the manufacturing of jewellery, musical instruments, and toys.

[33] F. Sutcliffe-Braithwaite and N. Thomlinson, *Women and the Miners' Strike, 1984-1985* (Oxford: Oxford University Press, 2023), 46–51.

[34] S. Todd, *The People: The Rise and Fall of the Working Class* (London: John Murray, 2015), 95–96.

allowed women to balance their employment with their home lives; it was only from the 1970s, when marriage bars had been fully lifted and flexible working became more common, that equivalent opportunities in areas such as the care sector emerged.[35]

3.3.3 Qualifications and industrial work

> there is not one working-class boy in a thousand who does not pine for the day when he will leave school. He wants to be doing real work, not wasting his time on ridiculous rubbish like history and geography. To the working class, the notion of staying at school till you are nearly grown-up seems merely contemptible and unmanly.[36]

The skills profile of the industrial workforce, indeed the industrial working class in general, is also a matter on which scholars and commentators have long placed considerable emphasis. Orwell's reflections in *The Road to Wigan Pier*, quoted above, summarises the received wisdom clearly. Finding dignity and self-realisation through manual labour, industrial workers are supposed to have had little use for formal qualifications. As Offer argues, human capital among industrial workers instead 'consisted of skills specific to particular production processes'.[37] This lack of interest in formal qualifications, the argument goes, later hampered the ability of the industrial working class to adapt to a post-industrial environment that values knowledge over practical skills.

In Britain, this pattern of semi-formal skills acquisition had a long pedigree. In contrast to the more science-led approaches to industrialisation of Germany or the United States, technical progress in Britain tended to be driven by working-class individuals who learned their craft through work or apprenticeships.[38] This pattern of on-the-job skills formation had a long-term impact on the structure of Britain's industries and trade unions, which for decades were organised around skilled crafts rather than the homogenous industries characteristic of manager-led mass production methods.[39] This model began

[35] E. Worth, "Women, Education and Social Mobility in Britain during the Long 1970s", *Cultural and Social History* 16, no. 1 (2019): 73–74.
[36] G. Orwell, *The Road to Wigan Pier*, ed. S. Todd (Oxford: Oxford University Press, 2021), 80.
[37] Offer, "British Manual Workers: From Producers to Consumers, c. 1950-2000", 537.
[38] See M. Kelly, J. Mokyr and C. Ó Gráda, "Precocious Albion: A New Interpretation of the British Industrial Revolution", *Annual Review of Economics* 6 (2014): 381–383.
[39] P. Fairbrother, "British Trade Unions Facing the Future", *Capital & class* 24, no. 2 (2000): 21.

to break down in the post-Second World War period, where – as noted in the introduction to this thesis – attempts were made to embed Fordist mass production in British industry. But this too had little use for formal qualifications among ordinary workers (indeed, the number of apprenticeships fell precipitously as the twentieth century ground on), leaving the industrial sector with relatively few qualified workers.[40]

The sorts of skills referenced by Offer and others are not measured easily, and the BHPS contains no direct information on the subject. Nevertheless, successive waves of the survey did record the qualifications of the respondents, offering a proxy of the sorts of skills commonly found amongst different types of workers. The best variable for the task is the current highest educational or vocational qualification, which is derived from responses taken at each wave. For the purposes of this research, each individual's highest qualification at the last wave they appear in the BHPS is taken as a marker of their skill level. Other approaches, such as examining their qualifications at a particular age, are unworkable as they would exclude individuals from earlier cohorts for whom there would be no information. The variable is recorded in the BHPS under a scale running from degree-level to no qualifications.

An overview of the qualifications possessed by different sorts of workers, as well as the sample as a whole, can be seen in Table 3.3.3. The basic assertion that industrial work was the preserve of those without formal qualifications appears to hold true; more than one in three industrial workers had no formal qualifications and only around one in ten had a post-secondary education. This compares unfavourably to the various service activities (with the exception of 'other services'), where people without formal qualifications were rare and A-Level and higher qualifications were much more common. Yet while industrial workers generally did have fewer qualifications than workers in other sectors, possessing no qualifications was the modal situation in the sample as a whole.[41]

[40] S. Broadberry and K. Wagner, "Human capital and productivity in manufacturing during the twentieth century: Britain, Germany and the United States", in *Quantitative Aspects of Post-War European Economic Growth*, ed. B. Van Ark and N. Crafts (Cambridge: Cambridge University Press, 1996), 249–250.

[41] This remains broadly true even when industrial workers are excluded, with the share of the sample possessing no qualifications and post-secondary qualifications (the two most numerous categories) standing at 23.4 and 23.6 per cent respectively.

This was especially the case among individuals born before the Second World War. 52.1 per cent of individuals in the pre-1940 cohort had no formal qualifications compared to just 14.1 per cent among those born thereafter. This dramatic change in the qualifications possessed by the workforce reflects efforts to improve schooling by successive governments and the raising of school leaving ages.[42]

Table 3.3.3: Share of workers in each sector by qualifications (%)

	Post-secondary	A-Level (or equiv.)	GCSE (or equiv.)	Other	None
Agriculture	8.0	19.6	17.9	12.5	42.0
Construction	10.1	30.2	19.2	10.7	29.9
FIRE	18.4	27.4	39.4	7.6	7.2
Industrial	12.0	18.6	20.5	12.8	35.9
Other services	15.5	18.7	19.3	10.6	35.9
Professional & technical	44.2	22.1	21.5	4.7	7.6
Public sector	51.7	14.2	16.9	6.3	10.8
Transport & distributive	8.7	17.5	26.1	15.8	31.3
None	17.6	17.8	23.9	13.8	26.8
Whole sample	20.9	18.5	22.4	11.8	26.3

Figures derived from BHPS work-life histories. There original data contain eight categories: two categories for no responses ('missing' and 'inapplicable') followed by 'degree', 'other higher degree', 'A-level etc', 'GCSE etc', 'Other qualification', and 'No qualification' categories. For the purposes of this research, 'degree' and 'other higher degree' are merged into a single 'post-secondary' category to bring the measure of tertiary education in line with the standard qualification reporting levels used by the Office for National Statistics.[43] $N = 7,332$.

These changes in educational outcomes made their mark on industrial workers, too. The share of industrial workers with no formal qualifications fell from 57.3 per cent to just 21.9 per cent between the pre- and post-1940 birth cohorts. The proportion with post-secondary qualifications also rose from 6.6 to 15.5 per cent over the same period. Relative to the non-industrial workers in the sample, these changes still left the industrial workforce relatively under-qualified. The proportion of non-industrial workers without qualifications fell from 50.0 to 12.0 per cent across cohorts, and equivalent figures for post-secondary qualifications were 14.2 per cent and 27.6 per cent. However, examining the amount of change between periods shows the gap between industrial workers and

[42] A chronology and an account of the impact of the various reforms can be seen in P. Dolton and M. Sandi, "Returning to returns: Revising the British education evidence", *Labour Economics* 48 (2017): 87–104, which shows a 6 per cent rate of return for additional education for men.

[43] An overview of the level system can be seen in Office for National Statistics, *Education, England and Wales: Census 2021* (https://bit.ly/3tV8L6o, 2023), 3.

the rest of the sample closing at the top end and widening at the bottom. Confusingly, this meant that the industrial workforce became both relatively more and less qualified over time. Job polarisation within the industrial sector is the most likely explanation for this change, as productivity-enhancing breakthroughs tend to eliminate jobs in the middle of the skills distribution, leaving behind demand for highly-skilled technicians and low-skilled routine workers only.[44]

Women accounted for a high proportion of the unskilled industrial labour force. Despite the much-publicised success for women in the education system, especially in relation to white working-class boys, slightly fewer (20.5 vs 21.4 per cent) women than men in the BHPS sample had post-secondary qualifications, and significantly more (29.4 versus 22.5 per cent) had no qualifications at all.[45] Among industrial workers, the differences were much larger. Half of female industrial workers, compared to just a quarter of male industrial workers, had no formal qualifications, and while around 15 per cent of male industrial workers possessed post-secondary qualifications, just 7 per cent of female industrial workers had the same. Imbalances such as these existed across both pre- and post-1940 cohorts, although women did manage to close the gap with men in post-secondary qualifications over time. However, at the same time, the gap in relation to workers without formal qualifications also widened. The proportion of male industrial workers without qualifications fell by 66.1 per cent between the two cohorts, while the proportion of female industrial workers in the same position fell by just 54.5 per cent. This resulted in the share of female industrial workers without qualifications rising from around one and a half times that of men in the pre-1940 cohort to more than double among those born later.

[44] A good summary of the literature on these processes, and a long-run analysis of their implications, can be found in A. Cristini, A. Geraci and J. Muellbauer, "Sifting through the ASHE: Job Polarization and Earnings Inequality in the UK, 1975–2015", in *Generating prosperity for working families in affluent countries*, ed. B. Nolan (Oxford: Oxford University Press, 2018), 198–202.

[45] A nuanced discussion of the complex interactions between race, gender, class, and educational outcomes in Britain can be found in S. Strand, "Ethnicity, gender, social class and achievement gaps at age 16: intersectionality and 'getting it' for the white working class", *Research Papers in Education* 29, no. 2 (2014): 131–171.

3.3.4 Industrial parentage

The final common assumption about industrial workers was the degree to which their way of life and working was reproduced across generations. The central image is one of uneducated working-class boys following their fathers into a life of industrial labour, only for their own sons to do the same in the decades that followed. Many studies of the intergenerational transmission of employment exist, although with the exception of studies of specific activities, such as medicine or politics, studies of the sector of destination are less common than those relating to mobility and occupation.[46] Nevertheless, there is ample qualitative evidence that parents had a significant role in the direction of their children's careers (at least when they first entered the labour market), and evidence from the BHPS suggests that familial networks explain 79 per cent of the father-son occupational persistence observed in Britain since 1991.[47]

The extent to which such dynamics played out across twentieth-century industrial workers can again be glimpsed through the BHPS, which collected information on the employment status of respondents' parents when the respondents were 14 years old. The measure is imperfect – it merely provides a snapshot – but it is enough to begin determining the status of respondents' households shortly before they entered the labour market (the average respondent had entered the workforce by 18 years old). Unfortunately, presumably as a result of greater interest in sociological, rather than industrial, questions, the BHPS did not collect information on parents' industries of employment but their occupation. Fortunately, one of the systems of classification under which parental occupations were recorded, the International Occupational Classification 1988, is detailed enough to separate – albeit slightly roughly – industrial occupations (such as mining) from the rest.[48]

[46] A good example of the familial persistence of political careers can be seen in E. Dal Bó, P. Dal Bó and J. Snyder, "Political Dynasties", *The Review of Economic Studies* 76, no. 1 (2009): 115–142.

[47] C. Pooley, "'My father found it for me': changing experiences of entering the workforce in twentieth-century urban Britain", *Urban History* 42, no. 2 (2015): 290–308; S. Bello and I. Morchio, "Like father, like son: Occupational choice, intergenerational persistence and misallocation", *Quantitative Economics* 13 (2022): 629–679.

[48] A full description and breakdown of the classification can be found in P. Elias and M. Birch, *Establishment of Community-Wide Occupational Statistics: ISCO 88 (COM), A Guide for Users* (Warwick: Institute for Employment Research, 1994). For the purposes of this study, occupations 214, 311, 711, 722, 811-817,

Occupational data are available for mothers and fathers in 41.5 and 85.5 per cent of cases respectively. In general, information imbalances such as these – in conjunction with the fact name changes often make it harder to follow women over time – have led researchers in economic and social history (among other fields) to often exclude mothers altogether. However, this strategy relies on the implausible assumption that women's participation in the labour force was not especially important to the household – a matter made doubly suspect considering that even in 1986, 16 per cent of households with dependent children were headed by women.[49] It is unsurprising, then, that research on social mobility in the United States has shown that models that incorporate both mothers and fathers, rather than just fathers, fit observed mobility patterns better.[50]

A lack of observations means that assessing the impact of mothers and fathers independently of each other is not possible here. Therefore, whether or not a respondent had at least one parent in an industrial job when they were a child is used instead. Across the sample, 1,776 individuals had at least one such parent. 1,465 of these individuals had a father who worked in industry, 488 had a mother who did the same. Just 137 respondents had both a mother and a father working in industry when they were 14. A sense of the impact of having a parent in an industrial job on the career trajectory of the respondents in the sample can be seen in Figure 3.3.2. Immediately obvious is the fact that industrial careers were consistently more common among the children of industrial workers than other respondents. However, the difference between the two groups was generally more pronounced among earlier cohorts than later ones. The children of industrial workers born in the 1920s became industrial workers at a rate 67 per cent higher than the children born to other parents. In the 1960s, by contrast, the differential between the two groups of children was a much more modest 24 per cent. These changes over time will partly be explained by structural change, but shifting parental attitudes may have also plated a role. In the coal industry, for example, some parents and officers in local labour exchanges became increasingly vocal in attempting to dissuade young men from

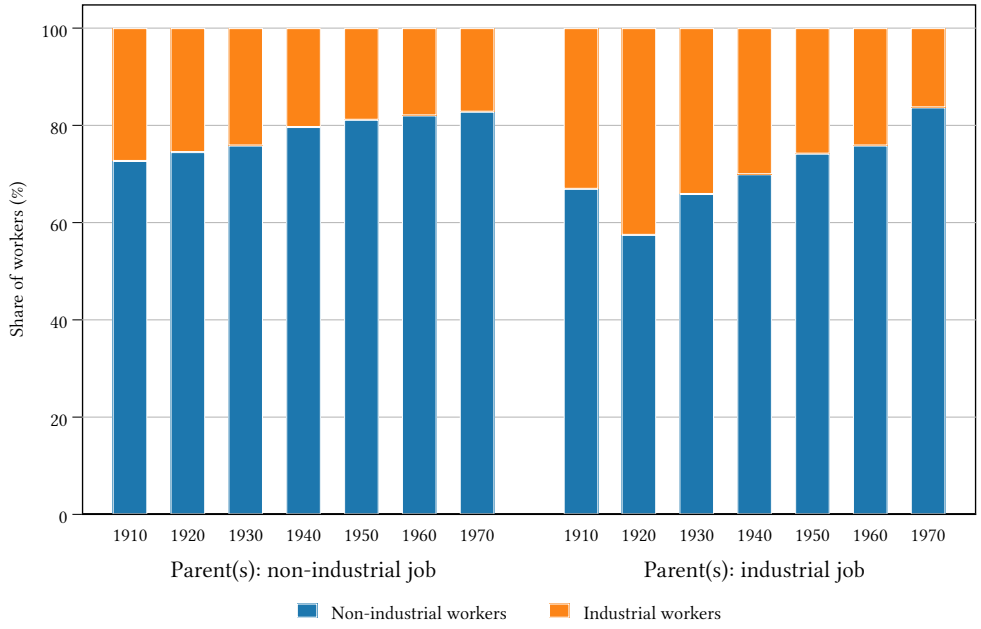
821-829, and 931-932 are considered to be industrial jobs.

[49] R. Wright, "A feminisation of poverty in Great Britain?", *Review of Income and Wealth* 38 (1992): 24.

[50] E. Beller, "Bringing Intergenerational Social Mobility Research into the Twenty-first Century: Why Mothers Matter", *American Sociological Review* 74, no. 4 (2009): 507–528.

becoming miners both on the grounds of its many dangers and uncertain future, even if alternatives were few and the industry's prospects temporarily improved during a shaky 'new dawn' in the 1970s.[51]

Figure 3.3.2: Share of all workers with industrial careers by their parentage and birth decade



Figures derived from BHPS work-life histories and wave data.

Alongside societal explanations and familial networks, perhaps the most likely explanation for the transmission of industrial working between generations is geography. All else being equal, children born to industrial workers are more likely to live in places where industrial employment was prominent, increasing the odds of them becoming industrial workers themselves. Bolstering the likelihood of the intergenerational transmission of industrial employment in these circumstances is the fact that internal migration was a minority exercise in Britain. Accurate numbers are difficult to calculate, but it appears that annual rates of inter-regional migration hovered between 18 and 25 per 1000 throughout the 1971-2011 period.[52] It is not possible to measure internal migration

[51] J. Arnold, *The British Miner in the Age of De-Industrialization: A Political and Cultural History* (Oxford: Oxford University Press, 2024), 45; R. Gildea, *Backbone of the Nation: Mining Communities and the Great Strike of 1984-85* (New Haven: Yale University Press, 2023), 13–16.

[52] T. Champion and I. Shuttleworth, "Is Longer-Distance Migration Slowing? An Analysis of the Annual Record for England and Wales since the 1970s", *Population, Space and Place* 23 (2017): 10.

through the work history data, as the location in which each spell took place was not recorded. However, rough estimates of lifetime migration can be calculated from the successive waves of the survey after 1991 that record respondents' region or metropolitan area.[53] Internal migration appears to have been less common among industrial workers than other groups; just 10.1 per cent of industrial workers, compared to 16.9 per cent of other workers, were recorded in more than one region. This relative lack of mobility corroborates research on former mining areas that shows little evidence of internal migration alleviating decline, even though there are potential wage returns from doing so.[54]

3.3.5 The role of sex, qualifications, and parentage in determining career choices

It is clear, then, that each of the characteristics discussed so far had an impact on whether a person became an industrial worker. Nevertheless, their relative importance, as well as the statistical robustness of their influence on career choices, is something that can only be assessed through the use of statistical models. In the case of discrete outcomes such as these (namely whether or not a person became a particular kind of worker), non-linear 'logistic regression' models are the approach of choice. In logistic regression, coefficients can be expressed in terms of 'odds ratios' that correspond to the effect of a change in an independent variable on the likelihood that the dependent variable takes one of two binary outcomes, holding all else equal. Odds ratios above and below one imply increased and decreased likelihood respectively.[55]

The model of career choices, which is run individually for each of the nine possible

[53] The locations roughly correspond to the old 'Standard Statistical Regions' with cut-outs for the former Metropolitan Combined Authorities. More heavily disaggregated location data are available in the confidential versions of the BHPS.

[54] E. Hollywood, "Mining, Migration and Immobility: Towards an Understanding of the Relationship Between Migration and Occupation in the Context of the UK Mining Industry", *International Journal of Population Geography* 8 (2002): 297–314; R. Böheim and M. Taylor, "From the dark end of the street to the bright side of the road? The wage returns to migration in Britain", *Labour Economics* 14 (2007): 99–117.

[55] A straightforward account of how logistic regression works can be found in C. Feinstein and M. Thomas, *Making History Count: A primer in quantitative methods for historians* (Cambridge: Cambridge University Press, 2002), Chapter 13.

careers available under the schema presented in Tables 3.3.2, 3.3.1, and 3.3.3, is given in Equation 3.1. For ease of interpretation, the independent variables are a series of dummies taking the value of 1 if, respectively, an individual was born before 1940, was female, had post-secondary qualifications, or had a parent in an industrial job and zero otherwise. The results of the regressions, along with standard errors, are given in Table 3.3.4. The impact of each of the independent variables differed across career choices, and were all significant only in the case of industrial and agricultural workers. The possession of post-secondary qualifications was the only variable that was statistically significant across all models, performing particularly strongly in relation to professional and technical services and the public sector.

$$\begin{aligned} logit(SECTOR) = a + \beta_1(BIRTH < 1940) + \beta_2(FEMALE) \\ +\beta_3(QUALIFICATIONS) + \beta_4(PARENT) + \epsilon \end{aligned} \tag{3.1}$$

The results pertaining to industrial workers can be seen in the fourth model. Pleasingly, each of the factors discussed in the descriptive analysis – along with the control for birth year – are all statistically and historically significant. The odds of becoming an industrial worker were higher if an individual was born before 1940, was male, did not possess post-secondary qualifications, and had at least one parent in an industrial job. The coefficients suggest that, *ceteris paribus*, being born before 1940 or having at least one parent in an industrial job increased the odds of becoming an industrial worker by around 45 and 59 per cent respectively relative to being born after or having no parents in industrial jobs. The impact of post-secondary qualifications and being female were of a similar magnitude, if only in the opposite direction. The odds of a woman becoming an industrial worker were around 54 per cent lower than those of a man.

Table 3.3.4: Logistic regression models of career choices

	(1) Agriculture	(2) Construction	(3) FIRE	(4) Industrial	(5) Other services	(6) Professional & technical	(7) Public sector	(8) Transport & distributive	(9) None
Birth year <1940	1.673*** (0.319)	1.057 (0.131)	0.440*** (0.069)	1.445*** (0.086)	1.191 (0.137)	0.669*** (0.094)	1.383*** (0.102)	0.723*** (0.047)	0.830*** (0.051)
Female	0.309*** (0.065)	0.040*** (0.010)	1.093 (0.136)	0.457*** (0.026)	4.678*** (0.697)	0.688*** (0.08)	2.607*** (0.191)	1.064 (0.064)	1.543*** (0.089)
Post-secondary qualifications	0.336*** (0.117)	0.388*** (0.074)	0.729** (0.115)	0.471*** (0.039)	0.704** (0.107)	2.960*** (0.350)	7.171*** (0.519)	0.282*** (0.028)	0.738*** (0.055)
Parent(s) in an industrial job	0.463*** (0.129)	0.918 (0.130)	0.573*** (0.096)	1.588*** (0.100)	0.863 (0.114)	0.875 (0.126)	0.978 (0.078)	0.810*** (0.058)	0.965 (0.064)
Constant	0.028*** (0.004)	0.116*** (0.010)	0.055*** (0.005)	0.390*** (0.019)	0.017*** (0.003)	0.045*** (0.004)	0.055*** (0.004)	0.327*** (0.017)	0.252*** (0.013)
N	7336	7336	7336	7336	7336	7336	7336	7336	7336

Figures derived from BHPS work-life histories. In each model, the dependent variable is whether or not an individual spent at least 50 per cent of their working months in the specific industry. The coefficients are odds ratios, with figures above 1 representing traits that increased the likelihood of an individual becoming a specific kind of worker relative to the reference category. Standard errors, clustered at the individual level, are given in brackets. Repeating the regressions with weights from the official BHPS dataset has little impact on the statistical or historical significance of the results $^{*}p < 0.1$, $^{**}p < 0.05$, and $^{***}p < 0.01$.

These individual effects are large, but without considering the baseline they say little about the odds that individuals with different characteristics would choose a specific career. For this it is necessary to exploit the attributes of the odds ratios, building predicted probabilities that vary depending on the independent variables included. The essence of the procedure is the multiplication of the relevant odds ratios, before dividing the outcome by itself plus one.[56] Take the example of a hypothetical man ('Man A') born before 1940 to at least one parent who worked in the industrial sector. If this man had no post-secondary qualifications, the predicted probability that he became an industrial worker (47.2 per cent) can be calculated as follows

$$(1.445 \times 1.588 \times 0.390) = 0.894$$

$$0.894 \div (0.894 + 1) = 0.472$$

Indicative calculations on the basis of the models suggest that the next most likely outcome for Man A would have been to have had a career in no particular sector at all, followed by transport and distributive services and then construction.[57] The probability of Man A building a career in high-end services, such as FIRE activities or professional and technical services, were staggeringly low at 1.4 and 2.5 per cent respectively. Women from these backgrounds were also constrained in their sector choices. The probability that a woman of the same age bracket, qualifications, and parentage as Man A ('Woman A') became an industrial worker was 29 per cent. The next most likely trajectories for her were sector nomadism, transport and distributive services, and the public sector at 24, 17, and 16 per cent respectively.

Alone, quantitative tools such as these are hard-pressed to provide a complete picture of a matter as complex as historical career choices, but they do give a sense of the degree to which certain characteristics helped channel individuals down different career paths.

[56] These calculations are simplified greatly by the fact that all the independent variables are dummies. See Feinstein and Thomas, *Making History Count: A primer in quantitative methods for historians*, 396–397.

[57] The predicted probabilities for these other choices were 17, 16, and 10 per cent respectively. Note that variations in the statistical significance of the odds ratios means that figures relating to other sectors are merely indicative.

However, it is clear from the models that people from stereotypical industrial working-class backgrounds had few realistic career choices so far as their sector of employment was concerned, and that few were in a position to break through into the high-end services economy. Their ability to do so appears to have been conditioned by qualifications. According to the models, the probability that Man A became an industrial worker were just 30 per cent if he had post-secondary qualifications, and his chances of ending up in construction, transport and distributive services, or no sector at all were dramatically reduced.[58] Instead, at 35 per cent, a version of Man A with post-secondary qualifications was more likely to end up in the public sector than any other. Women's trajectories were similarly transformed. The predicted probability that Woman A became an industrial worker, assuming she possessed post-secondary qualifications, was just 16 per cent. By contrast, the probability she ended up in the public sector was 58 per cent.

3.4 Within-career shifts

That most people in the sample became workers of a specific type did not preclude changes within people's careers. On the contrary, respondents in the BHPS data worked a multitude of jobs across different sectors over the course of their working lives. Existing research suggests that, on average, twentieth-century British workers held five jobs in their lifetimes, and that job tenure appears to have declined since 1985.[59] Evidence from 1993 onwards suggests that changes in sector are common and pro-cyclical, and that with the exception of movements from unemployment into work, changing sector tends to be associated with wage growth.[60] However, there is good reason to believe that many of these dynamics may have played out differently for industrial workers than other groups. Research on Swedish workers has shown that, even though it comes with a higher risk of redundancy in future, people made redundant by closures and reorganisations tend

[58] This was especially the case with construction, where having post-secondary qualifications reduced the probability from 10 to 4 per cent.

[59] A. Booth, M. Francesconi and C. Garcia-Serrano, "Job Tenure and Job Mobility in Britain", *ILR Review* 53, no. 1 (1999): 43–70; P. Gregg and J. Wadsworth, "Job tenure in Britain, 1975-2000. Is a job for life or just for Christmas?", *Oxford Bulletin of Economics and Statistics* 64, no. 2 (2002): 111–134.

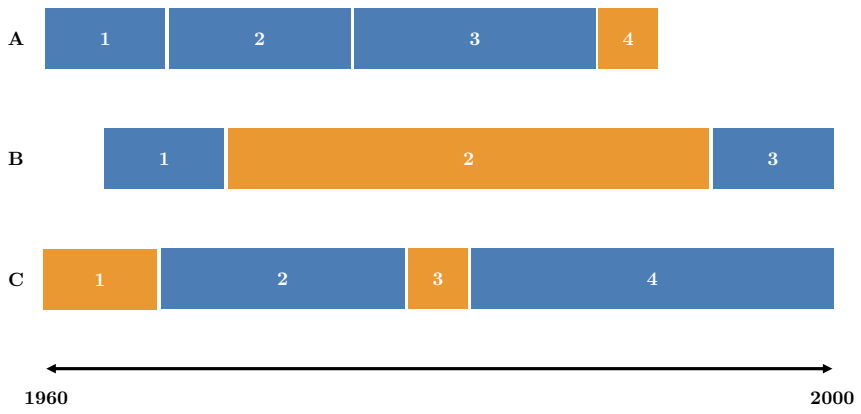
[60] C. Carrillo-Tudela et al., "The extent and cyclicality of career changes: Evidence for the UK", *European Economic Review* 84 (2016): 18–41.

to cling to their original or related industries when possible.[61] Manufacturing workers who switch industries after redundancy tend to face underemployment and downward mobility.[62]

3.4.1 Career-relevant spells

With careful cleaning, information about career changes can be extracted from the BHPS data. As mentioned in the introduction to this chapter, Maré's scripts produce internally consistent work-life histories for all the individuals in the sample. However, these career histories are structured around spells rather than annual waves, meaning that analysing career mobility and drawing comparisons between individuals is extremely challenging. A sense of the problem can be seen in Figure 3.4.1, where the structure of three hypothetical careers is presented. Individual spells are denoted as separate blocks, with those in blue denoting employed spells and orange blocks denoting periods outside the labour force.

Figure 3.4.1: Visualisation of careers divided into spells



Visualisation of how the length and number of spells recorded can vary between individuals. Employed spells are displayed in blue blocks and spells outside the workforce in orange.

Person 'A' had three different employment spells up until their retirement in the

[61] R. Eriksson and E. Hane-Weijman, "Sectoral and geographical mobility of workers after large establishment cutbacks or closures", *Economy and Space* 50, no. 5 (2018): 1071–1091.

[62] E. Hane-Weijman, "Skill matching and mismatching: labour market trajectories of redundant manufacturing workers", *Geografiska Annaler: Series B, Human Geography* 103, no. 1 (2021): 21–38.

fourth spell and subsequent disappearance from the sample. The employment spells may have been different jobs or promotions within a single firm. Person 'B', who was younger than persons A and 'C', worked for a time before taking a long career break, perhaps for family reasons, before returning to the workforce at a later date. Person C may have been a student in the early 1960s who worked thereafter. Their career was interrupted by a spell of unemployment in the early 1980s recession. Like person B, person C was still in the workforce at the end of the snapshot provided by the visualisation.

Figure 3.4.1 is, of course, just an illustration of three possible career trajectories, but it demonstrates the potential problems that can emerge even within a consolidated, internally consistent dataset. Careers naturally vary both in length and the number of spells, and individuals enter and leave the sample at different dates. Prior research using work histories has adopted two strategies to deal with these problems. The first, such as that used by Booth *et. al.* in the paper on job tenure referenced above, is to record the status of individuals at ages or after a specific number of spells. The second approach is to use a method called 'sequence analysis', which uses an algorithm to create groups of work histories that share similarities across a number of dimensions. Sequence analyses using BHPS data have, for example, revealed different paths to intra and inter-generational social mobility and the impact of early involuntary job separations on the structure of careers thereafter.[63]

Each of these approaches have their value, but their applicability to the questions at hand are limited. Sampling individuals at a specific age or number of spells incurs significant risks as there is no way of knowing for sure whether a person's status at a given age or spell is representative of their entire career. Sequence analysis has the advantage of being a more holistic approach, yet its usefulness is greatest in identifying groups rather than analysing the trajectory of a predefined section of the workforce. The only real solution to the twin problems of career variability and fears about representativeness is to establish a method of simplification that can be applied systematically whilst

[63] A. Schröder, "Sequencing Class: An Analysis of Work-Life Mobility in Late Twentieth Century Britain" (PhD diss., University of Manchester, 2009); Malo and Muñoz-Bullón, "Employment status mobility from a life-cycle perspective: A sequence analysis of work-histories in the BHPS".

keeping the 'violence to reality' in check. Much of this boils down to identifying the most important spells of a person's career, although the definition of 'important' varies considerably from person to person. Differences in the length and number of spells between individuals means that a static threshold, such as simplifying careers by only keeping spells of a certain length (whether that be a specific number of years or a proportional threshold of say, 25 per cent of a career) is unworkable. The only solution is to establish a dynamic threshold through which spells that are long relative to the other spells in a person's career can be isolated. Such an approach ensures that the spells identified are representative of the individual's working life, even if their length varies between individuals.

The method of finding these 'career-relevant spells' (CRS) developed by this study centres on an adapted version of Droop's formula. Best known as the method by which seats are assigned under the Single Transferable Vote election system, the formula uses the number of available seats and votes cast in a multi-member constituency to establish a 'quota' necessary for a candidate to be elected.[64] Instead of a quota of votes required to win a seat, the adapted formula, displayed in Equation 3.2 below, establishes a threshold at which a spell can be considered career-relevant.

$$Q_i = \left(\frac{M_i}{S_i + 1}\right) + 1 \tag{3.2}$$

Where Q_i is the quota for individual i, M_i is the total number of months an individual was employed, and S_i is the number of spells into which the person's career was divided. For example, the quota for a person with four employment spells over ten years would be calculated as follows:

$$Q = \left(\frac{10 \times 12}{4 + 1}\right) + 1 \quad \text{or} \quad Q = \left(\frac{120}{5}\right) + 1$$

[64] H. Droop, "On methods of electing representatives", *Journal of the Statistical Society of London* 44, no. 2 (1881): 29.

$$Q = 25 \text{ months or 2 years, 1 month}$$

If said person's career was divided into spells of 5 years, 3 years, 1 year, and 1 year, only the first two would be considered CRS.

Table 3.4.1: Number of observed CRS

CRS	Frequency	Percent	Cumulative
1	1,504	20.5	20.5
2	1,922	26.2	46.7
3	1,593	21.7	68.4
4	1,022	13.9	82.4
5	627	8.6	90.9
6	336	4.6	95.5
7	172	2.3	97.8
8	87	1.2	99.0
9	34	0.5	99.5
10	25	0.3	99.8
11	7	0.1	99.9
12	1	0	99.9
13	3	0	99.9
14	2	0	99.9
15	1	0	100.00
Total	7,336	100	100

Figures derived from BHPS work-life histories.

The result of applying this method of simplification to the sample can be seen in Table 3.4.1, where the distribution of CRS among individuals is displayed. Every person had at least one, and nearly 80 per cent of the sample had two or more. Fewer than one in ten individuals had more than five significant jobs across their career. On average, a person's CRS accounted for 75 per cent of their working life. Their first and last significant jobs also tended to be found at the beginning and end of their careers respectively. On average, a person's first CRS began 5 per cent of the way into their career and their last ended with just 7 per cent of their working life yet to happen. This means that the simplified career structure efficiently captures people's first and last major jobs – recording individuals first in their mid-to-late teenage years and once again as they

neared retirement.[65] The number of CRS in a career appears to have had little impact on the total number of years worked, although under a simple linear regression framework with controls for sex and birth year, having more CRS was indeed associated with having a longer working life.[66]

3.4.2 Swapping sectors

It was normal, then, for a person's career to contain a number of significant jobs. This varied little by gender – 80 per cent of both men and women had multi-CRS careers – but single-CRS careers (and, relatedly, longer average CRS lengths) were more common among older cohorts and individuals without post-secondary qualifications. The reason for this is unclear, but it is sensible to assume that it reflects historical circumstances or underlying differences between groups. People who had single-CRS careers may, for example, have been beneficiaries of an economic environment in which lifetime job security was compatible with low qualifications. Conversely they may have been trapped in a single role by a lack of qualifications – unable to find another long-term role in the event of redundancy. Another possible explanation is memory. People recollecting earlier times in their careers decades later are probably more likely to report previous jobs less precisely; merging different roles in one firm and possibly missing career interruptions and jobs they were in for a short time altogether. The extent to which these selection effects varied amongst different groups of workers was, however, limited. As can be seen in Table 3.4.2, the proportion of the industrial workforce with multiple CRS in their work histories was similar to that seen in most sectors. The two main outliers were agricultural workers and sector nomads, among whom careers containing a single CRS were more and less common respectively.[67]

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[65] Or, in the case of later birth cohorts, their last appearance in the BHPS data.

[66]
$$EMPLOYMENT = a + \beta(CRS) + \beta(FEMALE) + \beta(BIRTH) + \epsilon$$
Each additional CRS is associated with 16.6 additional months of employment; the model suggests that being female and later birth years reduce total employment by 135.8 and 5.1 months (per year in the case of the latter) respectively. All coefficients are significant at the 1 per cent level. $R^2 = 0.524$. $N = 7336$.

[67] Something similar can be said for the lengths of CRS. Industrial workers were not noticeably different from other groups.

Table 3.4.2: Share of workers in each sector by number of sectors and CRS (%)

	Single sector	Single class	Single CRS
Agriculture	53.2	55.4	36.6
Construction	56.3	55.0	23.0
FIRE	50.6	41.9	19.1
Industrial	56.3	35.0	24.0
Other services	48.2	45.1	25.9
Professional & technical	47.6	45.4	19.2
Public sector	57.2	47.4	22.6
Transport & distributive	51.7	34.7	20.7
None	19.3	16.4	12.8
Whole sample	47.2	35.3	20.5

Figures derived from BHPS work-life histories.

More interesting to the study at hand is the degree to which transitions between CRS were often accompanied changes in sector. Indeed, excluding cases where sector details are missing, 46.4 per cent of moves between consecutive CRS resulted in a change in sector. Breaking these categories down into their sixty component 'classes' reveals even higher rates of change.[68] At this level of aggregation, 63.9 per cent of job changes resulted in switching sectors.[69] Data errors mean that it is likely that these figures (especially at lower levels of aggregation) are somewhat inflated compared to the reality.[70] However, it remains the case that these patterns of switching meant that few people were employed in a single sector their entire lives. On the contrary, even amongst groups likely to have deep ties to their sector of employment – such as agriculturalists – nearly half of the individuals had at least one CRS in another sector.

Although they remained in their sector at slightly higher rates than other groups, industrial workers were by no means immune from the broader trend of inter-sector switching. Over 40 per cent of industrial workers had a CRS in another sector during

[68] Classes, or 'divisions' as they are known under the 1992 SIC, are more precise than broad sector groups but vaguer than the lowest levels of aggregation. They are described in Central Statistical Office, *Standard Industrial Classification 1980*, 8–20; and Central Statistical Office, *Standard Industrial Classification of Economic Activities 1992*, 1st ed. (London: Her Majesty's Stationery Office, 1992), 5–30.

[69] 10.8 per cent of changes at the sector level, and 19.7 per cent of changes at the class level, cannot be determined.

[70] Po-Wen She, "Essays on Career Mobility in the UK Labour Market" (PhD diss., University of Essex, 2017), 97–100.

their working lives, and movement between activities (classes) within the industrial sector was common. Considering that 24 per cent of industrial workers had one CRS in their career, the results displayed in Table 3.4.2 suggest that only around one in ten industrial workers stayed within their specific class – examples of which include activities as broad as chemicals or textiles – throughout their careers. For example, of the 68 individuals in the sample who started their careers in mining, only half remained in the industrial sector. Of these, 27 were miners from the start of their careers to the end, with the rest eventually going into various mechanical engineering activities (especially the manufacturing of machinery), metals manufacturing, and even textiles.

Table 3.4.3: Sector changes across pairs of CRS

Origin CRS	Destination CRS: Agric.	Cons.	FIRE	C-THEM	Other ind.	Other serv.	Prof. & tech.	Pub. serv.	Trans. & dist.	Unkn.	Share (dest.) (%)
Agric.	29.0	7.1	1.3	5.0	11.3	7.6	2.5	13.9	16.0	6.3	1.1
Cons.	1.1	48.9	2.1	6.0	13.5	1.8	4.8	8.4	10.5	2.8	4.8
FIRE	0.8	1.2	47.2	1.2	8.0	5.0	8.5	10.9	13.8	3.4	5.2
C-THEM	0.2	3.4	1.7	27.8	27.9	3.9	2.9	8.9	17.0	6.3	4.7
Other ind.	0.5	3.2	2.1	5.2	46.0	5.0	6.2	9.3	18.2	4.2	19.7
Other serv.	1.3	1.6	2.7	1.3	8.7	34.6	6.4	23.0	16.6	3.8	7.6
Prof. & tech.	0.7	2.5	5.9	1.6	13.0	5.0	42.4	14.2	10.9	3.7	8.0
Pub. serv.	0.2	1.5	2.0	1.4	6.4	7.2	4.9	63.4	8.9	4.1	20.6
Trans. & dist.	0.9	2.7	3.0	2.9	13.0	5.5	4.8	10.5	52.8	3.9	23.4
Unkn.	1.1	3.1	6.4	4.8	18.0	7.9	6.3	20.7	17.4	14.3	4.8
Share (origins) (%)	1.6	4.8	5.2	6.0	21.6	7.0	7.0	16.4	23.4	6.9	-

Figures derived from BHPS work-life histories. Note that unlike the rest of this chapter, this table breaks industries down into nine, rather than eight, sectors in order to capture movement to and from the C-THEM activities first displayed in Table 2.3.1 of Chapter 2. The sector names have been shortened for typographical reasons. Figures highlighted in grey represent disproportionately popular destinations. For example, professional and technical services, public services, and other services are highlighted in the last column as they accounted for more 'destination' than 'origin' CRS.

A sense of the most common sector shifts between pairs of CRS is given in Table 3.4.3. In order to provide a proxy for changes within the industrial sector, C-THEM activities (first displayed in Table 2.3.1 of Chapter 2) are separated from the rest of the industrial sector. The table should be read from left to right, with the first ten rows of the first column providing details on 'origin' CRS and the following ten on the various 'destinations'. Cells shaded in grey represent destinations that were disproportionately popular relative to their share of origin CRS. For example, although it accounted for just 7 per cent of origin CRS, 8 per cent of destination CRS were in professional and technical services. FIRE and other service activities were also more common among destination CRS than origins, reflecting their ability to attract new entrants. Destination sectors that are disproportionately unpopular include agriculture and the two industrial sectors. Construction and transport and distributive services were origins and destinations in equal measure. With the exception of C-THEM activities, the modal choice observed across pairs of CRS was for individuals to remain in the same sector. Specific rates of retention did, however, vary; 63.4 per cent of public sector CRS were followed by another, but the rate of retention in agriculture was just 29.0 per cent. Retention in C-THEM activities was so low that more workers filtered into other industrial activities than remained over two consecutive CRS.

Rather than moving between sectors at random, sector switches more or less followed a manual-services divide, with industrial workers who crossed over into services mainly populating low-value activities. For example, relative to its prominence among origin CRS, a disproportionate number of new entrants into the public sector came from the other services category, whilst an outsized share of moves into professional and technical services were preceded by spells in FIRE activities. By contrast, former agricultural workers filtered disproportionately into construction and other service activities, while (when not moving between each other) workers in the two industrial sectors tended to take new jobs in transport and distributive services at higher rates than people leaving other sectors. As far as sector switches are concerned, the C-THEM and other industrial categories differ strikingly only in relation to the preponderance of moves into high-end

service activities. While 2 and 4 per cent of switches away from C-THEM activities were into FIRE or professional and technical services, 4 per cent of moves away from the other industrial category were into FIRE activities and 12 per cent were into professional and technical services.

Much of this bunching can probably be explained by three factors. First, it is obvious that unless a much better option appear, people were generally happy to stick with the sector they were in. Second, in relation to industrial workers specifically, the chronology of structural change likely shaped the pattern of switching over time. The odds of successful sector switching and re-employment are greater when there are alternatives in related fields.[71] These conditions were certainly present during the reorganisation of the industrial economy before 1971, when the slide of the C-THEM activities coincided with remarkable – state-backed – buoyancy in the rest of the industrial sector. In that environment, workers in C-THEM activities had much less reason to cling to their industries and could take work in other sectors where the risk of unemployment was lower and at least some of their skills could be reallocated rather than lost.[72] Therefore, the figures in Table 3.4.3 represent relatively successful redeployment, with nearly one in four shifts away from the C-THEM group being towards the rest of the industrial sector. The third factor relates to skills. Degrees seem to have been facilitators of moves into high-end service activities. As was shown back in Table 3.3.3, 44.2 per cent of professional and technical service workers had post-secondary qualifications. Just 12.0 per cent of industrial workers had educations of equivalent stature, and among the 27.3 per cent of industrial workers who had a CRS in a C-THEM activity, the equivalent figure stood at only 9.6 per cent. Considering that 29.7 per cent of the industrial workers who had a CRS in professional and technical services had post-secondary qualifications, it is easy to see why, for example, transitions from C-THEM activities to knowledge intensive service sectors were rare.

[71] E. Hane-Weijman, R. Eriksson and M. Henning, "Returning to work: regional determinants of re-employment after major redundancies", *Regional Studies* 52, no. 6 (2016): 768–780.

[72] J. Holm, C. Østergaard and T. Olesen, "Destruction and reallocation of skills following large company closures", *Journal of Regional Science* 57, no. 2 (2017): 245–265.

The patterns revealed in Table 3.4.3 broadly hold when men and women are considered in isolation, although (with the exception of the public sector and other services) women stayed with their former sectors at lower rates than men. There were also important differences in relation to sector switches. The failure of C-THEM activities to hold onto workers between significant jobs appears to have been mostly a female phenomenon. While just under a third of men remained in the C-THEM group between CRS, just under one in five women did the same. In relation to destinations, striking differences can be seen in relation to other industrial activities, the public sector, and other services. While women left industrial jobs in droves, other industrial activities were as common a destination as an origin amongst men. Women also fed into the public sector and other services activities at twice the rate of men, and in some origin sectors – including industrial activities – the rate was nearly three times higher. Similar dynamics are visible in relation to other services, which were a destination for 7 per cent of women's sector switches between CRS but just 2.5 per cent of those amongst men. These differences meant that more women crossed the manual-services divide between CRS than their male equivalents. Whereas 70.8 per cent of men whose previous significant job was industrial or in construction or agriculture remained there, just 43.2 per cent of women did the same.

Women's ability to traverse the manual-services divide that men seldom crossed was in many ways a artefact of their staying in their sector of origin at lower rates, but two other factors – skills and gender roles – also likely played a role. It is worth keeping in mind that while the pairs of CRS displayed in Table 3.4.3 are chronological, the gap between the constituent spells was often years, and this gap was, on average, proportionately larger among women than men. Much of this can be explained by maternity, which frequently took women out of the labour force and even today usually involves dramatic changes in patterns of employment.[73] For these reasons, jobs that prize 'general' skills and are less dependent on specific tasks perfected over long, uninterrupted, peri-

[73] S. Harkness, M. Borkowska and A. Pelikh, *Employment pathways and occupational change after childbirth* (London: Government Equalities Office, 2019).

ods are arguably favourable to women.[74] The public sector and other services activities into which women fed (and continue to feed) are broad, relatively flexible, and contain many such roles. Although the benefits of doing so today are much reduced, evidence concerning the latter decades of the twentieth century suggest that women drew significant financial benefits from the public sector in particular.[75] However, the relative lack of men making similar moves in the immediate post-industrial environment suggests that gendered work cultures continued to prevail.[76]

3.4.3 CRS and SES

These patterns of movement suggest that the prospects for upward social mobility between CRS were relatively limited, especially when sector changes were involved. Nevertheless, the impact of changing jobs on living standards cannot be assessed on the basis of sector alone. Suspicious of other metrics, economists have, since the 1960s and 1970s, tended to think about questions of mobility in terms of incomes and wages.[77] There are good reasons for doing so; incomes are a solid indicator of material prosperity and are highly responsive to changes in circumstances. They also allow precise comparisons between individuals and groups. However, they provide only indirect insights into the social dimensions of work, and alternative approaches that aim to capture the full 'multidimensionality' of mobility – including those using BHPS data – reveal important differences in rates compared to studies that rely on incomes alone.[78] The best solution to this problem is to consider the impact of career changes through the lens of class which, in the words of leading sociologist John Goldthorpe, represents 'that form of social inequality that is most consequential for individuals' material well-being and, in turn, for

[74] D. Dinale, *Women's Employment and Childbearing in Post-Industrialized Societies* (Cham, Switzerland: Springer, 2023), Chapter 5.

[75] Winant, *The Next Shift: The Fall of Industry and Rise of Health Care in Rust Belt America*; R. Disney and A. Gosling, "Does It Pay to Work in the Public Sector?", *Fiscal Studies* 19 (1998): 347–374; J. Gornick and J. Jacobs, "Gender, the Welfare State, and Public Employment: A Comparative Study of Seven Industrialized Countries", *American Sociological Review* 63, no. 5 (1998): 688–710.

[76] C. Hakim, *Key Issues in Women's Work: Female Heterogeneity and the Polarisation of Women's Employment* (London: Athlone Press, 1996), 78.

[77] R. Thomas, "The Victorian Intergenerational Migrant Cohort: Socioeconomic outcomes 1851-1901" (master's thesis, University of Oxford, 2018), 13.

[78] M. Bavaro, "Intergenerational mobility of status with multiple dimensions in Germany and the United Kingdom", *ISER Working Paper Series*, no. 2018-09 (2018): 1–46.

a wide range of their life-chances and life-choices'.[79]

Constructing measures of class or 'socioeconomic status' (SES) has long been a preoccupation of sociologists and statisticians in Britain. Putting aside semi-formal categorisations such as that created by Charles Booth, which unhelpfully described places as 'wretched' or people as 'thieves and other bad characters', official measurement of class began with the creation of an 8-category schema in the Registrar-General's 74th report published in 1913.[80] Initially created in the hope of bringing order to child mortality statistics, official approaches to measuring class eventually settled on a 5-category system, based roughly on skill and 'standing within the community', running from professionals to unskilled workers.[81] Stable for decades, this approach was eventually superseded by the National Statistics Socio-economic Classification (NS-SEC), which places the measurement of SES on a firmer theoretical and evidential footing. Building on the work of Goldthorpe, the NS-SEC jettisons value judgements about standing and imprecise notions of skill in favour of defining SES in terms of social relationships at work.[82] The full structure is not strictly hierarchical, although it can be collapsed into a 3-category version that is ordinal in nature.[83] Despite challenges from some quarters in relation to other markers of SES, the NS-SEC has been the standard measure of class since its introduction in 2001, and employed spells in the BHPS work-life history data are categorised under its structure.[84]

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[79] J. Goldthorpe, "Social class mobility in modern Britain: changing structure, constant process", *Journal of the British Academy* 4 (2016): 90.

[80] C. Booth, *Life and labour of the people in London: East, central and south London* (London: Macmillan, 1892), 8–10. Despite its ostensible 8-category structure, the Registrar-General's system contained the familiar divisions between 'upper', 'middle', and 'working' classes. See Parliamentary Papers, *Seventy-fourth annual report of the registrar-general of births, deaths, and marriages in England and Wales (1911)*, (HC 1912-1913 6578) (London: House of Commons, 1913), xli.

[81] The origins of official systems of measurement are contentious. Szreter, for example, posits that the system's creation ought to be considered in the context of debates between eugenicists and their opponents. R. Szreter, "The Genesis of the Registrar-General's Social Classification of Occupations", *The British Journal of Sociology* 35, no. 4 (1984): 522–546.

[82] D. Rose and D. Pevalin, "The National Statistics Socio-economic Classification: unifying official and sociological approaches to the conceptualisation and measurement of social class", *ISER Working Paper Series*, no. 2001-04 (2001): 8.

[83] Rose and Pevalin, 19–21; Office for National Statistics, *Standard Occupational Classification 2010: The National Statistics Socio-economic Classification (Rebased on the SOC2010) User Manual*, vol. 3 (London: Palgrave Macmillan, 2010), 13.

[84] Criticising its fixation on the workplace, Savage argues in favour of a new 7-category system that places more emphasis on cultural capital than the NS-SEC. M. Savage, *Social Class in the 21st Century* (London: Pelican Books, 2015).

An overview of the impact of changing CRS and sector on SES is given in Table 3.4.4. Changes in SES are measured in absolute terms using the 3-category version of the NS-SEC structure, which splits jobs into 'Higher managerial, administrative, and professional occupations' 'Intermediate occupations', and 'Routine and manual occupations'.[85] In general, moves between consecutive CRS tended to have little impact on SES, and where changes in status did occur, they were more likely to be upward than downward. Yet when a change in CRS involved a change in sector, the share of moves that resulted in a change in SES rose from 34 to 41 per cent. Improvements and deteriorations in SES were both more common when sector changes were involved, but the bulk of the difference came from a 32 per cent (4.2 percentage point) increase in the preponderance of downward mobility relative to the sample as a whole. Compared to instances where significant job changes did not involve a change in sector, sector switchers appear to have been around 28 per cent (5.2 percentage points) more likely to see improvements in SES when changing jobs and 83 per cent (7.8 percentage points) more likely to see downgrades.

Table 3.4.4: Frequency of changes in SES with sector changes

Change in SES	All CRS	Sector change	
		Yes	No
Up	21.0	23.8	18.6
Down	13.0	17.2	9.4
None	66.0	59.0	72.0
N	13,080	6,068	7,012

Figures derived from BHPS work-life histories. Changes in SES and sector are in terms of the 3-category NS-SEC classification and 8-category breakdown used throughout this chapter.

The creation of a complete model of the impact of switching jobs on SES is beyond the scope of the present study. Nevertheless, a series of logistic regression models (whose generic form is given in Equation 3.3 below) can help to unpack a number of key influences on the probability that a significant change in job results in upward mo-

[85] Office for National Statistics, *Standard Occupational Classification 2010: The National Statistics Socio-economic Classification (Rebased on the SOC2010) User Manual*, 13.

bility, downward mobility, or no change in SES. The variables of interest in the models are whether or not the change in job also resulted in a change in sector, the age of the person at the start of their new job, their qualifications, the sex of the individual, and the reason why their last CRS ended. Concrete reasons as to why a CRS ended are available in around half of all cases. For the sake of ease, the reasons have been simplified into a three-category schema separating out broadly 'voluntary' reasons from two sets of 'involuntary' reasons – namely family/health and redundancy/dismissal.[86] Alongside these variables are a series of controls that account for the SES of the old job, the start date of the new job, and end date of the old job, all of which could bias the results.

$$\begin{aligned} logit(\Delta SES) = a + \beta_1(\Delta SECTOR) + \beta_2(AGE) + \beta_3(FEMALE) \\ +\beta_4(QUALIFICATIONS) + \beta_5(REASON) + \beta_6(CONTROLS) + \epsilon \end{aligned} \tag{3.3}$$

The results of the regressions are displayed in Table 3.4.5. Immediately obvious is the robustness of the findings in Table 3.4.4 regarding the impact of sector changes. Even with the introduction of other independent variables and controls, changes in sector appear to have reduced the odds that moves between jobs incurred no change in SES whilst raising the probability of *both* upward and downward mobility. While the models predict that the probabilities of seeing upward mobility, no change in SES, or downward mobility when moving between CRS were 22.6, 63.6, and 13.8 per cent respectively, the probability that moves that involved a change in sector had those outcomes were 24.1, 58.8, and 17.1 per cent instead. To contextualise these numbers further, the predicted probability that changes between CRS that did not involve a change in sector led to downward mobility was just 9.6 per cent – some 7.5 percentage points lower. Together, these findings underscore the degree to which changes in sector were potentially fraught.

Also of note is the degree to which sex appears to have had relatively little impact on the findings. This is especially the case in relation to downward mobility. In simpler

[86] The original classification of why spells ended has nine main categories: '(1) Different/better job', '(3) Redundancy', '(4) Dismissed', '(5) Temp job ended', '(6) Retired', '(7) Health reasons', '(8) To have baby', '(9) Family care', and '(11) Other (including geographical moves, education, and national service)' along with a four none-response categories. The three-category schema used here keeps reason (1), merges reasons (3)-(5), drops reason (11), and merges reasons (6)-(9).

Table 3.4.5: Logistic regression models of changes in SES between CRS

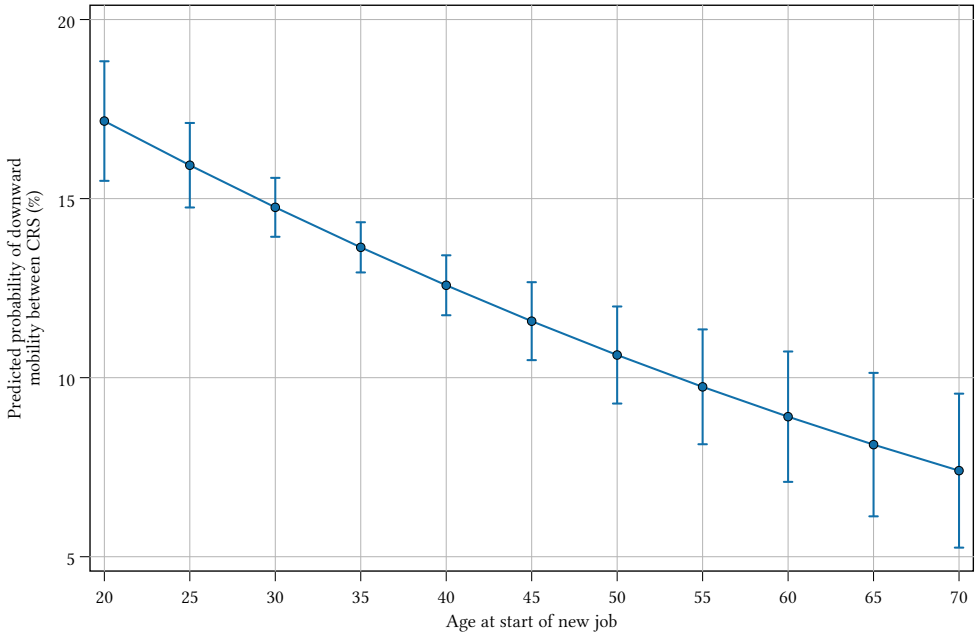
	(1) Up	(2) Down	(3) None
Change in sector	1.235***	2.461***	0.625***
	(0.074)	(0.226)	(0.032)
Age at start of new job	1.009***	0.974***	1.001
	(0.003)	(0.005)	(0.003)
Female	1.028	1.057	1.085
	(0.069)	(0.108)	(0.065)
Post-secondary qualifications	2.311***	0.228***	1.242***
	(0.206)	(0.027)	(0.099)
Reason last CRS ended:			
Redundancy	0.590***	1.545***	1.204***
	(0.048)	(0.180)	(0.081)
Secured new job	-	-	-
Family or health	0.623***	2.083***	1.001
	(0.058)	(0.239)	(0.071)
Constant	0.004***	21.866***	2.035***
	(0.001)	(7.647)	(0.411)
Controls	YES	YES	YES
N	7367	7367	7367

Figures derived from BHPS work-life histories. Changes in SES and sector are in terms of the 3-category NS-SEC classification and 8-category breakdown used throughout this chapter. In each model the dependent variable is the direction of change in SES between two consecutive CRS in a person's career. Each coefficient therefore represents the effect of a variable on the odds of a particular change in SES. All coefficients are odds ratios, with figures above and below 1 representing increased and decreased likelihood respectively. The coefficients in relation to the reason a person's previous CRS ended are to be interpreted relative to a CRS ending because of a new job. Standard errors, clustered at the individual level, are given in brackets. $^{*}p < 0.1$, $^{**}p < 0.05$, and $^{***}p < 0.01$.

models that include only an indicator of sex and the controls, women appear around 25 to 30 per cent more likely to experience downward mobility between CRS than men. This finding remains when post-secondary qualifications and age are accounted for, but it disappears as soon as either sector changes or the reasons the previous job ended are included. This finding probably reflects the gendered nature of some types of involuntary separations (especially in relation to family care) or sector changes. Further surprises can be seen in the relative resilience of the SES of older workers. According to the models, beginning a new CRS at higher ages was associated with lower odds of experiencing downward mobility and higher odds of enjoying an uplift. This can be seen clearly in Figure 3.4.2, where the predicted probability of downward mobility for a variety of ages is plotted. According to the model, the odds that a person beginning a new CRS at age 60 endures downward mobility are between 7.1 and 10.7 per cent – far below the sample odds of 13.8 per cent. This result seems unlikely – studies such as those concerning Longbridge and Swan Hunter suggest that older workers struggled to find new jobs – however, the explanation may lie in the nature of CRS. While it is entirely possible that taking *any* new job at such an age would be associated with downward mobility, it is entirely plausible that *significant* new roles would not be.

Less surprising results can be seen in relation to post-secondary qualifications, which seem to have been a bulwark against downward mobility and a facilitator of upward mobility between jobs, and reasons for the ending of the prior CRS. Relative to CRS that ended as a result of the respondent finding a new job, the probability that a new significant job after redundancy or withdrawal from the labour market for family or health reasons resulted in upward mobility was around 40 per cent lower. Moreover, the chances of downward mobility were dramatically higher. For a person made redundant in their previous significant job, the odds that their next was of lower socioeconomic status were over 50 per cent higher than for a person whose previous CRS ended because they found a new job. For those who left their previous significant job for family or health reasons, the odds of a step down were more than double.

Figure 3.4.2: Predicted probability of downward mobility between CRS by age



Predicted probabilities derived from the results presented in the second model in Table 3.4.5 ultimately based on BHPS work-life histories and wave data.

3.5 The career trajectories of industrial workers

The above findings had implications for industrial workers for two reasons. First, far from being custodians of cast-iron jobs for life, most people involved in the industrial sector during the twentieth century were at some point employed elsewhere, even if they spent the majority of their working lives within its boundaries. A sense of how common sector switching was among industrial workers can be seen in Table 3.4.2, although it is likely that even these figures are an underestimate. Many people drifted in and out of the industrial sector over time, and it is plausible that under different circumstances they would have become fully-fledged industrial workers. For example, of the 2,085 people who began their careers with an industrial CRS, just 1,302 went on to become industrial workers (a further 382 individuals became industrial workers after entering the sector from elsewhere). This leaves 783 'hidden' industrial workers who left the sector before accruing enough time to be considered part of the wider group, again underscoring the transience of industrial careers.

Second, the reasons why industrial spells ended were disproportionately negative. 24.5 per cent of industrial CRS ended with redundancy compared to just 11.1 per cent of non-industrial CRS. The statistics in relation to industrial workers' final industrial jobs are even more extreme. As can be seen in Table 3.5.1, involuntary separation was the norm among non-retirees, with a staggering 31 per cent of male industrial workers leaving their final industrial CRS because of redundancy. Among female industrial workers, child rearing was the leading reason for leaving the industrial sector behind, and family care was almost a common a reason as finding a new job. Sickness was also considerably elevated among final industrial CRS compared to significant jobs in general. This was especially the case for men, nearly twice as many of whom left the industrial sector behind on grounds of ill health. As the results in Table 3.4.5 make clear, none of these reasons augured well for industrial workers' post-industrial social standing.

Table 3.5.1: Reasons why CRS ended (%)

Reason	Last ind. CRS		Other CRS	
	Female	Male	Female	Male
Different job	15.9	25.1	37.1	51.0
Made redundant	15.3	31.0	9.7	19.0
Dismissed	0.2	1.3	0.7	2.3
Temporary job ended	0.6	1.1	1.9	2.3
Retired	13.3	26.1	8.3	4.2
Health reasons	5.3	8.0	4.3	4.4
Had baby	24.7	0.0	12.3	0.0
Family care	14.7	0.4	6.7	0.7
Other	10.0	6.9	19.0	16.2
N	510	525	3,465	2,397

Figures derived from BHPS work-life histories. The data in the first two columns relate to industrial workers specifically, whilst the latter two provide figures for all other CRS. The reason why a CRS ended is available in around half of all cases. As these data are gathered from respondents directly, it is reasonable to assume that dismissals were underreported.

3.5.1 What did industrial workers do when they stopped being industrial workers?

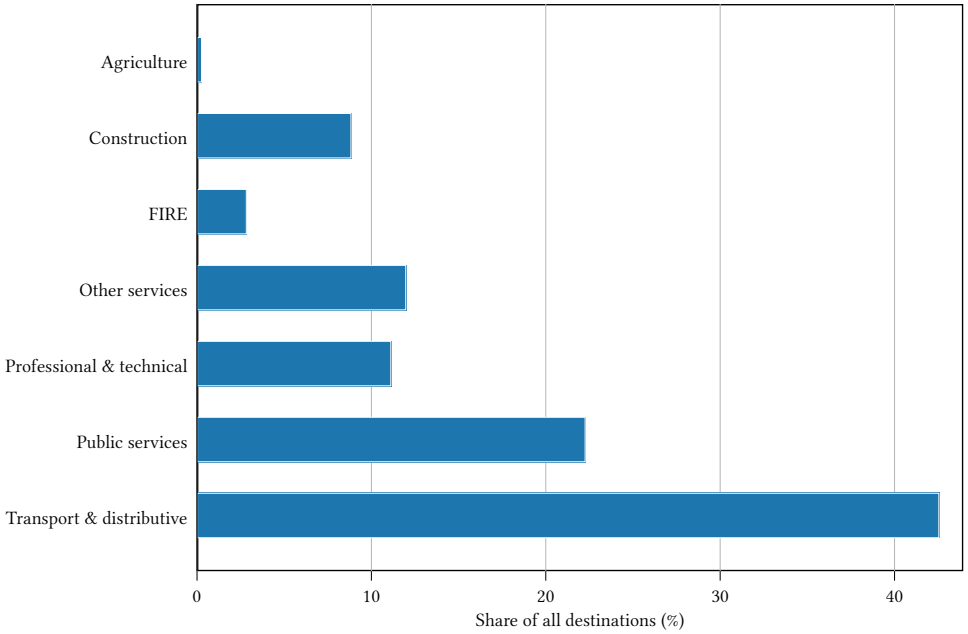
Overall, a clear majority – 62 per cent – of industrial workers were employed again after their last significant job in the sector.[87] The total length of this employment was short but by no means trivial. On average, industrial workers who found new jobs worked for another 5 to 6 years, yet few industrial workers had another CRS once their time in the industrial sector came to an end. Indeed, only around one third (36 per cent) of industrial workers who worked again had another significant job. Instead, individual spells of working were short and often punctured by unemployment. More than one in five industrial workers – a figure that equates to just under one in three of the industrial workers who worked again – experienced unemployment after their final significant industrial job. The average total duration of this unemployment was between 12 and 28 months, although one quarter of the sample was unemployed for less than six.[88]

The small number of industrial workers who avoided career instability and had another significant job were, then, a special group. Despite this, only 20 per cent enjoyed an improvement in their socioeconomic status and 15 per cent saw a reduction. A breakdown of the sectors in which they worked can be seen in Figure 3.5.1. Immediately obvious is the extent to which former industrial workers filtered into low-end transport and distributive services above any other sector. The number who went into construction was surprisingly low, although if the figures are confined to males only, construction was the second most common post-industrial destination with 14 per cent of the total. As in Table 3.4.3, women took significant jobs in other services and the public sector in higher numbers than men, although transport and distributive services remained the modal destination, accounting for 37 per cent of the total. Strong gender divides also existed within transport and distribution. While female former industrial workers took jobs in retail and hospitality, men were dominant in transport, wholesale, postal services, and motor vehicle repairs.

[87] If the 783 hidden industrial workers are included, this figure jumps to 74 per cent.

[88] As in relation to the 5 or 6 years of post-industrial employment, the 12 and 28 month figures are the median and mean respectively.

Figure 3.5.1: Sectors of industrial workers' post-industrial CRS



Figures derived from BHPS work-life histories. The plot excludes the 783 hidden industrial workers, but including them would make little difference. Half became sector nomads, 23 per cent became transport and distribution workers, and 18 per cent became public sector workers. The share of the hidden industrial workforce that became FIRE or professional and technical services workers was 2 and 4 per cent respectively.

These findings provide quantitative backing to the tales of struggle common throughout histories of deindustrialisation. People who spent at least half of their careers in the industrial sector struggled to find stable work afterwards, and even those who did ended up, for the most part, at the bottom end of the emerging service economy. In this way, the strategy for surviving deindustrialisation pursued by industrial workers bore striking similarity to that of entire local labour market areas. As Chapter 2 showed, formerly industrial places that managed to maintain their employment levels and avoid some of the harsher social costs of deindustrialisation did so by (among other things) breaking with their inherited structures and expanding employment in transport and distributive services. The findings of this chapter give credence to the notion that this was achieved not by growth in participation and new entrants to the labour market but rather by the transfer of former industrial workers into low-quality services.

3.5.2 The SES of industrial workers

The combined impact of the characteristics and processes discussed in this chapter was that industrial workers rarely rose far up the socioeconomic ladder. An overview of the various ceilings faced by industrial workers relative to the rest of the sample can be seen in Table 3.5.2, which presents data on the highest socioeconomic status achieved by individuals during their various CRS.[89] Abundantly clear from the data is that men and women tended to peak in different positions, and that, in general, industrial workers' best status tended to be below that of the rest of the sample. 47.2 per cent of non-industrial workers reached the top two categories during their working lives. By contrast, only 28.2 per cent of industrial workers did the same. Instead, industrial workers tended to congregate in the bottom three categories. More than half of all industrial workers never climbed beyond these statuses, while only a quarter of non-industrial workers were similarly confined to the bottom of the distribution. The prominence of these three categories was similar for both men and women, although among industrial workers, men were underrepresented in intermediate occupations and strongly overrepresented in the top two categories. Nevertheless, the general rule that men tended to appear in greater numbers at the tops of the three individual categories held. Even if confined to the bottom of the distribution in equal numbers, men tended to take the bulk of the supervisory roles available, leaving women disproportionately in routine jobs.

Putting significant gender inequality aside, some of the propensity of industrial workers to be confined to jobs with low SES can probably be attributed to parentage. Much of the logic behind this assertion is rooted in the extraordinarily deep literature on intergenerational mobility which, despite its methodological vulnerabilities, has consistently shown the strong impact of parents (and even grandparents) on a variety of children's outcomes.[90] It is frequently argued that intergenerational mobility has slowed

[89] This approach gives the best chance of capturing workers' status at 'occupational maturity' which Goldthorpe and Bukodi suggest occurred at different ages depending on a person's birth cohort. E. Bukodi and J. Goldthorpe, "Class Origins, Education and Occupational Attainment in Britain", *European Societies* 12, no. 3 (2011): 361–364.

[90] P. Engzell and C. Mood, "Understanding Patterns and Trends in Income Mobility through Multiverse Analysis", *American Sociological Review* 88, no. 4 (2023): 600–626; B. Rohenkohl, "Intergenerational income mobility: New evidence from the UK", *Journal of Economic Inequality* 21 (2023): 789–814; in re-

Table 3.5.2: Distribution of peak socioeconomic status among different types of workers (%)

Highest occupational status	Non-industrial		Industrial	
	Female	Male	Female	Male
Higher managerial, administrative, and professional occupations	6.7	18.9	5.1	15.6
Lower managerial, administrative, and professional occupations	38.6	31.2	14.5	18.4
Intermediate occupations	24.1	10.1	23.8	6.5
Small employers and own account workers	4.9	14.6	3.2	7.3
Lower supervisory and technical occupations	6.8	12.5	14.0	31.1
Semi-routine occupations	13.4	6.2	19.6	12.0
Routine occupations	5.6	6.6	19.7	9.0
N	3,200	2,253	684	999

Figures derived from BHPS work-life histories. Data on socioeconomic status are displayed under the 8-category formulation of the NS-SEC, excluding the final category ('Never worked and long-term unemployed'). Under the 3-category system, the first two categories are merged into 'Higher managerial, administrative, and professional occupations', the middle two into 'Intermediate occupations', and the last three into 'Routine and manual occupations'.

in recent decades, although there are important nuances regarding differences in absolute mobility, which was previously driven by structural change and has since levelled out, and relative mobility, which Goldthorpe (among others) argue has been reasonably stable.[91] The structural argument strongly questions the importance of education policy in promoting mobility, especially considering wealthy parents' ability to use the acquisition of qualifications to shield their children from the risk of downward mobility.[92]

Analysing rates of intergenerational mobility and their change over time is well beyond the scope of the present study. However, getting a general picture of the SES of industrial workers relative to other people in the sample, and attempting to clarify the

lation to grandparents, see M. Zhang, "Social Mobility over Three Generations in Britain" (PhD diss., University of Manchester, 2017).

[91] L. van der Erve et al., *Intergenerational mobility in the UK* (London: Institute for Fiscal Studies, 2023); J. Blanden et al., "Changes in intergenerational mobility in Britain", in *Generational Income Mobility in North America and Europe*, ed. M. Corak (Cambridge: Cambridge University Press, 2004), 122–146; J. Goldthorpe, "Understanding – and Misunderstanding – Social Mobility in Britain: The Entry of the Economists, the Confusion of Politicians and the Limits of Educational Policy", *Journal of Social Policy* 42, no. 3 (2013): 431–450.

[92] E. Bukodi and J. Goldthorpe, "Intergenerational class mobility in industrial and post-industrial societies: Towards a general theory", *Rationality and Society* 34, no. 3 (2022): 271–301.

extent to which these differences were robust to other variables is of direct relevance. This can be achieved with a linear regression model, described in Equation 3.4, which assesses the impact of gender, the SES of parents, qualifications, birth year, number of CRS, and the type of worker on the highest SES achieved by individuals. The regression is not an exercise in precise estimation. Rather, its function is to assess whether the variables of interest had a statistically significant impact and whether that impact was positive or negative.

$$\begin{aligned} SES = a + \beta_1(FEMALE) + \beta_2(PARENT) + \beta_3(QUALIFICATIONS) \\ +\beta_4(BIRTH < 1940) + \beta_5(CRS) + \beta_6(SECTOR) + \epsilon \end{aligned} \tag{3.4}$$

The results of the regression, displayed in Table 3.5.3, have three important features. First, nearly all the coefficients are statistically significant. This means that there can be reasonable confidence that each variable had an impact on individuals' highest SES independently of one another. Therefore, however powerful parental inheritance was in relation to socioeconomic status, it alone did not explain where children ended up. Second, of the non-sector variables, post-secondary qualifications had by far the most powerful influence on SES. Unlike parentage, birth year, and being female, the coefficient in relation to qualifications was negative, meaning that it was associated with higher status. Of the other non-sector variables, only the number of significant jobs also had a negative coefficient. This finding gives some credence to the theory discussed in Section 3.4.2 that people with a single CRS in their careers were negatively selected, at least in terms of their socioeconomic standing. Third, *ceteris paribus*, the status of industrial workers was lower than all other types of worker in the sample. The gap was largest between industrial workers and workers in FIRE industries, but even sector nomads performed better.

An altogether different matter is the question of lifetime social mobility – comparing in sociological terms where people began to where they ended up. In the literature, the fact that starting points are heavily influenced by parents means that research into lifetime intragenerational mobility is commonly bound up with intergenerational con-

Table 3.5.3: Linear regression model of peak SES

	Peak SES
Female	0.097***
	(0.021)
Parental SES	0.149***
	(0.016)
Post-secondary qualifications	-0.578***
	(0.023)
Birth year <1940	0.085***
	(0.024)
Number of CRS	-0.102***
	(0.006)
Leading sector	
Agriculture	-0.191**
	(0.077)
Construction	-0.053
	(0.053)
FIRE	-0.641***
	(0.044)
Industrial	-
Other services	-0.180***
	(0.051)
Professional & technical	-0.566***
	(0.042)
Public sector	-0.553***
	(0.033)
Transport & distributive	-0.118***
	(0.036)
None	-0.265***
	(0.034)
N	4780
R^2	0.327

Figures derived from BHPS work-life histories. SES and sector are considered in terms of the 3-category NS-SEC classification and 8-category breakdown used throughout this chapter.. Positive coefficients suggest lower SES and negative ones higher. The last eight coefficients are to be interpreted relative to industrial workers. Standard errors, clustered at the individual level, are given in brackets. $^{*}p < 0.1$, $^{**}p < 0.05$, and $^{***}p < 0.01$.

cerns.[93] However, research has shown that while year on year changes were negligible, mobility tended to occur over the long term.[94] Analyses of internal migration have also shown the existence of particular 'escalators' across the country – especially for graduates – with London holding a prominent position.[95] Research from the perspective of sector is, however, somewhat rarer, and between the 1970s and 1990s much of it was embroiled in the debate about the existence of segmented labour markets in the British context.[96] Recent work has, however, shown clear divides between 'traditional' professional sectors such as law, medicine, and finance and emerging high-status occupations with regard to opportunities for mobility. While newer sectors such as IT recruit more widely and offer considerable opportunities for improvements in SES, traditional professions have remained socially exclusive.[97]

A sense of the overall patterns of mobility between individuals' first and last CRS can be seen in Table 3.5.4. The most striking observation to be made is that immobility was the norm, at least under the 3-category NS-SEC, among both industrial workers and the rest of the sample. Upwards mobility was reasonably common, with just over one in five industrial workers and almost one in three non-industrial workers experiencing improvements. By contrast, reductions in SES were relatively uncommon, with industrial workers performing slightly better than their non-industrial compatriots.

Once again it is only through the use of logistic regression models that the differences between industrial workers and the rest of the sample, as well as the role of specific variables in determining the chances of mobility, can be assessed. The generic form for the models are given in Equation 3.5. The dependent variable is whether a person experienced upward, downward, or no mobility between their first and last CRS, and the

[93] P. Gregg, L. Macmillan and C. Vittori, "Moving Towards Estimating Sons' Lifetime Intergenerational Economic Mobility in the UK", *Oxford Bulletin of Economics and Statistics* 79, no. 1 (2017): 79–100.

[94] S. Jarvis and S. Jenkins, "How Much Income Mobility is There in Britain?", *The Economic Journal* 108, no. 447 (1998): 428–443; R. Dickens, "Caught in a Trap? Wage Mobility in Great Britain: 1975-1994", *Economica* 67, no. 268 (2000): 477–497.

[95] B. Wielgoszewska, "Onwards and upwards? Migration and social mobility of the UK graduates", *Regional Studies* 5, no. 1 (2018): 402–411.

[96] M. Leontaridi, "Segmented Labour Markets: Theory and Evidence", *Journal of Economic Surveys* 12, no. 1 (1998): 63–102.

[97] S. Friedman, D. Laurison and A. Miles, "Breaking the 'Class' Ceiling? Social Mobility into Britain's Elite Occupations", *Sociological Review* 63, no. 2 (2015): 259–289.

Table 3.5.4: Workers' lifetime mobility (%)

Change in SES	Industrial	Non-industrial
Up	22.1	31.0
Down	6.7	9.2
None	70.1	54.4
Unknown	1.1	5.4
N	1,684	5,653

Figures derived from BHPS work-life histories. Lifetime mobility is measured in terms of differences in SES – measured under the 3-category NS-SEC – observed between workers' first and last CRS. The direction of mobility is unknown in cases where there are no data on SES or data at the first or last CRS only.

independent variables are the now familiar dummies for post-secondary qualifications, sex, whether or not someone changed sector, and whether or not a person was a worker in a specific sector. The coefficients in relation to sector ought to be read relative to industrial workers. The models also include a battery of controls for pre-1940 birth, number of CRS, SES of the person's first job, the start and end dates of the first and last CRS, as well as the person's age at those two points. In other versions of the model, the status of parents is included but is not statistically significant. This likely owes something to parents' influence being strongest at the beginning of individual's careers.[98]

$$\begin{aligned} logit(MOBILITY) = a + \beta_1(QUALIFICATIONS) + \beta_2(FEMALE) \\ +\beta_3(\Delta SECTOR) + \beta_4(SECTOR) + \beta_5(CONTROLS) + \epsilon \end{aligned} \tag{3.5}$$

The results from the three models – one for improvements, deteriorations, and no change in status across the life course respectively – are given in Table 3.5.5. Compared to the other regressions used in this chapter, the models of lifetime mobility are somewhat less effective, with the bulk of the explanatory variables having an impact only in relation to upward mobility. As was the case in the regressions concerning pairs of CRS presented in Table 3.4.5, the possession of post-secondary qualifications was an enabling factor in upward mobility and a bulwark against downward mobility over the life course.

[98] A. Gugushvili, E. Bukodi and J. Goldthorpe, "The Direct Effect of Social Origins on Social Mobility Chances: 'Glass Floors' and 'Glass Ceilings' in Britain", *European Sociological Review* 33, no. 2 (2017): 305–316.

Switching sectors was also a risky business. Those who switched sectors in their lifetime were much more likely to experience upward and downward mobility compared to those who stayed in just one. In line with the figures in Table 3.5.4, those who stuck with one sector for their significant jobs were around 86 per cent more likely to see no change in their lifetime SES compared to those who moved. Unlike Table 3.4.5, which showed that gender made little difference on the trajectory of workers between pairs of CRS, women were less likely to see upward mobility and much more likely to have endured downward mobility over the course of their lifetimes.

The results in relation to workers' main sector of employment paint a grim picture. Even holding the other independent variables and the various controls constant, industrial workers were significantly less likely to experience upward mobility during their lifetimes than other workers in the sample. This result holds even relative to sector nomads and those employed in the low-end other services group, who were 68 and 83 per cent more likely than industrial workers to experience upward mobility in their lifetimes. Construction workers also had much higher odds of upward mobility than their industrial counterparts. To a degree this is unsurprising, the opportunities for advancement in construction are large, with formerly unskilled workers who stick with the sector being able to develop crafts and, in some cases, go on to found their own firms.[99] As it involves a reorientation of social relationships at work, self employment is considered a significant step up under the NS-SEC, thus further increasing the opportunities for upward mobility.

Industrial workers' relative lack of mobility can be put in some perspective by calculating predicted probabilities in the same manner as in Section 3.3.5. According to the model, the odds that a person enjoyed upward mobility were around 37 per cent. If they had post-secondary qualifications, the odds rose to 41.5 per cent. The predicted probability that industrial workers enjoyed improvements in their SES was, however, just 30 per cent – well below that of workers in FIRE industries (47 per cent) and even transport and

[99] G. Winch, "The growth of self-employment in British construction", *Construction Management and Economics* 16, no. 5 (1998): 531–542.

Table 3.5.5: Logistic regression models of workers' lifetime mobility

	(1) Up	(2) Down	(3) None
Post-secondary qualifications	1.288***	0.637***	0.986
	(0.102)	(0.085)	(0.078)
Female	0.614***	1.803***	1.277***
	(0.040)	(0.189)	(0.081)
Single-sector career	0.586***	0.731***	1.857***
	(0.042)	(0.084)	(0.127)
Leading sector:			
Agriculture	0.869	1.798	0.865
	(0.241)	(0.658)	(0.214)
Construction	1.953***	0.850	0.542***
	(0.298)	(0.262)	(0.083)
FIRE	2.117***	0.768	0.564***
	(0.321)	(0.200)	(0.090)
Industrial	-	-	-
Other services	1.830***	0.905	0.603***
	(0.290)	(0.210)	(0.092)
Professional & technical	1.133	0.971	0.985
	(0.180)	(0.232)	(0.154)
Public sector	1.483***	0.881	0.769***
	(0.154)	(0.146)	(0.077)
Transport & distributive	1.330***	1.360**	0.681***
	(0.125)	(0.189)	(0.060)
None	1.675***	0.867	0.654***
	(0.153)	(0.126)	(0.058)
Constant	0.552	0.214***	0.696
	(0.201)	(0.113)	(0.236)
Controls	YES	YES	YES
N	5698	5698	5698

Changes in SES and sector are in terms of the 3-category NS-SEC classification and 8-category breakdown used throughout this chapter. In each model the dependent variable is the direction of change in SES between workers' first and last CRS. Each coefficient therefore represents the effect of a variable on the odds of a particular change in SES. All coefficients are odds ratios, with figures above and below 1 representing increased and decreased likelihood respectively. The coefficients in relation to sector are to be interpreted relative to industrial workers. Standard errors, clustered at the individual level, are given in brackets. $^{*}p < 0.1$, $^{**}p < 0.05$, and $^{***}p < 0.01$.

distributive services (36 per cent). Despite this, there is little evidence from the models that industrial workers tended to be downwardly mobile. Indeed, again corroborating the figures in Table 3.5.4, industrial workers appear to have been robustly immobile in their SES. As can be seen in the third model of 3.5.5, most groups of workers appear to have been between 25 and 45 per cent less likely than industrial workers to have remained in a single socioeconomic status across their first and last significant jobs. This immobility marks British industrial workers out against their French and German counterparts, many more of whom used the industrial sector to leave behind other manual jobs (especially in agriculture) and significantly improve their status.[100]

3.6 Conclusion

Together, the findings of this chapter paint a detailed picture of who Britain's industrial workers were, the character of their careers, and their status relative to other workers. The picture that emerges is of a largely, but by no means overwhelmingly, male workforce without degrees, born before the Second World War to parents themselves more likely to have been working in the industrial sector. Using a novel approach to examining work histories – the identification of career-relevant spells – the chapter similarly sheds new light on the impact of inflection points on industrial careers. It is shown, for example, that few industrial workers had another significant job once they left the sector behind, and that those who did ended up in low-end service activities. This was a potentially risky business. As Table 3.4.5 showed, a change of sector between two CRS increased the odds of a downward shift in social mobility by 146 per cent.

While data availability reasons mean that the analysis contained in this chapter cannot be aligned fully with those of Chapters 1 and 2 (it would, for example, have been interesting to assess the importance of living in a 'declining' area during the 1980s), they do offer glimpses of how some of the processes they identify played out for individuals. Among the most important of these are the insights given into sector switching.

[100] L. Raphael, "Life Courses, Career Paths, and the Search for Employment in Times of Change: Industrial Workers in Germany, France and Britain, 1970 to 2000", in *Life Course, Work, and Labour in Global History*, ed. J. Ehmer and C. Lentz (Berlin: Walter de Gruyter, 2023), 71–93.

For example, the tendency for individuals to move from declining C-THEM activities into the rest of the industrial sector aligns with the view of sector turnover presented in Chapter 1. In the case of Chapter 2, the fact that the modal destination for former industrial workers was transport and distributive services suggests that the resilience of surviving areas, which depended on growth in these sectors, involved sector switching by individuals rather than compositional changes. Considering the fact that changing sector often ran the risk of downward mobility, this in turn suggests that surviving areas' resilience did not necessarily yield many benefits for former industrial workers. Indeed, most of the benefits were probably relative – having a job, even if it was worse than that a person held previously, was better than nothing at all.

Finally, while it makes no attempt to challenge the orthodoxies of the mobility literature, the chapter also breaks new ground by putting emphasis on sector within discussions of socioeconomic status. In doing so, it gets to the heart of a number of peculiarities of industrial work and industrial society, the prosperity of which appears to have depended not on personal advancement but rather on security for a generally immobile industrial working class. Rather than impeding the ability of working-class people to 'get on', the real impact of deindustrialisation was the degree to which it deprived people of the steady state of prosperity that was built on the back of the industrial economy in the first decades after the Second World War.

Conclusion

Of all the economic shifts to have occurred in the last century, the onset of deindustrialisation has perhaps been the most important. In a period of fifty years, Britain created and then destroyed an industrial economy that yielded unparalleled prosperity of working-class people, and the consequences of doing so have been profound. Today, Britain is littered with a plethora of industrial towns in the grip of complex social problems. Efforts to improve them, of which the last government's abortive 'Levelling-Up' strategy is the most recent example, have thus far failed to rise to the challenge, leaving behind an economy in which entire regions are unable to make a contribution and a society disgruntled by a loss of purpose.

As noted in the introduction to this thesis, the reasons for this are varied, with much of the national picture being explained by economic maturity and changes in the balance of global trade. Yet the British malaise has special characteristics rooted in its history. Here, deindustrialisation was both far deeper and more rapid than seen in other countries, and the neglect of our cities during the boom years created both a set of towns with uncertain futures in the post-industrial world and a persistent productivity problem. Indeed, if the figures from the Centre for Cities are to be believed, a critical reason for Britain's sluggish performance relative to its G7 equivalents lies in the weakness of its secondary cities such as Birmingham, Manchester, and Leeds.[101] Had their experience of deindustrialisation, both during the reorganisation of the industrial economy before 1971 and in the elimination phase that followed it, been less extreme, then it is not bey-

[101] A. Breach and P. Swinney, *Climbing the Summit: Big cities in the UK and the G7* (London: Centre for Cities, 2024).

ond the realm of possibility that Britain would be richer than it is today.

Economic geography matters because it determines how people live and work. For this reason, this thesis places a great deal of emphasis on the role of place in the history of deindustrialisation, and has assembled a treasure trove of data in order to do so. Thanks to a new classification system contained in the Appendix to this thesis, the employment data of the 1970s and 1980s are now available both precisely and consistently. Work combining secondary resources and extracting figures from censuses from 1921 onwards similarly means that there is now an employment series for every county and major city. Moreover, from a non-spatial perspective, a novel approach to the work history files of the BHPS similarly mean there is now a new framework through which careers can be understood.

The value of this progress can be seen in the contributions made by each chapter of this thesis. In Chapter 1, which is focused on the period of sectoral and spatial reorganisation prior to 1971, it is shown that deindustrialisation reached some parts of the country long before the national retreat of industrial employment beginning in 1966. Thanks to the rich sectoral employment data used, the chapter shows the extent to which variations in the chronology of deindustrialisation were influenced by the churn of activities within the industrial sector. It also highlights the degree to which struggling areas managed to attract new industries despite their decline. Places such as Lancashire and County Durham actually had more employment in expanding industries than places like Buckinghamshire and Warwickshire; the difference was that they were replacing jobs lost elsewhere rather than growing from scratch.

Key to Chapter 1 is a discussion of policy, and especially the degree to which successive governments allowed (and facilitated) the decline of the major cities. In proportional terms, more people lived and worked in London and the major cities in 1931 than any subsequent year. A key reason for this was deindustrialisation. Unlike smaller places, big cities did not replace the jobs they lost in declining industries with new employment in expanding ones. Indeed, they missed out on the boom in expanding industries altogether.

Despite possessing nearly 22 per cent of all jobs in expanding industries in 1921, London and the major cities were the recipients of just over 1 per cent of the new jobs created in expanding industries nationally up to 1971. Natural 'urban-rural shift' explains a great deal of this, but policy also played a role. Guided by ideological priors about the nature of a good life and sceptical of industrialists' ability to make good locational decisions, successive governments made little attempt to arrest urban decline and, in many cases, worked to intensify it.

Moving the analysis to the 1970s and 1980s, Chapter 2 offers new insights into how the elimination of industrial work played out across labour market areas, as well as an explanation as to why some deindustrialisations had a much more negative impact than others. At the heart of this chapter is a new typology, which draws a distinction between places where deindustrialisation resulted in a contraction in a place's labour force compared to those where it did not. The chapter shows that this cleavage explains many of the differences in outcomes observed across post-industrial communities. Yet the contribution of the chapter does not stop there. Using shift-share analysis, Chapter 2 shows how the weakness of declining areas was rooted in structural factors.

Together, these two chapters constitute a full comparative history of the deindustrialisation of places across the twentieth century – from the reorganisation of the industrial economy through to its elimination in the 1970s and 1980s. Although this is very much a national history, the materials collected to produce these chapters are comprehensive enough to conduct more localised analyses in future. One possible candidate for a case study analysis such as this is Liverpool, a place commonly seen to be a victim of deindustrialisation despite the fact that industrial employment was, at least by 1971, relatively low.[102]

Notwithstanding the fact that Liverpool has never been an industrial city in the mould of Sheffield or Birmingham, the wider city region's industrial history, at least in the pre-1971 period, was arguably the national story in microcosm. In the post-war

[102]In 1971, the share of Liverpool's labour force engaged in industrial work was just 36 per cent, compared to an average 38 per cent across all TTWAs in the country.

period, Liverpool was subject to considerable overspill provisions that scattered its population throughout its immediate vicinity.[103] These receiving locations were often highly industrialised, specialising in the growing industries that were underpinning national growth at the time. Take, for example, Ellesmere Port – a large town on the south bank of the Mersey that took thousands of Liverpool families in the post-war period.[104] The 1983 edition of Waller's *Almanac of British Politics*, which contains information on every seat in the country, describes the town as follows

> The new constituency of Ellesmere Port and Neston is squeezed between the muddy, swampy estuaries of the Dee and the Mersey. This is one of Britain's most functional, industrial landscapes. By the Mersey can be found the massive complex of the oil refinery at Stanlow. There is a power station at Ince. Vauxhall Motors have a factory at the north end of Ellesmere Port. There are docks, paper-works, oil depots, sewage works, fertiliser factories and many other concerns. Chimneys and flares overshadow the council estates of Ellesmere Port, a town created by the Industrial Revolution and the Manchester Ship Canal.[105]

Whilst Waller's description sounds almost Dickensian in tone, this was a period of – in historical terms – considerable prosperity for the town, especially relative to Liverpool, where employment went into free fall after 1961. However, like many such places, this period of industry-backed prosperity came to an abrupt halt in the 1970s and 1980s. Between 1971 and 1991, the Wirral and Chester TTWA, of which Ellesmere Port was part, lost half of its industrial jobs, and industry's share of employment dropped from 43 to just 24 per cent.[106] It was not, however, a stereotypical declining area. Shift-share analysis shows that both Wirral and Chester and Liverpool itself were 'super-decliners' – places where industrial employment collapsed with greater ferocity than structural factors alone would predict. This contrasts particularly harshly with places even in the same region. The nearby Widnes and Runcorn and Warrington TTWAs were textbook surviving areas that maintained their employment levels despite downward structural

[103]S. Dellaria, "A New Town and a numbers game: Runcorn, Merseyside, and Liverpool", *Planning Perspectives* 37, no. 2 (2022): 243–265.
[104]P. Aspinall and D. Hudson, *Ellesmere Port: The Making of an Industrial Borough* (Ellesmere Port: Ellesmere Port / Neston Borough Council, 1982), Chapter 10.
[105]R. Waller, *The Almanac of British Politics* (London: Croom Helm, 1983), 252.
[106]Evans, "Understanding deindustrialisation in Merseyside, 1971-1991: lessons for policy", 3.

pressures.

The economic and social history of greater Merseyside is just one topic that can be informed by this thesis. There are, as mentioned earlier, many other potential case studies to be written, as well as broader histories of work and class. For these it may be valuable to turn to the research presented in Chapter 3 which, through its focus on sector changes and 'career-relevant spells' concept, offers new ways to approach work histories. Thanks to this framework, Chapter 3 is able to show what industrial workers tended to do after their last significant industrial job, as well as assess the implications of taking jobs in different sectors for their socioeconomic status. There is no reason why an analysis inspired by this approach cannot be completed on other datasets, especially those that contain a regional element. This, of course, is the 'missing puzzle' of Chapter 3. Data limitations mean that it does not, at present, say much about how living in a declining area affected career trajectories.

But more importantly, the modelling of the importance of age, sex, parentage, and education in Chapter 3 goes some way to explaining why the impact of deindustrialisation was generationally so painful. The industrial workers of the elimination era began to build their careers at a time when unemployment and inequality were falling, and the industrial sector was able to provide stability and good wages. Losing this, particularly in light of the experiences of these workers' parents (who were themselves industrial workers in more troubled times), was always going to be a terrible blow. This, in a nutshell, was the cruelty of deindustrialisation in Britain. No sooner had the industrial working class achieved economic security and agency over its collective life was it taken away by the collapse of the industrial economy.

Appendix: a custom industrial classification

The following pages contain a 'look up table' to convert statistics broken down by industry under the 1968 and 1980 SICs into that used in Chapter 2. The purpose of constructing a new standard was to facilitate the use of statistical tools (namely dynamic shift-share analysis) to try and understand the employment trajectories of places under the different deindustrialisation types, but it would be fair to assume that the standard may be of use to scholars researching different questions. I therefore publish the standard both in the name of transparency in my own work, as well as in the hope of helping the work of others.

As discussed in the main body of Chapter 2, the standard was constructed by placing industries at the most granular level of aggregation available under the two SICs into one of eight groups that bear some resemblance to those used under the present 2007 SIC. From there, instances where specific industries could be identified were noted, with the rest remaining in a less homogenous group within the 'section' to which they belong. The resulting standard contains 126 industries, far more than available elsewhere.

It is worth noting that, with the exception of postal services and telecommunications, the custom classification presented here aggregates rather than apportions. Industries under the two original SICs are, therefore, never broken up; instead, the 126 industries here are always constructed of one or more original categories. While a standard based on apportionment would have theoretically been more precise, it was inappropriate in this case because the data of interest to this thesis are local, and it is impossible to know

whether apportionments made on the basis of national breakdowns between industries would be appropriate on a local scale. For example, whilst 75 per cent of hypothetical industry ‘A’ under the 1968 SIC may have ended up in hypothetical industry ‘B’ under the 1980 SIC, it is unknowable whether this was the case in all places.

SIC 1968	SIC 1980	Section	Industry
104: Petroleum and natural gas	1300: Extraction: mineral oil/natural gas	BCDE	BCDE.1
102: Stone and slate quarrying and mining	2100: Extraction/preparation: metalliferous ore	BCDE	BCDE.2
103: Chalk, clay, sand and gravel extraction	2310: Extraction: stone, clay, sand/gravel	BCDE	BCDE.2
109: Other mining and quarrying	2330: Salt extraction/refining	BCDE	BCDE.2
	2396: Extraction: other minerals N.E.S.	BCDE	BCDE.2
216: Sugar	4200: Sugar/sugar by-products	BCDE	BCDE.3
232: Soft drinks	4283: Soft drinks	BCDE	BCDE.4
240: Tobacco	4290: Tobacco industry	BCDE	BCDE.5
212: Bread and flour confectionary	4196: Bread/flour confectionary	BCDE	BCDE.6
213: Biscuits	4197: Biscuits/crispbread	BCDE	BCDE.7
217: Cocoa, chocolate and sugar confectionary	4214: Cocoa, chocolate/sugar confectionary	BCDE	BCDE.8
214: Bacon curing, meat and fish products	4121: Slaughterhouses	BCDE	BCDE.9
221: Vegetable and animal oils and fats	4122: Bacon curing/meat processing	BCDE	BCDE.9
	4123: Poultry slaughter/processing	BCDE	BCDE.9

SIC 1968	SIC 1980	Section	Industry
	4126: Animal by-product processing	BCDE	BCDE.9
	4150: Fish processing	BCDE	BCDE.9
	4116: Processing organic oils/fats	BCDE	BCDE.9
215: Milk and milk products	4130: Preparation of milk/milk products	BCDE	BCDE.10
	4213: Ice cream	BCDE	BCDE.10
219: Animal and poultry foods	4221: Compound animal feeds	BCDE	BCDE.11
	4222: Pet foods/non-compound animal feeds	BCDE	BCDE.11
211: Grain milling	4160: Grain milling	BCDE	BCDE.12
218: Fruit and vegetable products	4147: Processing of fruit/vegetables	BCDE	BCDE.12
229: Food industries N.E.S.	4239: Miscellaneous foods	BCDE	BCDE.12
	4115: Margarine/compound cooking fats	BCDE	BCDE.12
	4180: Starch	BCDE	BCDE.12
231: Brewing and malting	4270: Brewing/malting	BCDE	BCDE.13
239: Other drink industries	4240: Spirit distilling/compounding	BCDE	BCDE.14

SIC 1968	SIC 1980	Section	Industry
	4261: Wines, cider/perry	BCDE	BCDE.14
261: Coke ovens and manufactured fuel	1115: Manufacture: solid fuels	BCDE	BCDE.15
	1200: Coke ovens	BCDE	BCDE.15
262: Mineral oil refining	1401: Mineral oil refining	BCDE	BCDE.16
263: Lubricating oils and greases	1402: Other treatment: petroleum products	BCDE	BCDE.17
272: Pharmaceutical chemicals etc	2570: Pharmaceutical products	BCDE	BCDE.18
273: Toilet preparations	2582: Perfumes, cosmetics/toilet preparations	BCDE	BCDE.19
278: Fertilizers	2513: Fertilisers	BCDE	BCDE.20
274: Paint	2551: Paints, varnishes/painters' fillings	BCDE	BCDE.21
275: Soap and detergents	2563: Chemical treatment of oils/fats	BCDE	BCDE.22
	2581: Soap/synthetic detergents	BCDE	BCDE.22
271: General chemicals	1520: Nuclear fuel production	BCDE	BCDE.23
276: Synthetic resins, plastic materials, etc	2512: Basic organic chemicals	BCDE	BCDE.23
277: Dyestuffs and pigments	2564: Essential oils/flavouring materials	BCDE	BCDE.23

SIC 1968	SIC 1980	Section	Industry
279: Other chemical industries	2515: Synthetic rubber	BCDE	BCDE.23
	2514: Synthetic resins/plastic materials	BCDE	BCDE.23
	2516: Dyestuffs/pigments	BCDE	BCDE.23
	2511: Inorganic chemicals, not industrial gases	BCDE	BCDE.23
	2567: Miscellaneous chemical products	BCDE	BCDE.23
	2552: Printing ink	BCDE	BCDE.23
	2562: Formulated adhesives/sealants	BCDE	BCDE.23
	2565: Explosives	BCDE	BCDE.23
	2599: Chemical products (Other)	BCDE	BCDE.23
	2568: Formulated pesticides	BCDE	BCDE.23
	2591: Photographic materials/chemicals	BCDE	BCDE.23
342: Ordnance and small arms	3290: Ordnance/small arms/ammunition	BCDE	BCDE.24
333: Pumps, valves and compressors	3283: Compressors/fluid power equipment	BCDE	BCDE.25
	3287: Pumps	BCDE	BCDE.25
	3288: Industrial valves	BCDE	BCDE.25

SIC 1968	SIC 1980	Section	Industry
334: Industrial engines	3281: Internal combustion engines etc	BCDE	BCDE.26
336: Construction and earth-moving equipment	3254: Construction/earth moving equipment	BCDE	BCDE.27
337: Mechanical handling equipment	3255: Mechanical lifting/handling equipment	BCDE	BCDE.28
332: Metal-working machine tools	3221: Metal-working machine tools	BCDE	BCDE.29
339: Other machinery	3244: Food/drink/tobacco processing machinery	BCDE	BCDE.29
349: Other mechanical engineering N.E.S.	3251: Mining machinery	BCDE	BCDE.29
	3275: Machinery for working wood, rubber, etc	BCDE	BCDE.29
	3276: Printing, bookbinding, etc: machinery	BCDE	BCDE.29
	3284: Refrigerating machinery, etc	BCDE	BCDE.29
	3285: Scales, etc/portable power tools	BCDE	BCDE.29
	3286: Other industrial/commercial machinery	BCDE	BCDE.29
	3261: Precision chains; etc	BCDE	BCDE.29
	3262: Ball/needle/roller bearings	BCDE	BCDE.29
	3289: Mechanical, etc engineering (Other)	BCDE	BCDE.29
338: Office machinery	3301: Office machinery	BCDE	BCDE.30

SIC 1968	SIC 1980	Section	Industry
352: Watches and clocks	3740: Clocks, watches/other timing devices	BCDE	BCDE.31
351: Photographic and document copying	3720: Medical/surgical/orthopaedic appliances	BCDE	BCDE.32
353: Surgical instruments and appliances	3731: Spectacles/unmounted lenses	BCDE	BCDE.32
354: Scientific and industrial instruments	3732: Optical precision instruments	BCDE	BCDE.32
	3733: Photographic/cinematographic equipment	BCDE	BCDE.32
	3442: Electrical instruments/control systems	BCDE	BCDE.32
	3710: Measuring, checking/instruments/etc	BCDE	BCDE.32
362: Insulated wires and cables	3410: Insulated wires/cables	BCDE	BCDE.33
363: Telegraph and telephone apparatus etc	3441: Telegraph/telephone apparatus/equipment	BCDE	BCDE.34
366: Electronic computers	3302: Electronic data processing equipment	BCDE	BCDE.35
361: Electrical machinery	3420: Basic electrical equipment	BCDE	BCDE.36
368: Electric appliances(domestic use)	3435: Electrical equipment: industrial (Other)	BCDE	BCDE.36
365: Broadcast, sound reproduction equipment	3460: Domestic-type electric appliances	BCDE	BCDE.36
367: Radio, radar and electronic capital goods	3452: Gramophone records/pre-recorded tapes	BCDE	BCDE.36
369: Other electrical goods	3454: Electronic consumer goods/etc (Other)	BCDE	BCDE.36

SIC 1968	SIC 1980	Section	Industry
	3433: Alarms/signalling equipment	BCDE	BCDE.36
	3443: Radio/electronic capital goods	BCDE	BCDE.36
	3434: Electrical equipment: motor vehicles, etc	BCDE	BCDE.36
	3470: Electric lamps/lighting equipment	BCDE	BCDE.36
	3432: Batteries/accumulators	BCDE	BCDE.36
	3480: Electrical equipment installation	BCDE	BCDE.36
364: Radio and electronic components	3444: Components: electronic equipment	BCDE	BCDE.37
	3453: Active components/sub-assemblies	BCDE	BCDE.37
390: Engineers' small tools and gauges	3222: Engineers' small tools	BCDE	BCDE.38
391: Hand tools and implements	3161: Hand tools/implements	BCDE	BCDE.38
392: Cutlery, plated tableware, etc	3162: Cutlery/similar tableware; razors	BCDE	BCDE.38
393: Bolts, nuts, screws, rivets, etc	3163: Metal storage vessels (non-industrial)	BCDE	BCDE.38
394: Wire and wire manufactures	3164: Packaging products of metal	BCDE	BCDE.38
395: Cans and metal boxes	3165: Domestic appliances (non-electrical)	BCDE	BCDE.38
399: Metal industries N.E.S.	3166: Metal furniture/safes	BCDE	BCDE.38
	3167: Domestic/similar utensils of metal	BCDE	BCDE.38

SIC 1968	SIC 1980	Section	Industry
	3169: Finished metal products (Other)	BCDE	BCDE.38
	3137: Bolts, etc/other non-precision chains	BCDE	BCDE.38
	2234: Drawing/manufacture: steel wire/products	BCDE	BCDE.38
	3138: Heat/surface treatment of metals, etc	BCDE	BCDE.38
	3142: Metal doors, windows, etc	BCDE	BCDE.38
	3650: Other vehicles	BCDE	BCDE.38
	3120: Forging, pressing/stamping	BCDE	BCDE.38
396: Jewellery and precious metals	4910: Jewellery/coins	BCDE	BCDE.39
411: Production of man-made fibres	2600: Production of man-made fibres	BCDE	BCDE.40
431: Leather(tanning and dressing)	4410: Leather (tanning/dressing)/fellmongery	BCDE	BCDE.41
432: Leather goods	4420: Leather goods	BCDE	BCDE.42
433: Fur	4560: Fur goods	BCDE	BCDE.43
450: Footwear	4510: Footwear	BCDE	BCDE.44
441: Weatherproof outerwear	4531: Weatherproof outerwear	BCDE	BCDE.45

SIC 1968	SIC 1980	Section	Industry
442: Mens and boys tailored outerwear	4532: Men's/Boys' tailored outerwear	BCDE	BCDE.46
443: Womens and girls tailored outerwear	4533: Women's/girls' tailored outerwear	BCDE	BCDE.47
444: Overalls and mens shirts, underwear, etc	4534: Work clothing/men's/boys' jeans	BCDE	BCDE.48
	4535: Men's/boys' shirts, underwear/nightwear	BCDE	BCDE.48
445: Dresses, lingerie, infants' wear, etc	4536: Women's/girls' light outerwear, lingerie	BCDE	BCDE.49
446: Hats, capes and millinery	4537: Hats/caps/millinery	BCDE	BCDE.50
449: Dress industries N.E.S.	4538: Gloves	BCDE	BCDE.51
	4539: Other dress industries	BCDE	BCDE.51
463: Glass	2471: Flat glass	BCDE	BCDE.52
	2478: Glass containers	BCDE	BCDE.52
	2479: Other glass products	BCDE	BCDE.52
461: Bricks, fireclay and refractory goods	2410: Structural clay products	BCDE	BCDE.53
462: Pottery	2481: Refractory goods	BCDE	BCDE.53
	2489: Ceramic goods	BCDE	BCDE.53

SIC 1968	SIC 1980	Section	Industry
464: Cement	2420: Cement, lime/plaster	BCDE	BCDE.54
469: Abrasives and building materials N.E.S.	2436: Ready mixed concrete	BCDE	BCDE.54
	2437: Other building products: concrete, etc	BCDE	BCDE.54
	2450: Working: stone/minerals (Other)	BCDE	BCDE.54
	2460: Abrasive products	BCDE	BCDE.54
471: Timber	4610: Sawmilling/planing, etc of wood	BCDE	BCDE.55
472: Furniture and upholstery	4620: Manufacture: semi-finished wood products	BCDE	BCDE.55
474: Shop and office fitting	4630: Builders' carpentry/joinery	BCDE	BCDE.55
475: Wooden containers and baskets	4640: Wooden containers	BCDE	BCDE.55
479: Miscellaneous wood and cork manufactures	4650: Other wooden articles (not furniture)	BCDE	BCDE.55
	4664: Articles: cork/plaiting materials	BCDE	BCDE.55
	4671: Wooden/upholstered furniture	BCDE	BCDE.55
	4672: Shop/office fitting	BCDE	BCDE.55
493: Brushes and brooms	4663: Brushes/brooms	BCDE	BCDE.56
481: Paper and board	4710: Pulp/paper/board	BCDE	BCDE.57

SIC 1968	SIC 1980	Section	Industry
484: Manufactures of paper and board N.E.S.	4721: Wall coverings	BCDE	BCDE.57
	4722: Household/hygiene products of paper	BCDE	BCDE.57
	4728: Other paper/board products	BCDE	BCDE.57
482: Packaging products of paper, board, etc	4724: Packaging products of paper/pulp	BCDE	BCDE.58
	4725: Packaging products of board	BCDE	BCDE.58
483: Manufactured stationery	4723: Stationery	BCDE	BCDE.59
485: Printing, publishing of newspapers	4751: Printing/publishing of newspapers	BCDE	BCDE.60
486: Printing, publishing of periodicals	4752: Printing/publishing of periodicals	BCDE	BCDE.61
489: Other printing, publishing, bookbinding	4753: Printing/publishing of books	BCDE	BCDE.62
	4754: Other printing/publishing	BCDE	BCDE.62
491: Rubber	2569: Adhesive film, cloth/foil	BCDE	BCDE.63
	4811: Rubber tyres/inner tubes	BCDE	BCDE.63
	4812: Other rubber products	BCDE	BCDE.63
	4820: Retreading/repairing of rubber tyres	BCDE	BCDE.63

SIC 1968	SIC 1980	Section	Industry
492: Linoleoum, plastic floor-covering, etc	4831: Plastic coated textile fabric	BCDE	BCDE.64
496: Plastics products N.E.S.	4832: Plastics semi-manufactures	BCDE	BCDE.64
	4833: Plastics floorcoverings	BCDE	BCDE.64
	4834: Plastics building products	BCDE	BCDE.64
	4835: Plastics packaging products	BCDE	BCDE.64
	4836: Plastics products (Other)	BCDE	BCDE.64
494: Toys, games, sports equipment, etc	4941: Toys/games	BCDE	BCDE.65
	4942: Sports goods	BCDE	BCDE.65
495: Miscellaneous stationers' goods	4954: Miscellaneous stationers' goods	BCDE	BCDE.66
499: Miscellaneous manufacturing industries	4920: Musical instruments	BCDE	BCDE.67
	4959: Other manufactures (Other)	BCDE	BCDE.67
601: Gas	1620: Public gas supply	BCDE	BCDE.68
602: Electricity	1610: Production/distribution: electricity	BCDE	BCDE.69
603: Water supply	1630: Production/distribution: other energy	BCDE	BCDE.69

SIC 1968	SIC 1980	Section	Industry
	1700: Water supply industry	BCDE	BCDE.69
101: Coal mining	1113: Deep coal mines	CTHEM	CTHEM.1
311: Iron and steel(general)	2210: Iron/steel industry	CTHEM	CTHEM.2
313: Iron castings, etc	3111: Ferrous metal foundries	CTHEM	CTHEM.2
	2235: Other drawing, cold rolling/etc: steel	CTHEM	CTHEM.2
312: Steeltubes	2220: Steel tubes	CTHEM	CTHEM.3
321: Aluminium and aluminium alloys	2245: Aluminium/aluminium alloys	CTHEM	CTHEM.4
322: Copper, brass and other copper alloys	2246: Copper, brass/other copper alloys	CTHEM	CTHEM.4
323: Other base metals	2247: Other non-ferrous metals/alloys	CTHEM	CTHEM.4
	3112: Non-ferrous metal foundries	CTHEM	CTHEM.4
335: Textile machinery and accessories	3230: Textile machinery	CTHEM	CTHEM.5
341: Industrial plant and steelwork	3204: Fabricated constructional steelwork	CTHEM	CTHEM.6
	3205: Boilers/process plant fabrications	CTHEM	CTHEM.6
	3245: Chemical industry machinery; etc	CTHEM	CTHEM.6

SIC 1968	SIC 1980	Section	Industry
	3246: Process engineering contractors	CTHEM	CTHEM.6
331: Agricultural machinery(except tractors)	3211: Agricultural machinery	CTHEM	CTHEM.7
380: Wheeled tractor manufacturing	3212: Wheeled tractors	CTHEM	CTHEM.8
371: Shipbuilding and ship repairing	3610: Shipbuilding/repairing	CTHEM	CTHEM.9
372: Marine engineering		CTHEM	CTHEM.9
381: Motor vehicle manufacturing	3510: Motor vehicles/their engines	CTHEM	CTHEM.10
	3521: Motor vehicle bodies	CTHEM	CTHEM.10
	3522: Trailers/semi-trailers	CTHEM	CTHEM.10
	3523: Caravans	CTHEM	CTHEM.10
	3530: Motor vehicle parts	CTHEM	CTHEM.10
384: Locomotives and railway track equipment	3620: Railway/tramway vehicles	CTHEM	CTHEM.11
385: Railway carriages and wagons and trams		CTHEM	CTHEM.11
382: Motor cycle, pedal cycle manufacturing	3633: Motor cycles/parts	CTHEM	CTHEM.12
	3634: Pedal cycles/parts	CTHEM	CTHEM.12

SIC 1968	SIC 1980	Section	Industry
383: Aerospace equipment manufacture/repair	3640: Aerospace manufacture/repairing	CTHEM	CTHEM.13
414: Woollen and worsted	4310: Woollen/worsted industry	CTHEM	CTHEM.14
415: Jute	4350: Jute/polypropylene yarns/fabrics	CTHEM	CTHEM.15
423: Textile finishing	4370: Textile finishing	CTHEM	CTHEM.16
419: Carpets	4384: Pile carpets, carpeting/rugs	CTHEM	CTHEM.17
	4385: Other carpets, carpeting, rugs/matting	CTHEM	CTHEM.17
412: Spinning/doubling(cotton, flax systems)	4321: Spinning/doubling on the cotton system	CTHEM	CTHEM.18
413: Weaving of cotton, linen, man-made fibres	4322: Weaving of cotton, silk/man-made fibres	CTHEM	CTHEM.18
	4336: Throwing, texturing, etc: filament yarn	CTHEM	CTHEM.18
	4340: Spinning/weaving of flax, hemp/ramie	CTHEM	CTHEM.18
417: Hosiery and other knitted goods	4363: Hosiery/etc weft knitted goods/fabrics	CTHEM	CTHEM.19
	4364: Warp knitted fabrics	CTHEM	CTHEM.19
416: Rope, twine and net	4396: Rope, twine/net	CTHEM	CTHEM.20
418: Lace	4395: Lace	CTHEM	CTHEM.21

SIC 1968	SIC 1980	Section	Industry
421: Narrow fabrics	4398: Narrow fabrics	CTHEM	CTHEM.22
422: Made-up textiles	4399: Other miscellaneous textiles	CTHEM	CTHEM.23
429: Other textile industries	4555: Soft furnishings	CTHEM	CTHEM.23
473: Bedding, etc	4556: Canvas goods, sacks/made-up textiles	CTHEM	CTHEM.23
	4557: Household textiles	CTHEM	CTHEM.23
	2440: Asbestos goods	CTHEM	CTHEM.23
500: Construction	5000: General construction/demolition work	F	F.1
	5010: Construction/repair of buildings	F	F.1
	5020: Civil engineering	F	F.1
	5030: Installation of fixtures/fittings	F	F.1
	5040: Building completion work	F	F.1
	8420: Hiring: construction machinery/equipment	F	F.1
	1114: Opencast coal working	F	F.1
705: Sea transport	7400: Sea transport	GHI	GHI.1
706: Port and inland water transport	7630: Supporting services: sea transport	GHI	GHI.1

SIC 1968	SIC 1980	Section	Industry
707: Air transport	7500: Air transport	GHI	GHI.2
	7640: Supporting services: air transport	GHI	GHI.2
708a: Postal (0.45 of 708)	7901: Postal services	GHI	GHI.3
703: Road haulage contracting(general hire)	7230: Road haulage	GHI	GHI.4
704: Other road haulage	8480: Hiring: transport equipment	GHI	GHI.4
701: Railways	7100: Railways	GHI	GHI.5
702: Road passenger transport	7210: Scheduled road transport/urban railways	GHI	GHI.5
	7220: Other road passenger transport	GHI	GHI.5
709: Miscellaneous transport services, etc	7260: Transport (Other)	GHI	GHI.6
	7610: Supporting services: inland transport	GHI	GHI.6
	7700: Miscellaneous transport services/storage	GHI	GHI.6
	9360: Driving/flying schools	GHI	GHI.6
810: Wholesale distribution of food and drink	6300: Commission agents	GHI	GHI.7
811: Wholesale distribution(petrol products)	6110: Wholesale distribution: raw materials	GHI	GHI.7
812: Other wholesale distibution	6120: Wholesale distribution: fuels, ores, etc	GHI	GHI.7

SIC 1968	SIC 1980	Section	Industry
831: Dealing(coal, oil, builders materials, etc)	6130: Wholesale distribution: timber etc	GHI	GHI.7
832: Dealing(other industrial materials, etc)	6149: Wholesale distribution: machinery etc	GHI	GHI.7
	6150: Wholesale distribution: household goods	GHI	GHI.7
	6160: Wholesale distribution: textiles, etc	GHI	GHI.7
	6170: Wholesale distribution: food, drink, etc	GHI	GHI.7
	6180: Wholesale distribution: medical goods	GHI	GHI.7
	6190: Other wholesale distribution	GHI	GHI.7
	6210: Dealing: scrap metals	GHI	GHI.7
	6220: Dealing: scrap materials/general dealers	GHI	GHI.7
	8410: Hiring: agricultural/horticultural equip	GHI	GHI.7
	8430: Hiring: office machinery/furniture	GHI	GHI.7
	8460: Hiring: consumer goods	GHI	GHI.7
	8490: Hiring: other movables	GHI	GHI.7
820: Retail distribution of food and drink	6410: Food retailing	GHI	GHI.8
821: Other retail distribution	6420: Confectioners, etc; off-licences	GHI	GHI.8
	6430: Dispensing/other chemists	GHI	GHI.8

SIC 1968	SIC 1980	Section	Industry
	6450: Retail distribution: clothing	GHI	GHI.8
	6460: Retail distribution: leather goods, etc	GHI	GHI.8
	6470: Retail distribution: household textiles	GHI	GHI.8
	6480: Retail distribution: household goods, etc	GHI	GHI.8
	6530: Retail distribution: books, stationery, etc	GHI	GHI.8
	6540: Other retail distribution (non-food)	GHI	GHI.8
	6560: Mixed retail businesses	GHI	GHI.8
	6730: Repair of other consumer goods	GHI	GHI.8
885: Restaurants, cafes, snack bars	6611: Eating places: consumption on premises	GHI	GHI.9
	6612: Take-away food shops	GHI	GHI.9
886: Public houses	6620: Public houses/bars	GHI	GHI.10
887: Clubs	6630: Night clubs/licensed clubs	GHI	GHI.11
888: Catering contractors	6640: Canteens/messes	GHI	GHI.11
884: Hotels/other residential establishments	6650: Hotel trade	GHI	GHI.12
	6670: Other tourist/short-stay accommodation	GHI	GHI.12

SIC 1968	SIC 1980	Section	Industry
894: Motor repairers, distributors, garages, etc	6148: Wholesale distribution: motor vehicles	GHI	GHI.13
	6510: Retail distribution: motor vehicles/parts	GHI	GHI.13
	6520: Filling stations-motor fuel/lubricants	GHI	GHI.13
	6710: Repair/servicing of motor vehicles	GHI	GHI.13
860: Insurance	8200: Insurance, not compulsory social security	KL	KL.1
	8320: Activities auxiliary to insurance	KL	KL.1
861: Banking and bill discounting	8140: Banking/bill-discounting	KL	KL.2
862: Other financial institutions	8150: Other financial institutions	KL	KL.2
	8310: Activities auxiliary to banking/finance	KL	KL.2
863: Property owning and managing, etc	8340: House/estate agents	KL	KL.3
	8500: Owning/dealing in real estate	KL	KL.3
708b: Telecommunications	7902: Telecommunications	MNJ	MNJ.1
873: Legal services	8350: Legal services	MNJ	MNJ.2
871: Accountancy services	8360: Accountants, auditors, tax experts	MNJ	MNJ.3

SIC 1968	SIC 1980	Section	Industry
864: Advertising and market research	8380: Advertising	MNJ	MNJ.4
876: Research and development services	9400: Research/development	MNJ	MNJ.5
881: Cinemas, theatres, radio, etc	4930: Photographic processing laboratories	MNJ	MNJ.6
	9711: Film production, distribution/exhibition	MNJ	MNJ.6
	9741: Radio/television services, theatres, etc	MNJ	MNJ.6
865: Other business services	8396: Central offices not allocable elsewhere	MNJ	MNJ.7
866: Central office not allocatable elsewhere	8370: Professional/technical services (Other)	MNJ	MNJ.7
879: Other professional, scientific services	8394: Computer services	MNJ	MNJ.7
	8395: Business services (Other)	MNJ	MNJ.7
	9560: Veterinary practices/animal hospitals	MNJ	MNJ.7
	9760: Authors, composers/own account artists	MNJ	MNJ.7
901: National government service	9111: National government service (Other)	OPQ	OPQ.1
	9120: Justice	OPQ	OPQ.1
	9150: National defence	OPQ	OPQ.1
	9190: Social security	OPQ	OPQ.1

SIC 1968	SIC 1980	Section	Industry
906: Local government service	9112: Local government service (Other)	OPQ	OPQ.2
	9130: Police	OPQ	OPQ.2
	9140: Fire services	OPQ	OPQ.2
	9211: Refuse disposal, street cleaning, etc	OPQ	OPQ.2
	9212: Sewage disposal	OPQ	OPQ.2
872: Educational services	9330: Education (Other)/vocational training	OPQ	OPQ.3
	9310: Higher education	OPQ	OPQ.3
	9320: School education	OPQ	OPQ.3
	9770: Libraries, museums, art galleries, etc	OPQ	OPQ.3
874: Medical and dental services	9510: Hospitals, nursing homes, etc	OPQ	OPQ.4
	9520: Other medical care institutions	OPQ	OPQ.4
	9530: Medical practices	OPQ	OPQ.4
	9540: Dental practices	OPQ	OPQ.4
	9550: Agency/private midwives, nurses, etc	OPQ	OPQ.4
892: Laundries	9811: Laundries	RSTU	RSTU.1

SIC 1968	SIC 1980	Section	Industry
893: Dry cleaning, job dyeing, etc	9812: Dry cleaning/allied services	RSTU	RSTU.1
895: Repair of boots and shoes	6720: Repair of footwear/leather goods	RSTU	RSTU.2
889: Hairdressing and manicure	9820: Hairdressing/beauty parlours	RSTU	RSTU.3
882: Sport and other recreations	9791: Sport/other recreational services	RSTU	RSTU.4
883: Betting and gambling		RSTU	RSTU.4
875: Religious organisations	9660: Religious organisations, etc	RSTU	RSTU.5
891: Private domestic service	9230: Cleaning services	RSTU	RSTU.6
899: Other services	9611: Social welfare/community services	RSTU	RSTU.6
	9631: Trade unions/professional associations	RSTU	RSTU.6
	9690: Tourist office/other community service	RSTU	RSTU.6
	9890: Personal services (Other)	RSTU	RSTU.6
	9900: Domestic services	RSTU	RSTU.6

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