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Cities Outlook 1901

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Cities Outlook 1901

by Naomi Clayton & Raj Mandair

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Cities Outlook 1901: Summary

A city's economic past has a profound influence on its future. Current geographical differences across the UK can be traced back not just decades but a century or more.

The majority of economic differences between cities can be attributed to a complex range of internal and external factors, rather than to policy decisions. The implications of the shift away from manufacturing towards services provides much of the explanation for why cities such as Blackburn and Hull experience continued economic decline while others such as London and Cambridge have seen rising prosperity.

Some geographical differences are long-standing; even in 1901 there was a North-South divide. Although the 19th century was marked by the rapid expansion of towns and cities in the North, employment was often low wage and precarious, leading to a sharp contrast between the North and the South. Towns and cities in the South tended to be more affluent with higher skills, higher wages and greater wealth.

Yet cities do not necessarily follow the same continual path. Cities evolve and adapt to changing economic circumstances. For some cities, such as Burnley, the negative impacts of global economic change were being felt well before 1901. For other cities, such as Birmingham, the adverse impacts of wider economic change have been felt more recently.

The 20th century was marked by two major urban changes: the north to south shift and the coastal to inland shift. Cities in the Industrial North, which depended much more on manufacturing, experienced rising unemployment as their core industries restructured and fewer jobs were required. Port cities saw their competitive advantage decline as alternative modes of transport were developed and manufacturing declined. In contrast, cities in the Greater South East, which had more diverse industrial bases and higher skills, saw significant employment growth.

If the Government wishes to 'rebalance the economy' and support economic prosperity across all cities, then understanding the impact of history and the time that economic change can take is crucial. Where a city starts from in terms of its skills base, its infrastructure, the diversity of its industries, its institutional networks and its links to other economies can give it a headstart in a rapidly changing economy.

Policy can have an important role to play in altering a city's economic path – although change can take decades.

Cities Outlook 1901 shows that skills are the most important factor determining long-run urban success, and therefore are a key area for policy intervention. Seven out of eight of the best performing cities today had above average skills levels in 1901, while 80 percent of cities with vulnerable economies in 2012 fall into the bottom 20 cities for skills levels in 1901.

Targeted investment in infrastructure has also had a significant impact upon city performance. Cities like Warrington, Preston and Swindon improved their economic performance partly as a result of government investment in infrastructure. Preston, for example, benefited from a new network of roads from the abandoned 1970s Central Lancashire New Town project, and is now performing better than might have been expected based on its 1901 performance.

Cities Outlook 1901 illustrates the way that lack of investment is compounded over time. Failure to invest in skills or infrastructure in 1901 had knock-on long-term impacts on a place and its people over decades, while targeted investment in infrastructure and ongoing investment in skills succeeded in helping some places and people improve performance.

For policymakers seeking to learn lessons from the past when confronting today's economic challenges, three themes stand out:

1. **Short-term cuts in expenditure on the key drivers of urban success are likely to result in a big bill in the medium to longer-term.** Government needs to sustain its investment in the areas that are most responsive to policy intervention, particularly skills, targeted infrastructure investment and support for enterprise.

2. **Skills are the biggest determinant of success for cities, and are critical to the life chances of individuals.** Government should ensure its skills investment, ranging from early years to workplace skills, continues to adapt to the needs of a rapidly changing economy. Cities should work with local providers to ensure that education and training are responsive to the needs of individuals and businesses.

3. **Targeting investment in infrastructure can have a significant impact upon the economic prospects of a place.** Government should work with local authorities to identify where investment in transport is most likely to release economic potential. Often this may be through linking less successful cities to those with greater economic potential, for example working on transport schemes that link cities across Greater Manchester to capitalise on Manchester's success. Government should also continue to seek opportunities to devolve major transport scheme funding to functional economic areas.

Nottingham, 1890. Copyright The Francis Frith Collection

01 / Lessons from history

History matters. A city's economic past has a profound influence on its future. Yet cities do not necessarily follow on the same development path. Cities have evolved and adapted to changing economic circumstances over decades.

A city's economic past has a profound influence on its future. Cambridge's highly knowledge-intensive economy can be traced back to its 13th century university; Sheffield's specialisation in medical instruments to the 14th century edge-tool and cutlery industries; and Preston's cluster of aerospace firms to the First World War.

History matters. Yet cities do not necessarily follow on the same continual path.[1] Long-run growth trajectories of city economies are the "complex outcomes of a range of structural and systemic, and external and internal, factors, processes and arrangements"[2] - and history has a significant bearing on all of these.

Any attempt to 'rebalance the economy' and support economic prosperity in UK cities needs to understand the crucial influence that history exerts.

This report

Cities Outlook 1901 uses data from the 1901 Census and other contemporary sources to build a picture of city economies at the turn of the 20th century to understand what the 21st century is likely to hold for cities.

Section two maps the economic performance of cities across a range of indicators in 1901. The third section examines changes in city economies from 1901 to 2011 and the factors influencing these changes. Section four considers the implications of the research for current and future policy.

What was the UK like in 1901?

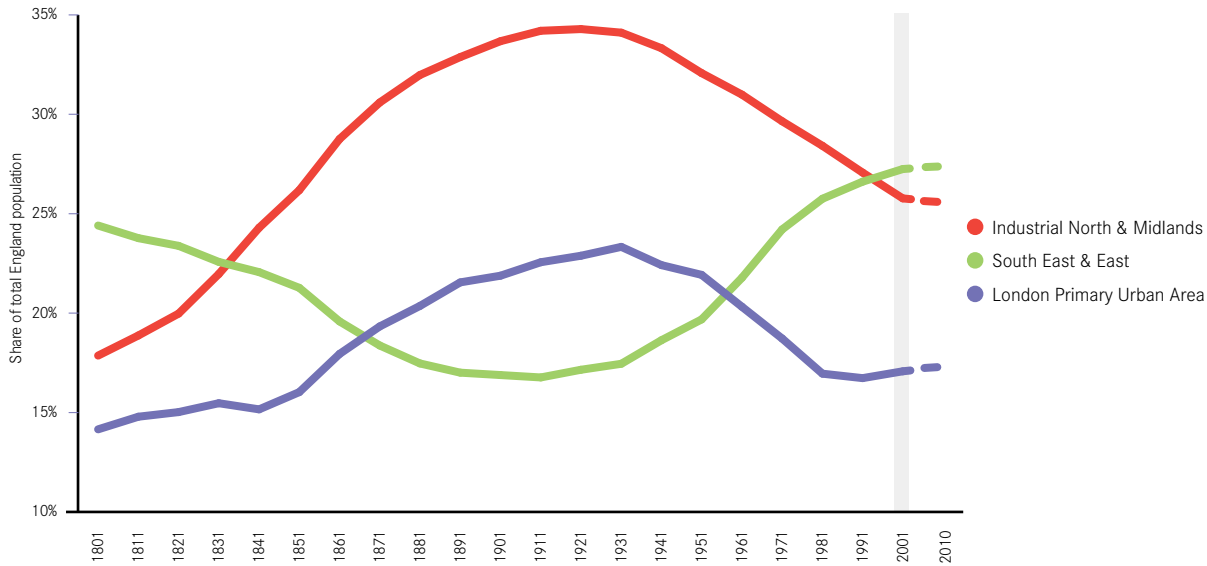
In 1901 the UK was experiencing a period of relative economic stability. Over the course of the century prior to 1901, 'The Victorian Boom' saw processes of industrialisation and imperialism significantly transform the UK economy. Just over a decade after 1901 came World War One. Then came the inter-war periods, which were characterised by economic and political readjustment, and high unemployment.

Over the 19th century a south to north shift took place alongside a rural to urban shift. In 1801, a quarter of the population lived in the South East and East of England and just 18 percent in the industrialised North and Midlands. By 1861, this pattern had reversed (Figure 1).

The industrialised North and Midlands' share of the population continued to increase throughout the 19th century and by the start of the 20th century equalled nearly 35 percent of the total national population.

1. Martin R (2010) 'Roepke Lecture in Economic Geography–Rethinking Regional Path Dependence: Beyond Lock-in to Evolution' *Economic Geography*, 86: 1–27
2. Martin R (2012) 'Regional economic resilience, hysteresis and recessionary shocks', *Journal of Economic Geography*, 12: 1-32

Figure 1:
Change in population share across England, 1801 to 2010



Source: Southall H/ University of Portsmouth, 2010. NOMIS, Mid-Year Population Estimates, 2010.

Manufacturing was the dominant industry in 1901. The late 19th century saw the continued growth of industries associated with the Industrial Revolution, including textiles, metals and mining, as well as the emergence of new industries, such as pharmaceuticals, automotives, and electrical equipment. The expansion of commercial and service-orientated activities had already begun by 1901, although manufacturing still dominated (Figure 2).

By 1901, 77 percent of the population lived in towns and cities.[3] As the UK became more industrialised in the years leading up to 1901, it became more urbanised.

Cities were becoming "information super-highways", providing proximity to workers, markets and suppliers. Cities offered reduced costs of production, supportive networks of institutional structures and "externalities which helped minimise transaction costs".[4]

Towns and cities grew rapidly during the 19th century, with some towns established to serve particular industries. Middlesbrough grew rapidly and became an iron and steel-producing

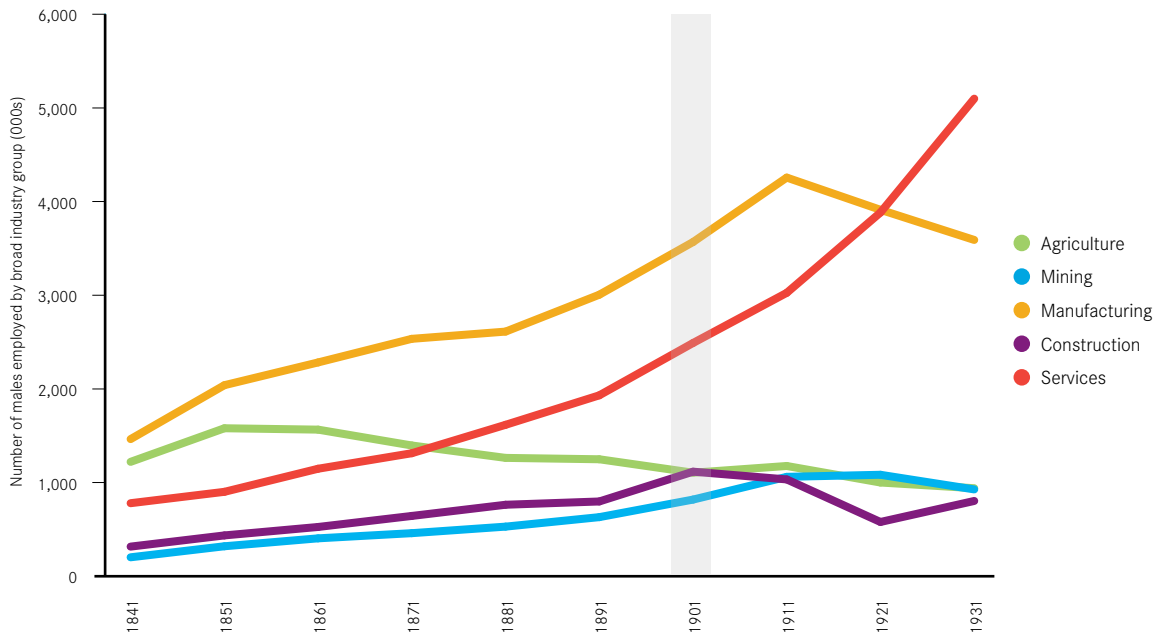
3. University of Glasgow http://chcc.arts.gla.ac.uk/urbanisation/section01/index.php
4. Reeder D & Rodger R (2000) 'Industrialisation and the city economy 1840–1950' in Daunton M (ed) (2000) *The Cambridge Urban History of Britain*, Cambridge: Cambridge University Press

centre, for example. Birkenhead's expansion was fuelled by shipbuilding activity.

Yet employment in many of the large manufacturing towns and cities was low paid and precarious. Employers often responded to changes in the market by taking on, but also laying off, employees. Rising competition from international economies during the 19th century led to high unemployment and a decline in standards of living in many of the large manufacturing centres in the North.[5]

By 1901 local government was moving towards the model we have today, with the rising significance of cities and towns reflected in changes to local government roles and boundaries. The 1888 Local Government Act resulted in the significant reorganisation of local government structures and the creation of 'county boroughs' that were better aligned to urban geographies. Although the role of local authorities was highly uneven, local government facilitated urban expansion and economic growth through the management of urban infrastructure, education, public safety and amenities.[6]

Figure 2:
Change in industrial structure in England and Wales, 1841 to 1931



Source: Lee CH (1979) *British Regional Employment Statistics 1841-1971*, Cambridge: Cambridge University Press, via www.visionofbritain.org.uk

5. See Rodgers HB (1962) 'The changing geography of the Lancashire cotton industry', *Economic Geography*, 38 (4): 299-314 for example.
6. Doyle BM (2000) 'The changing functions of urban government: councillors, officials and pressure groups' in Daunton M (ed) (2000) *The Cambridge Urban History of Britain*, Cambridge: Cambridge University Press

02 / Cities Outlook 1901

Drawing on data from the 1901 Census and other contemporary sources, this section examines the nature and performance of urban economies in 1901.

Population

Population share is taken as an indication of the economic scale of different cities, while population change in the decade prior to 1901 provides an indication of economic change.

In 1901, the 57 largest urban areas in England and Wales covered 12 percent of landmass and were home to over 44 percent of the population and more than 50 percent of total employment. Cities and towns varied substantially in size though, ranging from a population of just over 21,000 in Mansfield to nearly one million in Manchester and over 5.5 million in London.

- **London had long been an economic powerhouse.** The capital's population steadily increased over the 19th century. In the ten years from the 1891 Census its population expanded by 20 percent (939,000). By 1901, 17 percent of the national population lived in the capital.

- **Almost all of the Core Cities[7], with the exception of Nottingham, were already the largest cities outside London in 1901. They also experienced the largest growth in absolute terms between 1891 and 1901** (Figure 4). Manchester was the second largest city in England and Wales in 1901, having grown by over 22 percent over the previous decade to a population of nearly one million.

Box 1:
Primary Urban Areas in 1901

The analysis in this report uses data for Primary Urban Areas (PUA). The boundaries for the 1901 Primary Urban Areas (PUAs) are defined in a similar way to current PUA boundaries, using population size and density, and are designed to take account of the contiguous built-up area.

For example, Gateshead is included in the Newcastle PUA (as it is in the current definition) because the local authority formed part of the contiguous built-up area with Newcastle-upon-Tyne and, whilst smaller, had a relatively high population density. St. Helens, on the other hand, is excluded from the 1901 definition of the Liverpool PUA as it does not yet form part of the same contiguous built-up area.

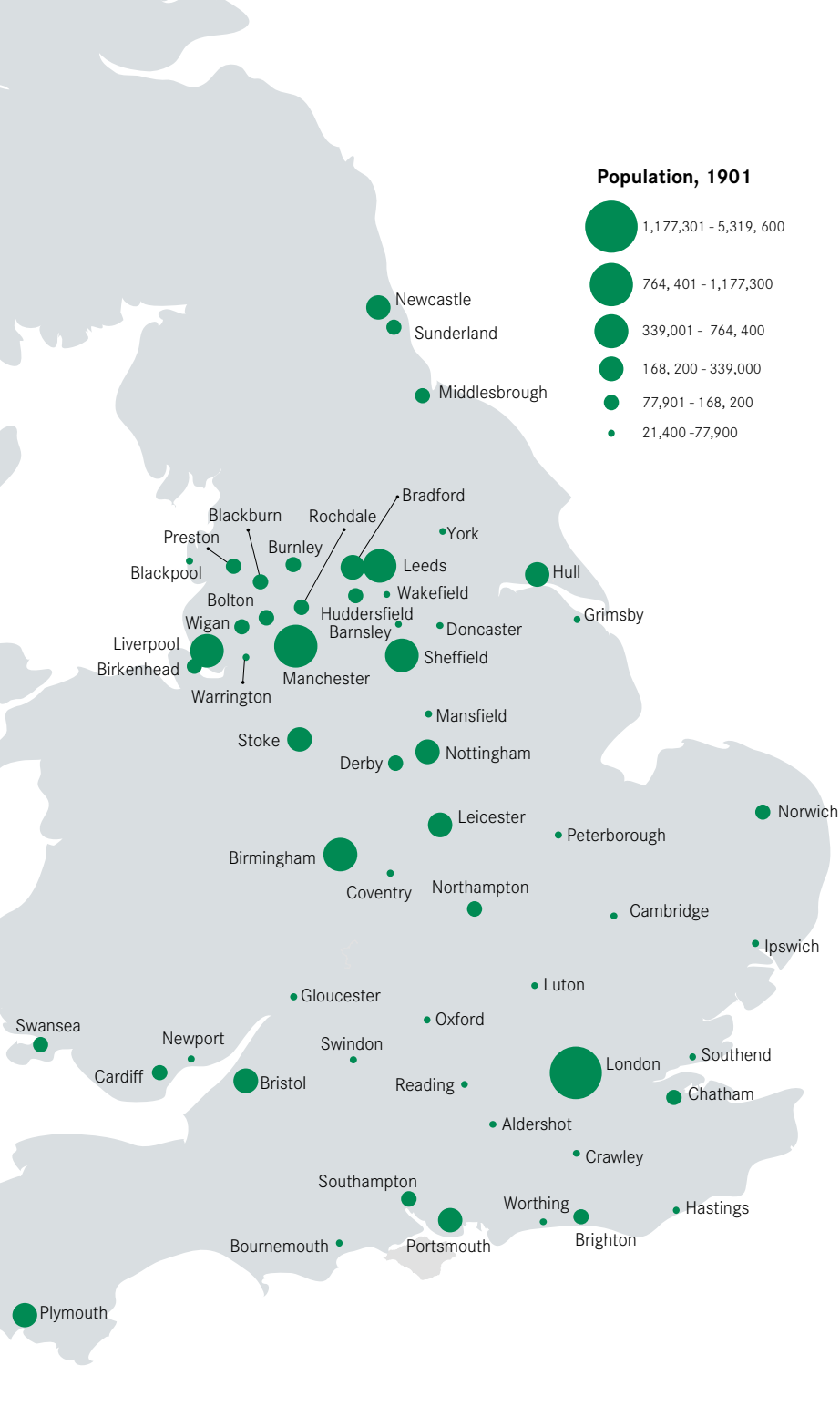
Of the current PUAs across England and Wales, 57 of the 59 existed as towns or cities and are included in the analysis. Telford and Milton Keynes were built as New Towns in the 1960s and are not included.

A full list of PUA definitions for 1901 and 2011 is available at www.centreforcities.org/outlook1901

7. The Core Cities are Birmingham, Bristol, Leeds, Liverpool, Manchester, Newcastle, Nottingham and Sheffield.

Figure 3:
Population, 1901

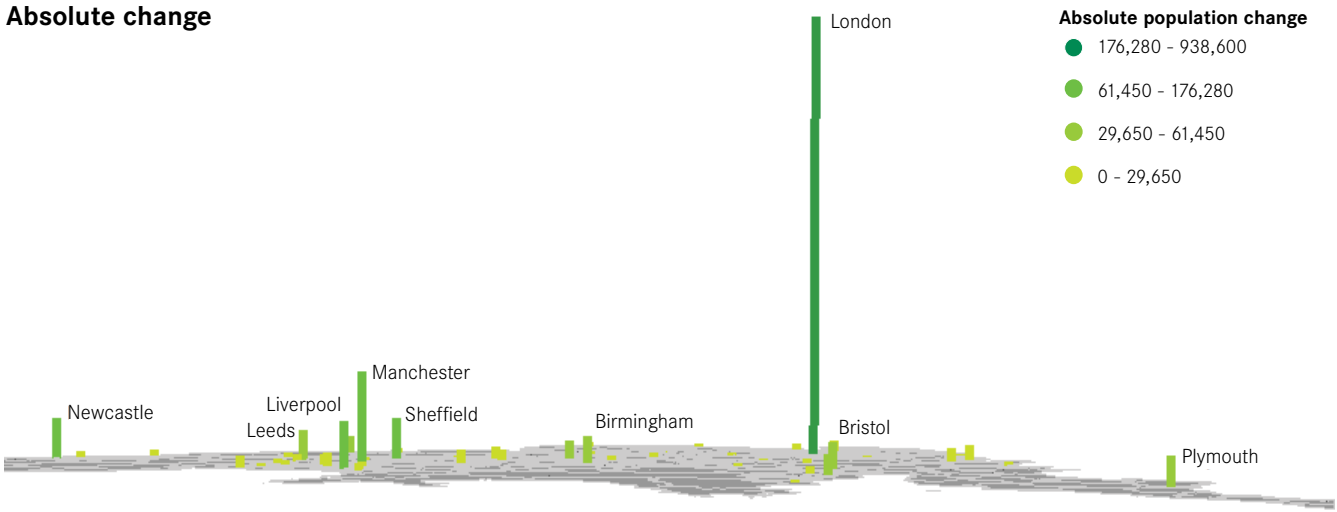
City	Population	City	Population
London	5,570,870	Middlesbrough	91,300
Manchester	958,660	Northampton	87,020
Liverpool	764,370	Rochdale	83,110
Birmingham	654,030	Wigan	82,430
Leeds	428,950	York	77,910
Sheffield	409,070	Reading	72,220
Newcastle	356,910	Coventry	69,980
Bristol	339,040	Newport	67,290
Bradford	279,770	Ipswich	66,630
Hull	240,260	Hastings	65,530
Nottingham	239,750	Warrington	64,240
Leicester	211,580	Grimsby	63,140
Stoke	208,610	Oxford	49,340
Plymouth	192,290	Gloucester	47,960
Portsmouth	188,930	Blackpool	47,350
Bolton	168,220	Bournemouth	47,000
Cardiff	164,420	Swindon	45,010
Brighton	160,010	Wakefield	41,540
Sunderland	146,080	Barnsley	41,080
Blackburn	129,220	Cambridge	38,380
Southampton	118,010	Luton	36,400
Derby	114,850	Aldershot	30,970
Preston	112,990	Peterborough	30,870
Norwich	111,730	Doncaster	28,930
Birkenhead	110,920	Southend	28,860
Chatham	110,390	Crawley	25,990
Burnley	97,040	Worthing	22,570
Huddersfield	95,050	Mansfield	21,450
Swansea	94,540		



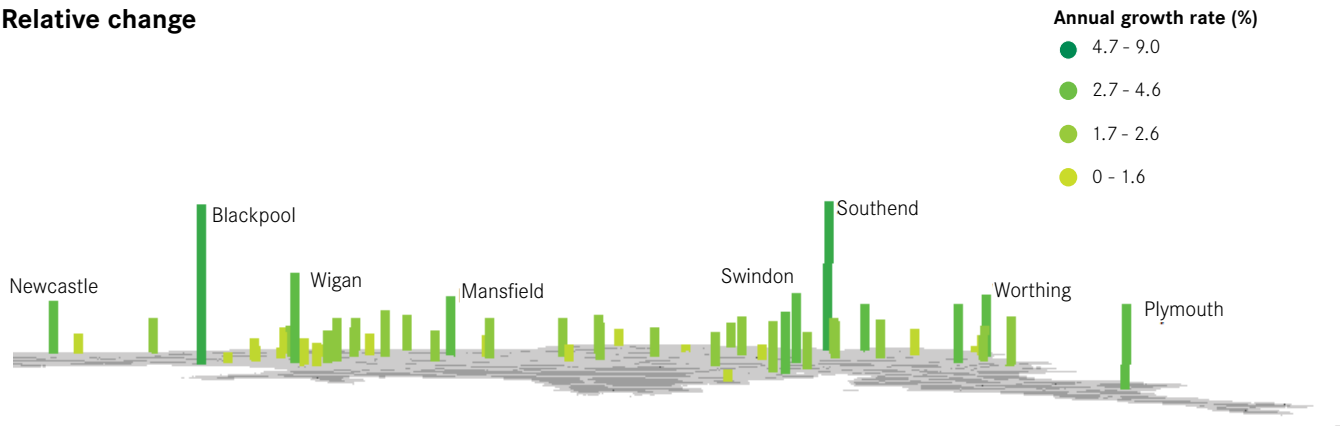
Source: Census 1901.

Figure 4:
Population change, 1891 to 1901

Absolute change



Relative change



Source: Census 1901.

Note: Huddersfield is not displayed on the map as it was the only PUA to see a fall in population over the period (0.39%).

- **Bradford and Hull were included in the 10 largest cities in England and Wales.** Nearly 280,000 people lived in Bradford - making the city larger than Nottingham at the time - and over 240,000 people lived in Hull. However, population growth rates in both cities had started to slow from the peak rates of the 1860s and 1870s.[8]

- **Coastal towns also expanded rapidly as they became popular as places to live and visit** (Figure 4). Between 1891 and 1901, Southend and Blackpool grew by more than 90 percent.

Migration

Domestic migration has historically been driven by economic incentives, as people respond to job opportunities and the prospect of earning higher wages.[9] Patterns of migration are affected by a range of additional factors, including information and distance, but nevertheless provide a useful indication of how economic performance varied across cities in 1901.[10]

- **London was a huge magnet for migrants, reflecting the economic significance of the capital.** A quarter of London's population (1.3 million) in 1901 had migrated from elsewhere in the country.[11] Large flows of migrants relocated from the counties surrounding London but substantial numbers also migrated from areas as far away as the North East. London was also home to by far the largest number of international migrants, accounting for seven percent of the city's population in 1901. Overall, nearly 1.7 million of London's resident population in 1901 had migrated from elsewhere.

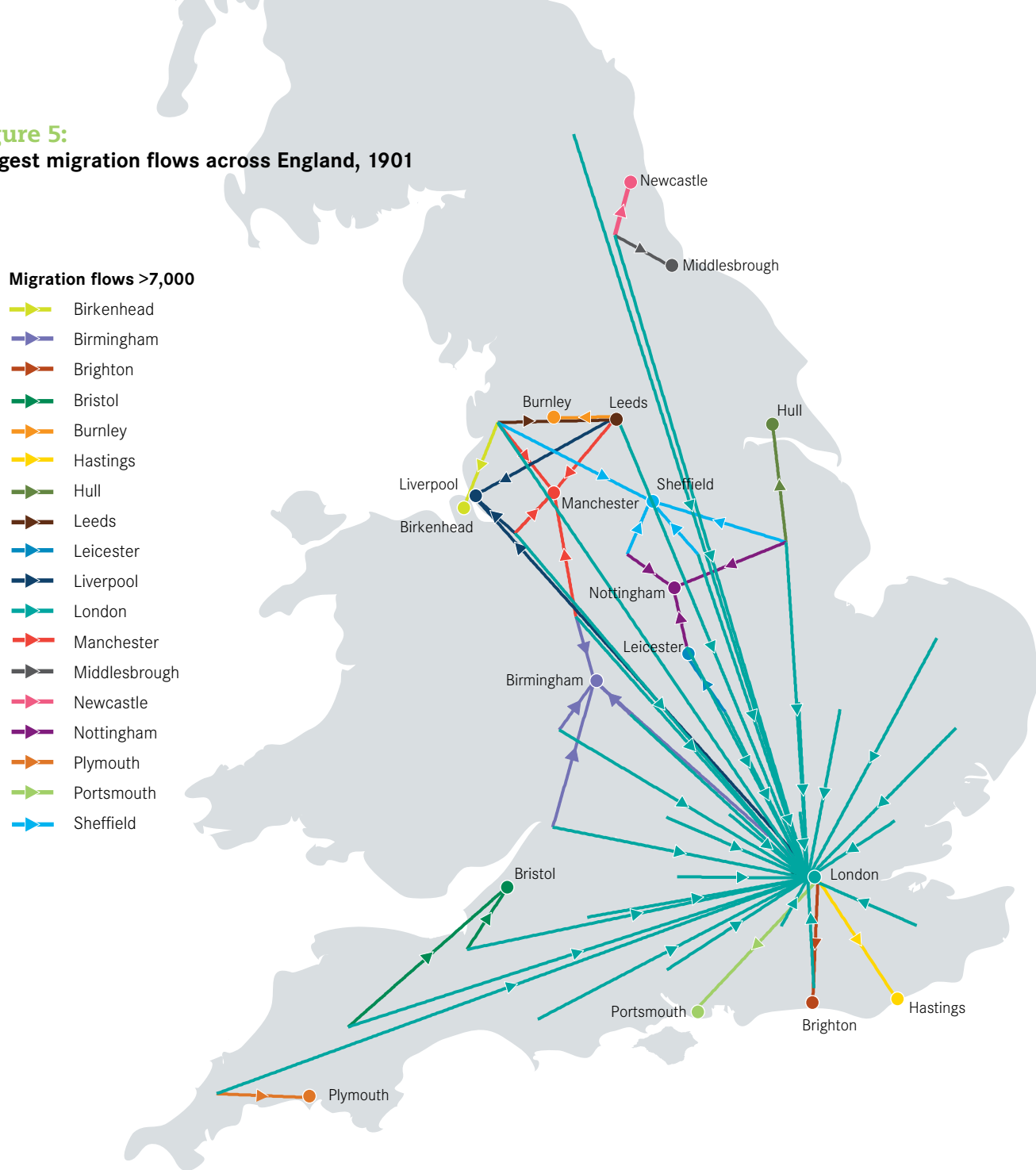
- **Birmingham, Manchester, Bristol and Liverpool were the other top destinations for migrants.** The size of these urban economies meant that huge swathes of people migrated to them in search of employment and business opportunities. Over 400,000 relocated to either Manchester or Liverpool. Liverpool was particularly popular with Irish migrants who arrived in England through its port in the 19th century. Relative levels of in-migration were highest in Bristol where over 44 percent of the population (146,000) came from outside the city.

- **The rapid growth of smaller towns in the 19th century was also driven by high levels of migration from elsewhere in the country.** Bournemouth's population, for example, grew by 273 percent from just 3,330 in 1861 to 47,000 in 1901 following the construction of the railway and its rising popularity as a tourist destination. Less than a third of Bournemouth's residents in 1901 (29 percent) were born in the city or surrounding county.

  The growth of other towns, such as Hastings, Cardiff and Birkenhead, was also driven primarily by in-migration from areas outside their immediate counties.[12]

8. Waller PJ (1983) *Town, City and Nation: England 1850-1914*, Oxford: Oxford University Press
9. Boyer GR (1997) 'Labour migration in southern and eastern England', *European Review of Economic History*, 1: 191-215
10. Note the data presented here differs from current measures of internal migration (the NHS Central Register for example) as it may reflect moves made 30 or 40 years prior to 1901 rather than moves made within the last year. The principle source of information on patterns of migration in 1901 is the birthplace data recorded in the 1901 Census.
11. The number of domestic migrants to London is likely to be underestimated as Essex and Middlesex are categorised as 'home' counties.
12. Origin data is only available at county level. Data may therefore underestimate levels of in-migration as it excludes relocations from a city's immediate county.

Figure 5:
Largest migration flows across England, 1901



Source: Census 1901.

Economic distress

The term 'economic distress' is used as opposed to 'unemployment' as the data we use here only captures unemployment among a select group of occupations. The organisation of employment for many workers was so informal in 1901 that applying current definitions of unemployment would have little meaning.

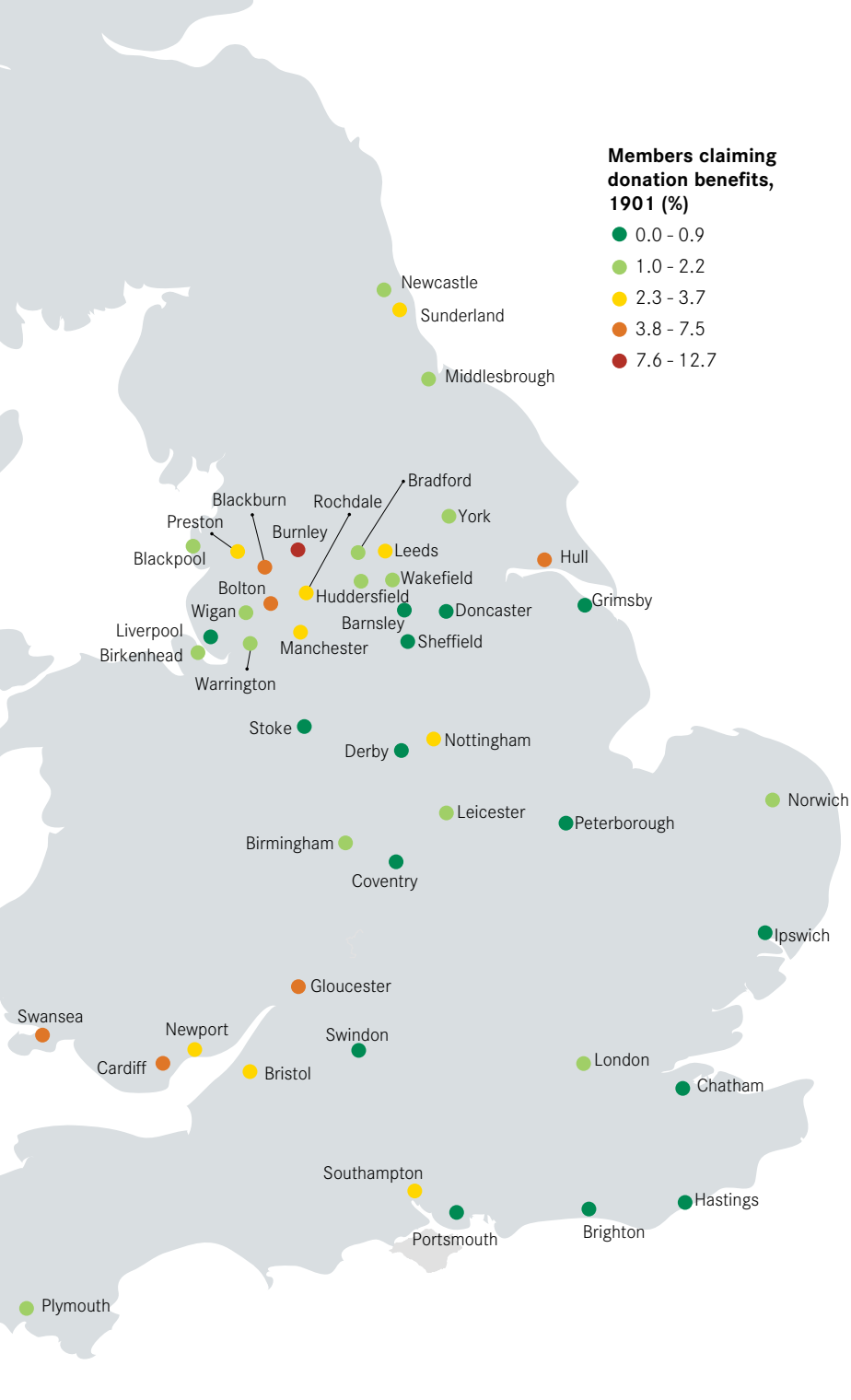
'Economic distress' is measured using data from trade unions on the proportion of their members claiming donation benefits due to unemployment (Figure 6). Data from the Amalgamated Society of Engineers and the Amalgamated Society of Carpenters and Joiners provide good samples as two of the largest unions in the country in 1901. Both trades were also inherently urban. The data is likely to be an accurate measure of the numbers of engineers and carpenters unemployed as the mutual basis of union insurance schemes meant that there was less stigma in making a claim.

- **High levels of economic distress were an established feature of the industrial heartlands in 1901.** This reflected the propensity of firms to respond to volatilities in the market by reducing pay or laying off workers.[13] Economic distress was most pronounced in Burnley and Hull where nearly 13 percent and eight percent of members were claiming benefits respectively. There was also a clear divide across the Pennines, with higher levels of economic distress in the Lancashire mill towns where cotton manufacturers were beginning to suffer from competitive pressures.
- **Cities and towns with low levels of economic distress tended to be located in the South and East of England.** Swindon - which had the largest number of engineers - appears to have been characterised by relatively low levels of economic distress in 1901. Stoke also had a relatively low number of claimants as the ceramics industry was still a major employer in 1901, accounting for almost a third of all employment in the city.[14] The number of claimants in Stoke, Peterborough, Norwich and Doncaster was also low.

13. Southall HR (1988) 'The Origins of the Depressed Areas: Unemployment, Growth, and Regional Economic Structure in Britain before 1914', *The Economic History Review,* 41 (2)
14. Source: Lee CH (1979) *British regional employment statistics 1841-1971*, Cambridge: Cambridge University Press

Figure 6:
Economic distress, 1901

City	Members claiming benefit (%)	City	Members claiming benefit (%)
Burnley	12.7	Reading	1.4
Hull	7.5	Wakefield	1.4
Blackburn	6.6	Grimsby	1.3
Cardiff	5.2	Bradford	1.2
Swansea	4.6	York	1.1
Gloucester	4.4	Newcastle	1.1
Bolton	4.2	Sheffield	0.9
Newport	3.7	Barnsley	0.8
Sunderland	3.5	Coventry	0.8
Liverpool	3.4	Portsmouth	0.7
Manchester	3.2	Ipswich	0.6
Preston	3.0	Brighton	0.5
Bristol	3.0	Stoke	0.3
Southampton	2.8	Derby	0.2
Nottingham	2.5	Chatham	0.1
Rochdale	2.4	Swindon	0.0
Luton	2.4	Mansfield	0.0
Leeds	2.3	Doncaster	0.0
Huddersfield	2.2	Peterborough	0.0
Norwich	2.1	Southend	0.0
London	1.9	Northampton	0.0
Birkenhead	1.9	Hastings	0.0
Plymouth	1.8	Worthing	0.0
Middlesbrough	1.7	Bournemouth	0.0
Warrington	1.7	Oxford	0.0
Wigan	1.7	Crawley	n/a
Birmingham	1.6	Aldershot	n/a
Blackpool	1.5	Cambridge	n/a
Leicester	1.5		



Source: Amalgamated Society of Engineers (ASE) and Amalgamated Society of Carpenters and Joiners (ASCJ), branch level statistics
NB: Map excludes cities with fewer than 100 members

Earnings

While the average earnings within occupations would have varied to a degree across different cities, it is possible to examine the proportion of workers in higher wage occupations to broadly assess how wages might have differed across cities (Figure 7).

Solicitors and barristers were by far the highest paid across the occupational groups in 1901.[15] The average solicitor would have earned 22 times more than the average labourer. Skilled engineers and surveyors, business clerks and doctors were also amongst the highest paid occupations. Labourers, miners and police were amongst the lowest paid.

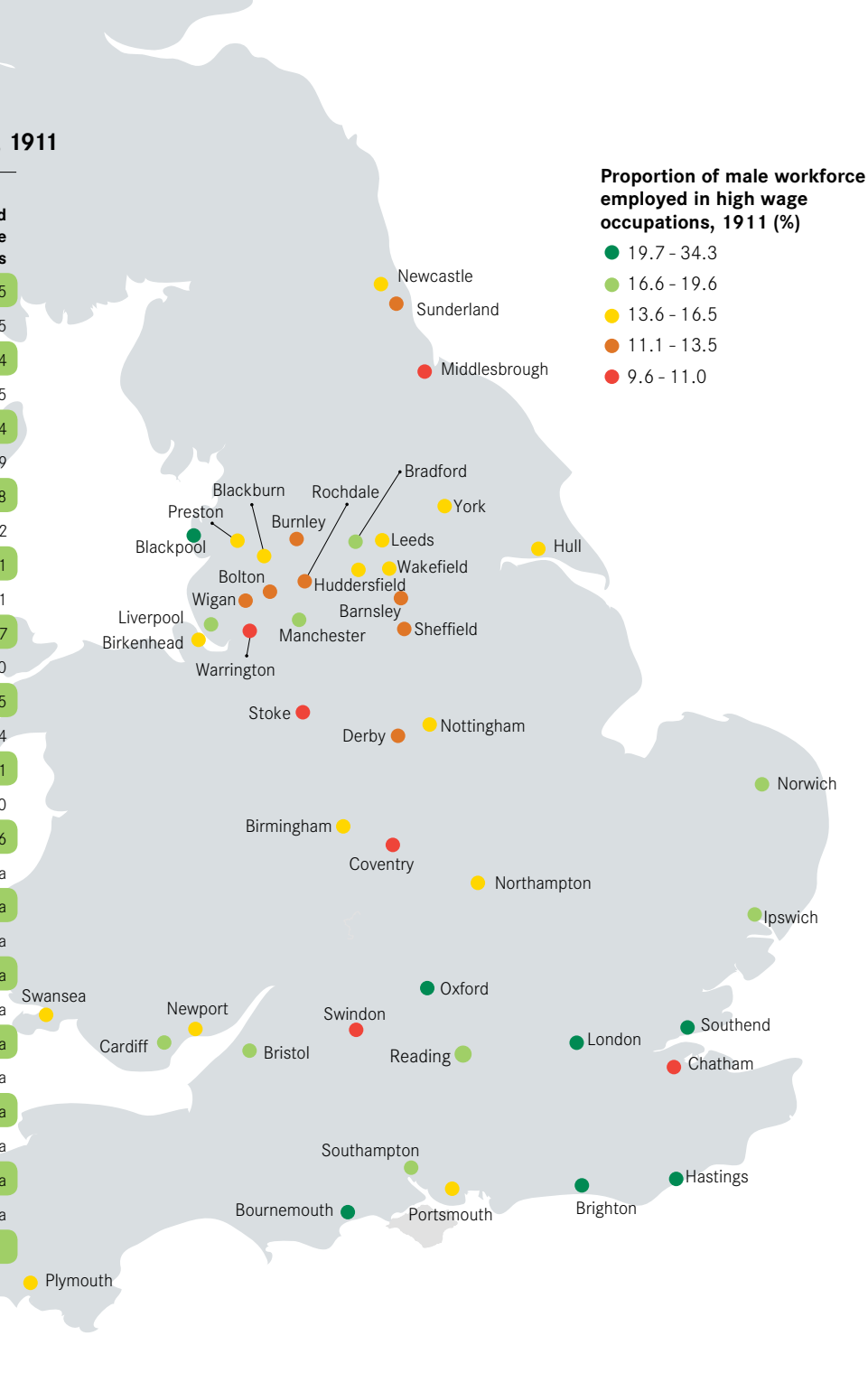
Low wages were an important cause of poverty and skills were a strong determinant of wages. An estimated 40 percent of households headed by an unskilled worker were below the poverty line in 1901.[16]

- **Victorian coastal towns were attractive residential locations for high wage managers and professionals.** More than a third of those living in Southend and Blackpool – towns that expanded rapidly between 1891 and 1901 – worked in higher wage occupations. Over 10 percent of workers living in Southend were employed as higher professionals; by far the highest paid occupational group. The proportion of managers and professionals living in other coastal towns including Bournemouth, Hastings and Brighton was also high.
- **Workers living in London and Oxford were also more likely to be employed in higher paid professions.** Nearly 25 percent were employed in managerial or professional occupations. Manchester also stands out with nearly a fifth of workers employed in these occupations.
- **At the other end of the spectrum, just 10 percent of workers living in Coventry, Warrington and Chatham were employed in higher wage occupations.** In Chatham, just one percent of workers living in the Medway towns were employed in higher professional occupations.

15. Williamson JG (1982) 'The Structure of Pay in Britain, 1710-1911', *Research in Economic History*, 7 (1982): 1-54
16. Household budget data, Labour Department of the Board of Trade from Gazeley I & Newell A (2007) 'Poverty in Britain in 1904: An Early Social Survey Rediscovered', University of Sussex, PRUS Working Paper no. 38

Figure 7:
Employment in higher wage occupations, 1911

City	% employed in high wage occupations	City	% employed in high wage occupations
Southend	34.3	Preston	14.5
Blackpool	33.3	Portsmouth	14.5
Bournemouth	29.0	Northampton	14.4
Hastings	27.7	Derby	13.5
Brighton	26.7	Barnsley	13.4
Oxford	24.3	Rochdale	12.9
London	23.9	Sunderland	12.8
Manchester	19.6	Sheffield	12.2
Southampton	19.4	Burnley	12.1
Bristol	19.0	Bolton	12.1
Cardiff	18.8	Wigan	11.7
Bradford	18.7	Middlesbrough	11.0
Norwich	18.5	Swindon	10.5
Reading	17.9	Stoke	10.4
Ipswich	17.8	Coventry	10.1
Liverpool	16.9	Chatham	10.0
Leeds	16.5	Warrington	9.6
York	16.3	Mansfield	n/a
Nottingham	16.3	Doncaster	n/a
Birkenhead	16.2	Peterborough	n/a
Wakefield	15.6	Gloucester	n/a
Newport	15.3	Grimsby	n/a
Swansea	15.0	Cambridge	n/a
Blackburn	14.7	Leicester	n/a
Hull	14.7	Worthing	n/a
Huddersfield	14.6	Crawley	n/a
Plymouth	14.6	Luton	n/a
Newcastle	14.5	Aldershot	n/a
Birmingham	14.5		



Source: Census, 1911; Routh, 1980
NB: Data only available for county boroughs

Property values

Property values provide an indication of the variation in levels of affluence and economic performance across cities in 1901. Local taxation returns are used to estimate rental values per capita across cities in 1901 (Figure 8).

- **Cities with the highest property values tended to be clustered around London and the South East.** The variation in property values follows a similar spatial pattern to the proportion of higher wage occupations. Average property values were highest in towns such as Bournemouth, Hastings, London and Oxford. Rental values per capita in Bournemouth were three times higher than in parts of the West Midlands.

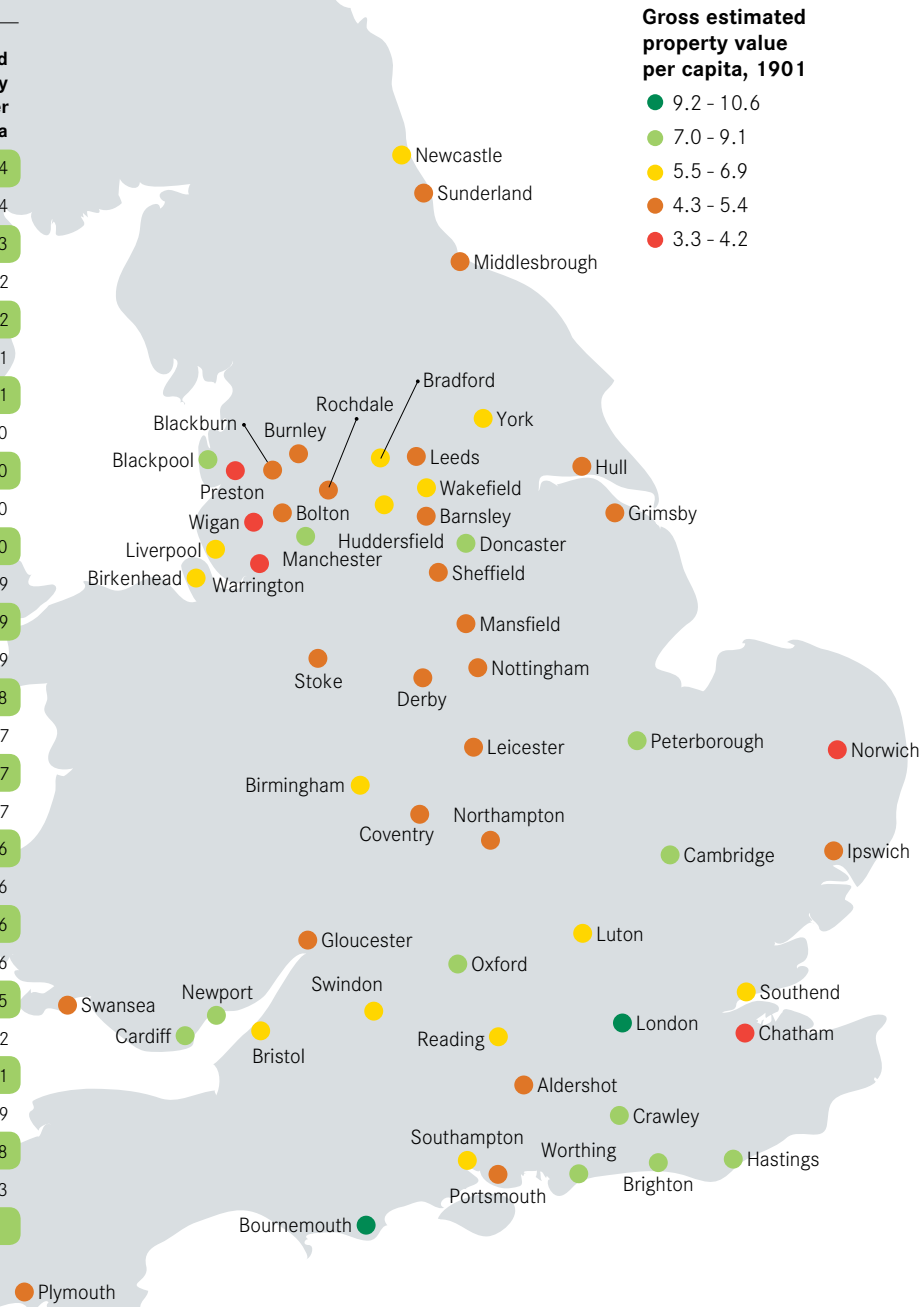
- **Property values were also relatively high in parts of the North, including Blackpool and Manchester, and in South Wales.** The influx of wealthy businessmen to Blackpool is likely to have pushed house prices up; Blackpool had the third highest property values just behind Bournemouth and London.[17] There were also large variations within regions: property values in Manchester were more than double values in neighbouring Warrington.

Bristol, 1901. Copyright The Francis Frith Collection

17. Walton JK (1998) *Blackpool*, Edinburgh: Edinburgh University Press

Figure 8:
Property values, 1901

City	Estimated property value per capita	City	Estimated property value per capita
Bournemouth	10.6	Plymouth	5.4
London	10.6	Derby	5.4
Blackpool	9.1	Leicester	5.3
Hastings	8.8	Nottingham	5.2
Oxford	8.6	Rochdale	5.2
Brighton	8.5	Gloucester	5.1
Crawley	8.3	Sheffield	5.1
Cambridge	8.3	Sunderland	5.0
Cardiff	8.1	Northampton	5.0
Peterborough	7.8	Bolton	5.0
Doncaster	7.5	Aldershot	5.0
Worthing	7.5	Leeds	4.9
Manchester	7.4	Ipswich	4.9
Newport	7.2	Grimsby	4.9
Liverpool	6.9	Middlesbrough	4.8
Southend	6.5	Swansea	4.7
Reading	6.2	Blackburn	4.7
Bradford	6.2	Stoke	4.7
Huddersfield	6.1	Burnley	4.6
Southampton	6.0	Coventry	4.6
Wakefield	6.0	Barnsley	4.6
York	6.0	Mansfield	4.6
Birmingham	5.9	Portsmouth	4.5
Luton	5.8	Preston	4.2
Newcastle	5.8	Wigan	4.1
Birkenhead	5.7	Norwich	3.9
Bristol	5.7	Chatham	3.8
Swindon	5.6	Warrington	3.3
Hull	5.4		



Source: Local Taxation Returns, 1901

Industrial profile

In 1901, over 84 percent of the male workforce were 'engaged in occupations'; the remaining 16 percent were either 'retired' or 'unoccupied'.

In times of economic instability, with limited protection for the unemployed, large numbers would move between occupations rather than accept unemployment. This suggests occupational statistics provide a reliable measure of the size of sectors within different cities, and as a result their industrial profiles.

- **'Industrial cities', with more than a third of employment concentrated in the manufacturing industries, were almost exclusively found in the North and Midlands**. Manufacturing dominated the jobs market in the Lancashire towns surrounding Manchester and in Coventry, Northampton, Birmingham and Huddersfield (Figure 9).

- By contrast, manufacturing made up just 10 percent of employment in cities in the South, such as Worthing, Southend and Crawley. Southern exceptions included Swindon where over 45 percent of employment was concentrated in manufacturing and London where the figure was nearly a third.

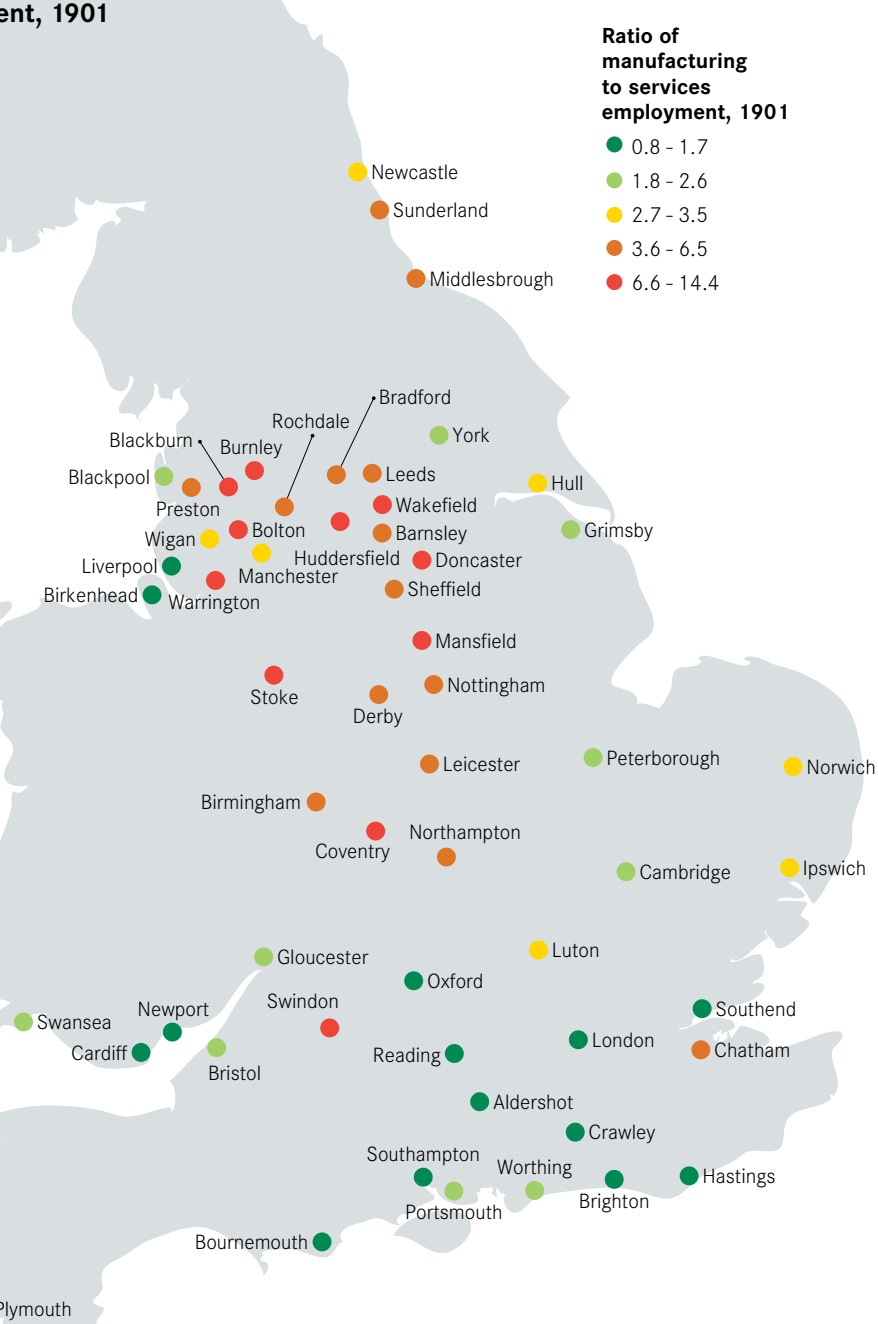
- **The economic significance of the service industries varied hugely across cities in 1901.** The highest levels of employment in commercial, professional and public services were found in Bournemouth (19 percent) and London (18 percent). In contrast, Swindon and Doncaster had very small service sectors (less than four percent).[18]

Preston, 1903. Copyright The Francis Frith Collection

18. Transport is not included in the definition of services.

Figure 9:
Ratio of manufacturing to services employment, 1901

City	Ratio of manufacturing to services	City	Ratio of manufacturing to services
Swindon	14.4	Norwich	3.1
Burnley	8.4	Ipswich	2.9
Wakefield	7.4	Hull	2.8
Doncaster	7.2	Portsmouth	2.6
Rochdale	7.2	Gloucester	2.6
Coventry	7.2	Swansea	2.6
Blackburn	7.1	York	2.6
Bolton	7.1	Blackpool	2.5
Warrington	6.7	Cambridge	2.5
Mansfield	6.7	Grimsby	2.4
Stoke	6.7	Bristol	2.1
Barnsley	6.5	Peterborough	2.1
Middlesbrough	6.3	Plymouth	2.0
Northampton	6.1	Worthing	1.9
Sheffield	6.0	Newport	1.7
Birmingham	5.9	Birkenhead	1.7
Preston	5.7	Liverpool	1.6
Huddersfield	5.3	Cardiff	1.5
Sunderland	5.3	London	1.5
Leicester	5.3	Reading	1.5
Bradford	5.1	Crawley	1.4
Nottingham	4.9	Brighton	1.3
Leeds	4.7	Aldershot	1.3
Derby	4.6	Southampton	1.3
Chatham	4.5	Oxford	1.2
Manchester	3.5	Southend	1.2
Luton	3.3	Hastings	0.8
Newcastle	3.2	Bournemouth	0.8
Wigan	3.2		



Source: Census 1901

Industrial diversity and specialisation

The proportion of employment concentrated in the largest occupational group provides an estimate of the degree of specialisation in urban economies.

The most specialised cities included Northampton, Sheffield, Middlesbrough, Swindon and Burnley.

- **Northampton was one of the most specialised cities in 1901.** Just under 45 percent of the workforce – over 11,000 – were employed in shoe and boot manufacture. Leicester was also a major centre for shoe and boot manufacture with over 17,000 employed in the industry. Yet Leicester was a larger, more diverse economy where transport and construction were also important industries and, as a result, the shoe and boot industry accounted for less than a third of total employment.

- **Metal and machinery manufacture accounted for more than a third of employment in several cities in the North and Midlands.** By 1901 Sheffield's steel factories and related industries employed over 50,000 workers (41 percent of the workforce) as firms capitalised on the city's reputation for quality. In Sunderland 20 percent of employment was concentrated in shipbuilding alone.

- **Blackburn and Burnley were the most highly specialised economies of Lancashire's mill towns.** Over a third of the workforce in Blackburn and Burnley were employed in the textiles industry. Employment in textiles was five times more concentrated in these cities than the national average.

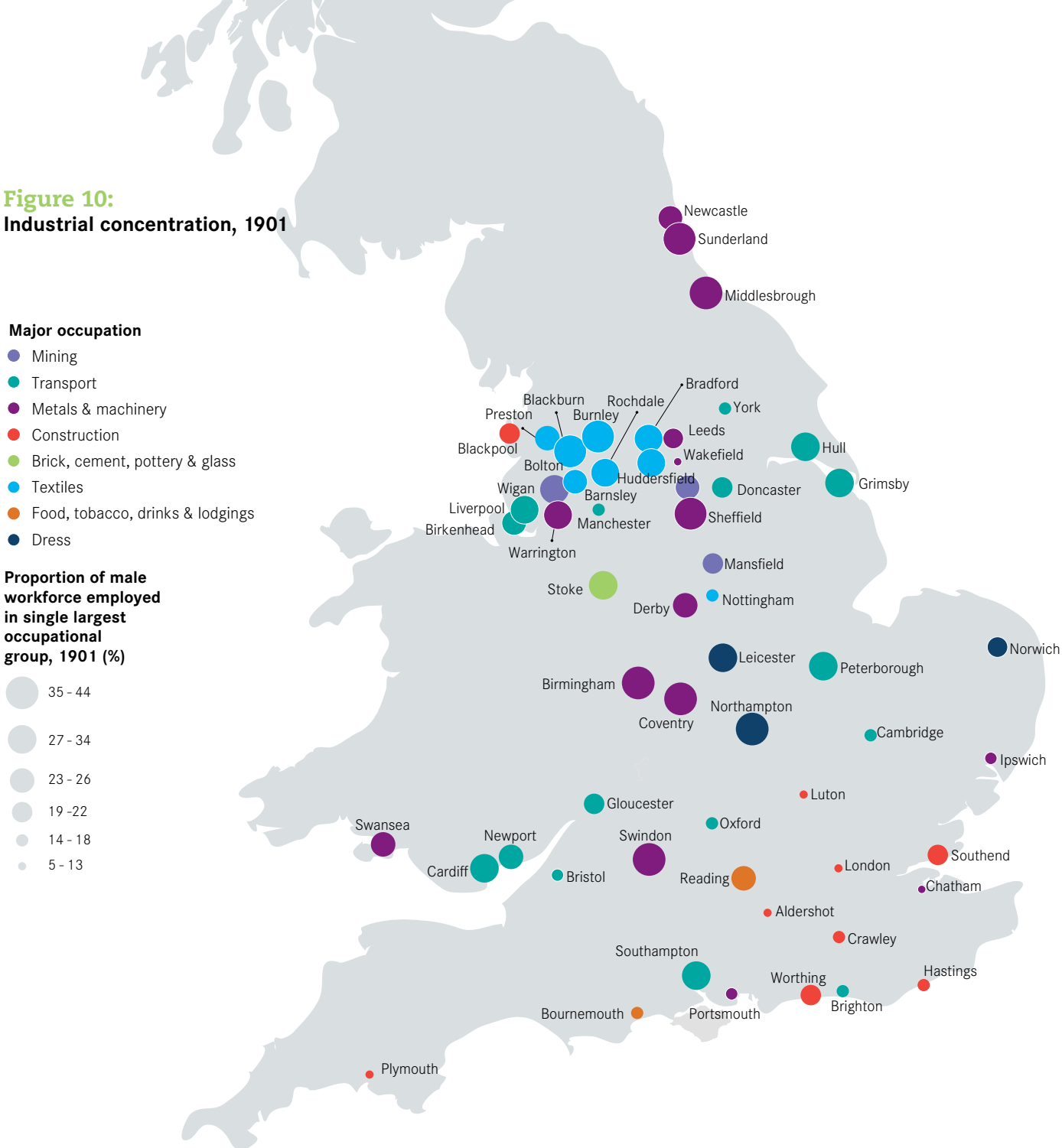
- **Stoke was the only city to specialise in ceramics.** Widely known as 'the Potteries', over 30 percent of the workforce were employed in the industry in 1901, more than 25 times the national average.

- **Specialisation in some cities was reinforced by the dominance of a few large firms.** Middlesbrough's steel industry was dominated by two large firms. Dorman Long (4,300 employees) and Bolckow Vaughan (5,500 employees) accounted for the majority of employment in the steel industry in the city.[19]

- **Cities and towns in the South East were more diversified.** No individual sector accounted for more than a fifth of total employment. Construction was the dominant sector in growing towns in the South, including Aldershot, Luton and Crawley. Yet it accounted for less than 20 percent of employment in Crawley and just five percent in Aldershot. Transport was also a significant employer in cities such as Brighton and Cambridge.

19. Shaw C (2006) 'The Large Manufacturing Employers of 1907', *Business History*, 25:1, 42-60

Figure 10:
Industrial concentration, 1901



Source: Census 1901
Note: Levels of specialisation may be underestimated in some cities due to the exclusion of female workers. Women were predominantly employed in domestic service, textiles and clothing. The inclusion of female workers is likely to increase the manufacturing bias in the textile towns where a high proportion of women and children were employed.

City Relationships case study: Lancashire Mill Towns

The Cotton Mills were at the heart of the Industrial Revolution. Lancashire accounted for 75.8 percent of cotton workers employed in the UK in 1901.[20] The bulk of the industry was concentrated within an area that measured 30 miles east to west and 20 miles north to south, incorporating the seven Lancashire towns and cities of: Manchester, Bolton, Burnley, Blackburn, Oldham, Preston and Stockport.

The urban areas of Lancashire housed a large number of small, vertically specialised firms that were highly localised. As a result, each town specialised in different stages of textile production – Oldham in spinning and Preston in weaving, for example – forming a network of interdependent economies with Manchester and its Royal Exchange at the top of the hierarchy. Businesses located in Manchester carried out commercial and distributive functions to support the trade. Liverpool also formed part of this network, providing access to the raw cotton markets.[21]

The specialisation of each city grew out of and built upon its existing economic strengths: the shipping communities in Liverpool, the merchant community in Manchester and the engineering industry in towns such as Preston. Interdependencies between the urban areas and their place in the economic hierarchy are still characteristic of Greater Manchester's economy today.[22]

Manchester Ship Canal, 1894. Copyright The Francis Frith Collection

20. Rodgers HB (1962) 'The changing geography of the Lancashire cotton industry', *Economic Geography*, 38 (4): 299-314
21. http://www.spinningtheweb.org.uk/overview/
22. Centre for Cities, The Work Foundation & SURF (2009) *City Relationships: Economic linkages in Northern city regions*, Newcastle-upon-Tyne: The Northern Way

Cyclical industries

'Cyclical' industries tend to be more susceptible to wider changes in the economic climate, particularly international changes.[23] In 1901 the most prominent cyclical industries were metals and machinery, textiles, mining, construction and transport (predominantly the port-related industries).

Employment in these industries was less stable as employers would respond to fluctuations in output and pressures on profitability by forcing adjustments onto the workforce – either cutting wages or laying off staff.

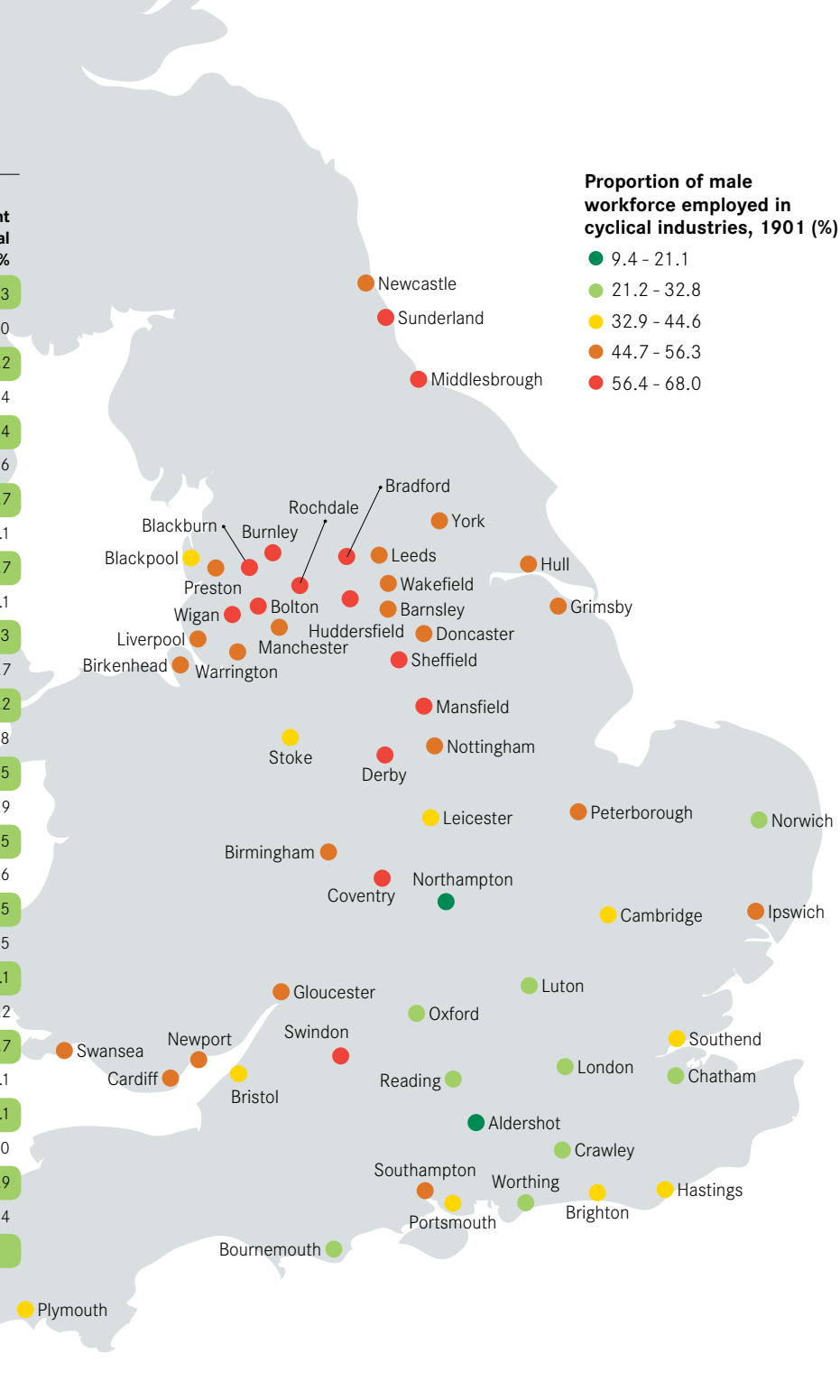
- **Cyclical industries dominated city economies in the North**, and can partly explain the higher levels of economic distress which characterise these cities.[24] With the exception of Blackpool, at least 45 percent of the workforce in every city north of Mansfield were employed in these industries. In Burnley over 68 percent of the workforce were employed in cyclical industries in 1901 and levels of economic distress in the city were also the highest in the country. Employment in these sectors was also particularly high in Wigan, Bolton and Sunderland.
- **People living in towns near to London were far less likely to be employed in cyclical industries.** Just over nine percent of the workforce in Aldershot were employed in cyclical industries and 20 percent in Northampton.

Swindon appears somewhat of an anomaly with one of the highest rates of employment in the cyclical industries but relatively low levels of economic distress. The most likely explanation is that the majority of workers would have been employed at the Great Western Railway works; an industry less prone to the impacts of cyclical downturns.[25]

23. Southall HR (1988) 'The Origins of the Depressed Areas: Unemployment, Growth, and Regional Economic Structure in Britain before 1914', *The Economic History Review*, 41 (2)
24. ibid
25. Cattell J & Falconer K (2000) *Swindon: The Legacy of a Railway Town*, London: HMSO

Figure 11:
Employment in cyclical industries, 1901

City	Employment in cyclical industries %	City	Employment in cyclical industries %
Burnley	68.0	Gloucester	50.3
Wigan	67.7	Hull	50.0
Swindon	67.1	Manchester	49.2
Bolton	65.5	Grimsby	47.4
Sunderland	64.7	Leeds	47.4
Rochdale	64.4	York	45.6
Middlesbrough	64.1	Ipswich	44.7
Sheffield	64.0	Stoke	41.1
Blackburn	63.4	Brighton	39.7
Bradford	59.3	Bristol	39.1
Huddersfield	58.1	Blackpool	38.3
Derby	57.7	Southend	36.7
Coventry	57.5	Plymouth	36.2
Mansfield	57.2	Cambridge	35.8
Birmingham	55.9	Portsmouth	35.5
Preston	55.7	Leicester	33.9
Swansea	55.6	Hastings	33.5
Wakefield	55.4	Worthing	32.6
Warrington	54.9	Reading	32.5
Newcastle	53.7	Crawley	31.5
Nottingham	53.7	Luton	31.1
Cardiff	53.3	Bournemouth	30.2
Newport	52.6	Oxford	29.7
Liverpool	52.4	Norwich	29.1
Barnsley	52.2	Chatham	29.1
Doncaster	51.4	London	27.0
Peterborough	51.0	Northampton	20.9
Birkenhead	50.9	Aldershot	9.4
Southampton	50.4		



Source: Census 1901.

Enterprise

A Joint-Stock Company (JSC) was a corporation or partnership involving two or more individuals that owned shares of stock in the company. The 1844 Act created the Registrar of Joint-Stock Companies, empowered to register companies by a two-stage process. The number of JSC registrations per 100,000 population is used to measure levels of entrepreneurship across different cities.

- **Bradford and Cardiff were amongst the most entrepreneurial cities given their size** (Figure 12). In 1901, there were 44 JSC registrations per 100,000 population in Cardiff. The number of JSC registrations in Bradford was on a par with London at 35 registrations per 100,000 population.

- **London, Manchester, Liverpool and Birmingham accounted for the vast majority of Joint-Stock Companies registrations in 1901.** The four cities combined accounted for 75 percent (or 2,500) of total national registrations in 1901.

- **Smaller economies in the South were not as likely to produce Joint-Stock Companies.** The 17 towns and cities in the Greater South East surrounding London accounted for just 2.5 percent of total registrations, unsurprising given their small size.

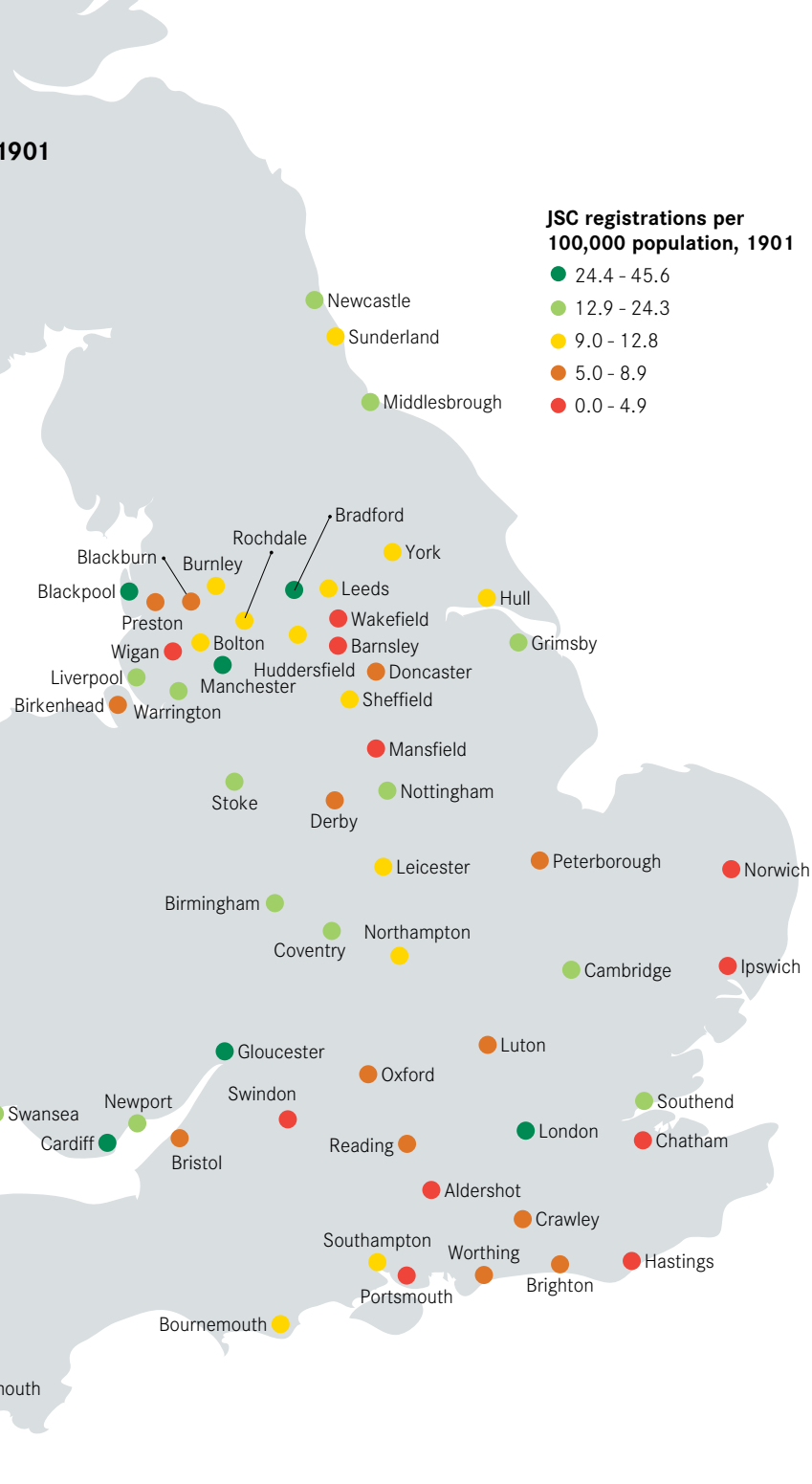
Skills

It is difficult to accurately assess skills levels at the beginning of the 20th century. Methods used to measure skills levels now are not applicable for 1901. For example, there were just 20,000 full-time university students (less than 0.5 percent of the population) in 1901 and compulsory school education was not introduced until the 1902 Education Act. As a result, the proportion of the workforce employed in professional occupations is used as a proxy measure for skills.

- **A clear North-South divide in levels of skills existed in 1901.** Bournemouth, Brighton and Oxford had the highest proportion of professional workers (Figure 13). In Bournemouth, nearly 10 percent of the workforce were employed in professional occupations, more than 10 times the number in Nottingham. York stands out in the North as having a comparable proportion of professionals to towns and cities in the South.

Figure 12:
Joint-Stock Companies per 100,000 population, 1901

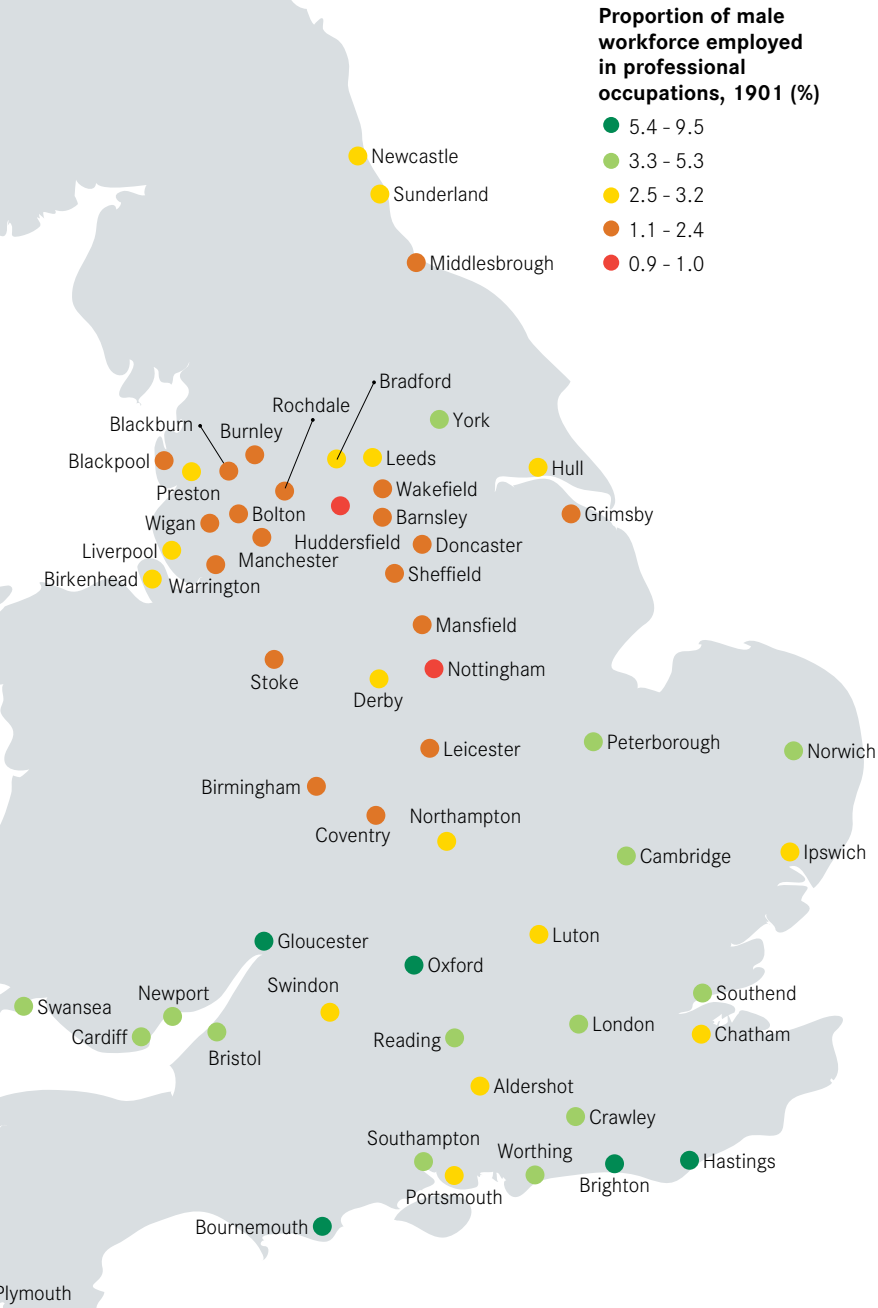
City	JSC registrations per 100,000 population	City	JSC registrations per 100,000 population
Cardiff	45.6	Bolton	9.5
Bradford	34.7	Southampton	9.3
London	34.5	Northampton	9.2
Manchester	29.8	Worthing	8.9
Blackpool	29.6	Brighton	8.1
Gloucester	27.1	Oxford	8.1
Newcastle	24.3	Preston	8.0
Liverpool	22.9	Crawley	7.7
Swansea	22.2	Bristol	7.4
Huddersfield	22.1	Derby	7.0
Middlesbrough	21.9	Blackburn	7.0
Coventry	20.0	Reading	6.9
Birmingham	19.4	Doncaster	6.9
Warrington	18.7	Peterborough	6.5
Stoke	18.2	Luton	5.5
Grimsby	17.4	Birkenhead	5.4
Southend	17.3	Barnsley	4.9
Newport	16.3	Mansfield	4.7
Nottingham	16.3	Hastings	4.6
Cambridge	15.6	Norwich	4.5
Leeds	12.8	Plymouth	4.2
Bournemouth	12.8	Wigan	3.6
Leicester	12.3	Ipswich	3.0
Sheffield	11.7	Swindon	2.2
Rochdale	10.8	Portsmouth	2.1
Hull	10.8	Chatham	1.8
Burnley	10.3	Wakefield	n/a
Sunderland	10.3	Aldershot	n/a
York	10.3		



Source: British Parliamentary Paper, 1902 (327), Joint Stock Companies

Figure 13:
Employment in professional occupations, 1901

City	% employed in professional occupations	City	% employed in professional occupations
Bournemouth	9.5	Preston	2.6
Oxford	7.8	Liverpool	2.6
Hastings	7.3	Swindon	2.6
Brighton	6.1	Leeds	2.6
Crawley	5.3	Northampton	2.6
London	4.7	Hull	2.5
Worthing	3.7	Bradford	2.5
Newport	3.7	Blackpool	2.4
Southampton	3.7	Leicester	2.4
Cambridge	3.6	Manchester	2.4
Norwich	3.6	Wigan	2.4
Swansea	3.6	Grimsby	2.4
Peterborough	3.5	Blackburn	2.3
Bristol	3.5	Rochdale	2.2
York	3.4	Mansfield	2.2
Cardiff	3.4	Middlesbrough	2.2
Reading	3.4	Coventry	2.2
Southend	3.3	Bolton	2.2
Gloucester	3.3	Sheffield	2.1
Chatham	3.2	Wakefield	2.1
Luton	3.1	Barnsley	2.1
Ipswich	3.0	Doncaster	2.1
Birkenhead	2.9	Birmingham	2.1
Portsmouth	2.8	Stoke	2.0
Plymouth	2.8	Burnley	1.9
Newcastle	2.8	Warrington	1.7
Aldershot	2.7	Huddersfield	1.0
Derby	2.7	Nottingham	0.9
Sunderland	2.7		



Source: Census 1901

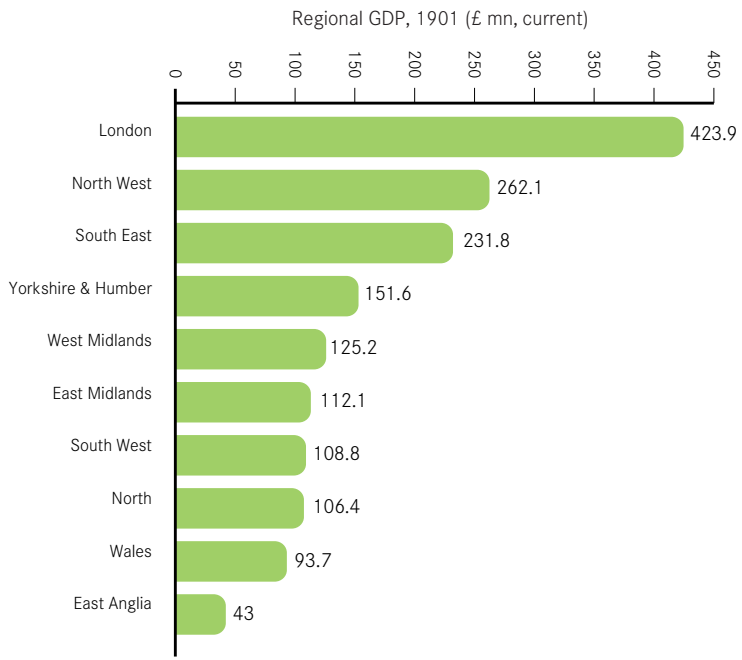
Connectivity and market access

Economic activity has historically been concentrated in London. In 1901 London accounted for 20 percent of national Gross Domestic Product (GDP), nearly twice the GDP of the North West (Figure 14).[26]

Proximity to London was an important factor in determining the economic potential of a city as it provided greater access to markets.

Proximity to London is measured using average journey times by rail (Figure 15) for 23 cities across England. This is because, while over half of all goods were still transported by coastal shipping in 1901, passenger transport was becoming ever more important. By 1897 the average person would travel by train every other week.[27] Car ownership was very rare in 1901 and speed limits meant that car travel was far slower than rail.[28]

Figure 14: Regional GDP estimates, 1901



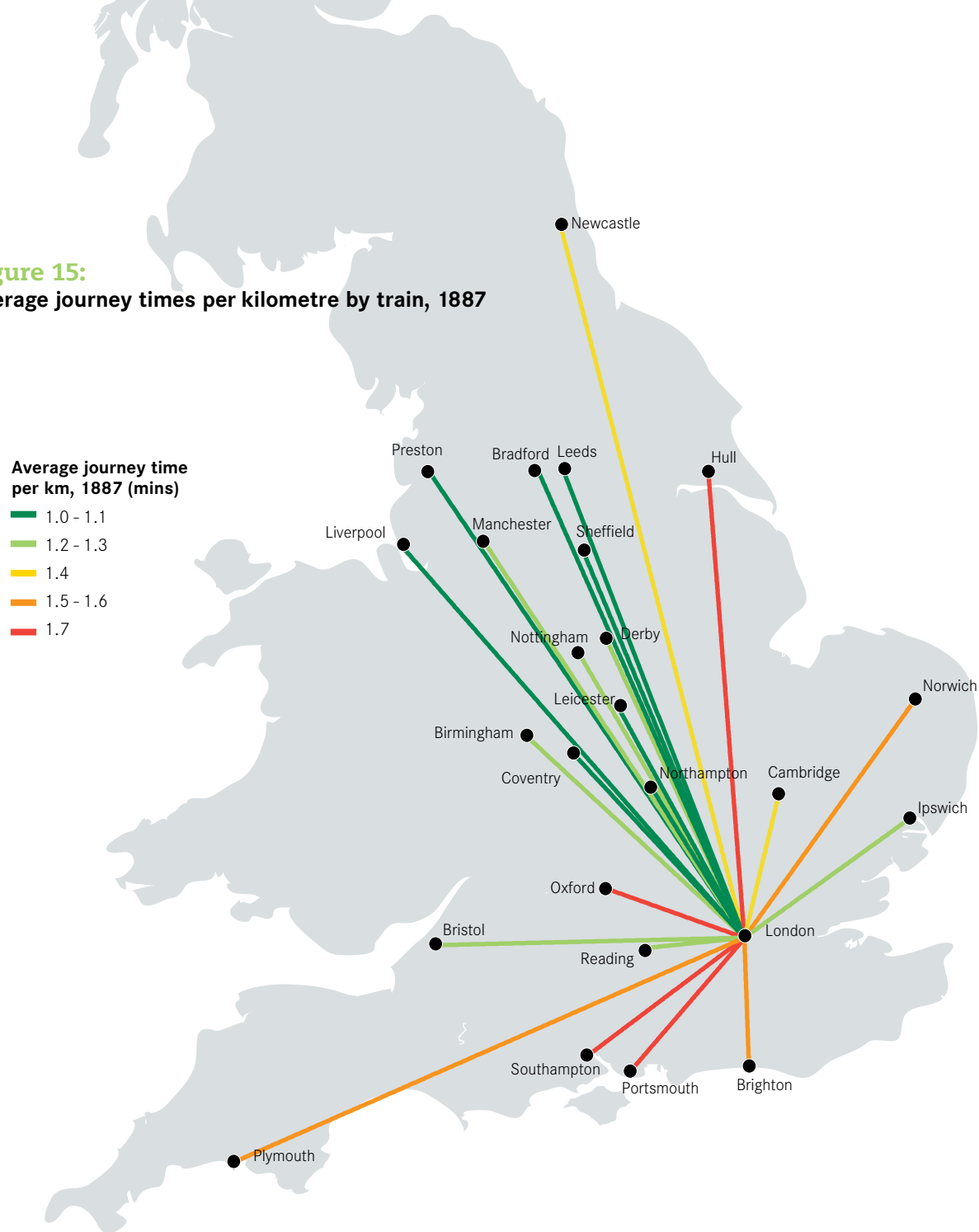
Source: Crafts (2004)

- **Cities and towns in the South East had the greatest economic potential.** Cities such as Reading, Oxford and Cambridge had higher economic potential due to their proximity to London. Newcastle and Plymouth, both located in regions with low GDP and furthest from London, had the lowest economic potential.

- **Rail connections to Hull were particularly poor.** In 1887, it tended to take over 1.5 times longer to travel one kilometre on the line to Hull compared to the line to Liverpool. Overall, rail connections were faster along the west coast than the east coast. Rail connections were also relatively slow to Oxford and Southampton.

26. Craft NFR (2004) *Regional GDP in Britain, 1871-1911: Some Estimates*, London: LSE
27. Leunig T (2006) 'Time is Money: A Re-assessment of the Passenger Social Savings From Victorian British Railways', *Journal of Economic History,* 66 (3)
28. Data on car ownership is unavailable for the first half of the 20th century but even by 1951 only 14 percent of households had regular access to a car (Lindsay C (2003) *A century of labour market change: 1900 to 2000*, ONS); the Locomotives on Highways Act 1896 limited the speed limit to 14 mph for motorcars.

Figure 15:
Average journey times per kilometre by train, 1887



Source: Leunig T, from Bradshaw's Railway Guides for Great Britain and Ireland, held at the National Archives as Rail 903

Newton Abbot, 1907. Copyright The Francis Frith Collection

Summary

Strong geographical divides existed across the country in 1901.

The 1901 City Index provides an overview of the economic performance of cities in 1901 (Figure 16). Bournemouth, Oxford, Hastings and Brighton ranked at the top of the 1901 City Index with low levels of economic distress, high employment in the professional occupations, high services to manufacturing ratios, and high property values.

London was by far the largest urban economy in 1901. Its dominance can be traced back to Roman Times when it served as a major commercial centre. London drew in migrant workers from across the country searching for opportunity. A city of two halves, poverty has long been a characteristic of London but it was also one of the most diverse, innovative and highly skilled economies in the country. As a result, London ranked as one of the strongest performing economies in 1901 (Figure 16).

While towns and cities in the North had seen rapid expansion during the 19th century with the Industrial Revolution, the instability of employment in these cities meant there was a sharp contrast between the urban North and South. Towns and cities in the North West and Yorkshire, where economies were dominated by industries sensitive to changes in global market demand and competition, fall in the bottom quartile on the 1901 City Index.

Burnley, Blackburn, Bolton, Preston and Wakefield were all characterised by high levels of economic distress, low levels of skills and low property values. Swindon also ranks amongst cities in the lowest quartile, with a high manufacturing to services ratio and low levels of enterprise.

The next section looks at how cities responded to changes over the 20th century and the factors influencing the growth paths of different cities.

Box 2:
How are the City Indices calculated?

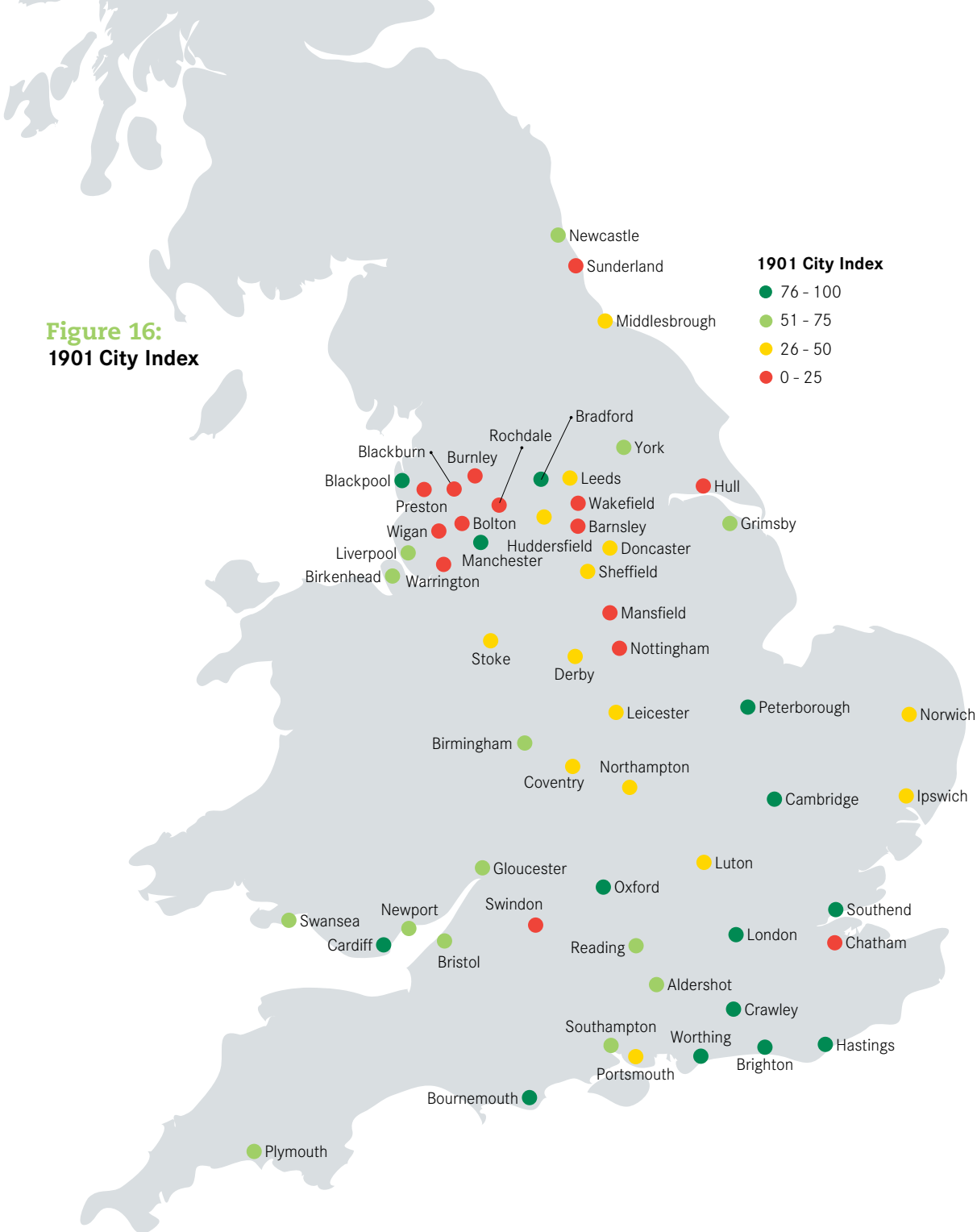
The City Indices for 1901 and 2011 provide an overview of the economic performance of cities across England and Wales.

The 1901 City Index is calculated based on a selection of the indicators presented in this section: levels of economic distress, property values, the ratio of manufacturing to services, Joint-Stock Company registrations and professional employment.

The 2011 City Index is based on Jobseeker's Allowance (JSA) claimant rates, graduates, business start-up rates, house prices and manufacturing to knowledge-intensive employment ratios.

A full methodological note is available at www.centreforcities.org/outlook1901

Figure 16:
1901 City Index



Source: Centre for Cities 1901 City Index

03 / From 20th to 21st century: Urban growth and decline

Why did cities that saw such rapid expansion in the 19th century experience a change of fortunes in the 20th century? What factors influenced the growth of cities, such as Preston and Swindon?

Cities in the industrial North were increasingly affected by structural and cyclical unemployment in their export-oriented core industries, while more prosperous cities in the Greater South East saw continued growth in their services industries.

The prevalence of cyclical industries (see previous section) in towns and cities in the North ultimately contributed to their economic decline. The relative size of these industries in city economies in 1901 explains over 30 percent of the variation in their current economic performance.

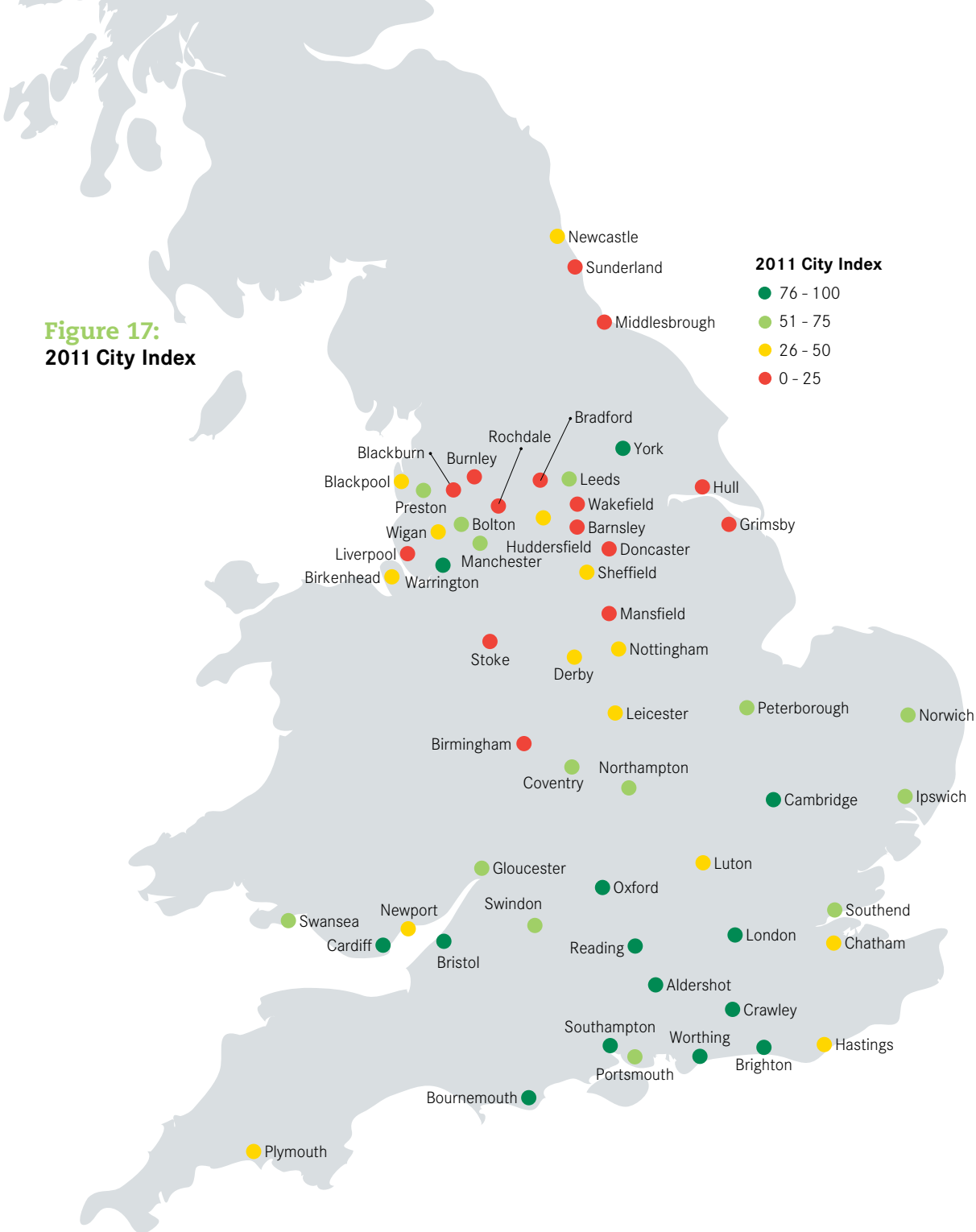
For some cities the changes have been particularly stark. **Liverpool** for example – described by Prime Minister Benjamin Disraeli as the "second city of the Empire" – ranked amongst the most economically buoyant cities in 1901. The city had seen its population grow eight-fold over the 19th century. Liverpool's docks and traditional manufacturing industry went into sharp decline in the latter part of the 20th century, however, and by 2011 the city ranked amongst the 20 percent worst performing cities in England and Wales (Figure 18).

Other port and coastal cities, including **Hastings**, **Grimsby**, **Newport** and **Blackpool**, saw similar patterns of decline as their main competitive advantage dwindled with the rise of alternative forms of transport and a focus on service rather than manufacturing industries.

Prosperous urban areas surrounding London saw significant growth over the course of the 20th century. **Brighton**, **Cambridge**, **Crawley** and **Oxford** ranked amongst the most economically buoyant cities in 1901, despite being far smaller than their Northern counterparts. The cities continue to be amongst the most highly skilled, innovative economies today. Several cities outside the **Greater South East** also experienced rapid expansion in the 20th century. **Swindon**, **Warrington** and **Preston** were all in the bottom 25 percent of cities on the 1901 city index; by 2011 the three cities ranked in the top 40 percent.

So why did cities that saw such rapid expansion in the 19th century experience a change of fortunes in the 20th century? What factors influenced the growth of cities like Preston and Swindon?

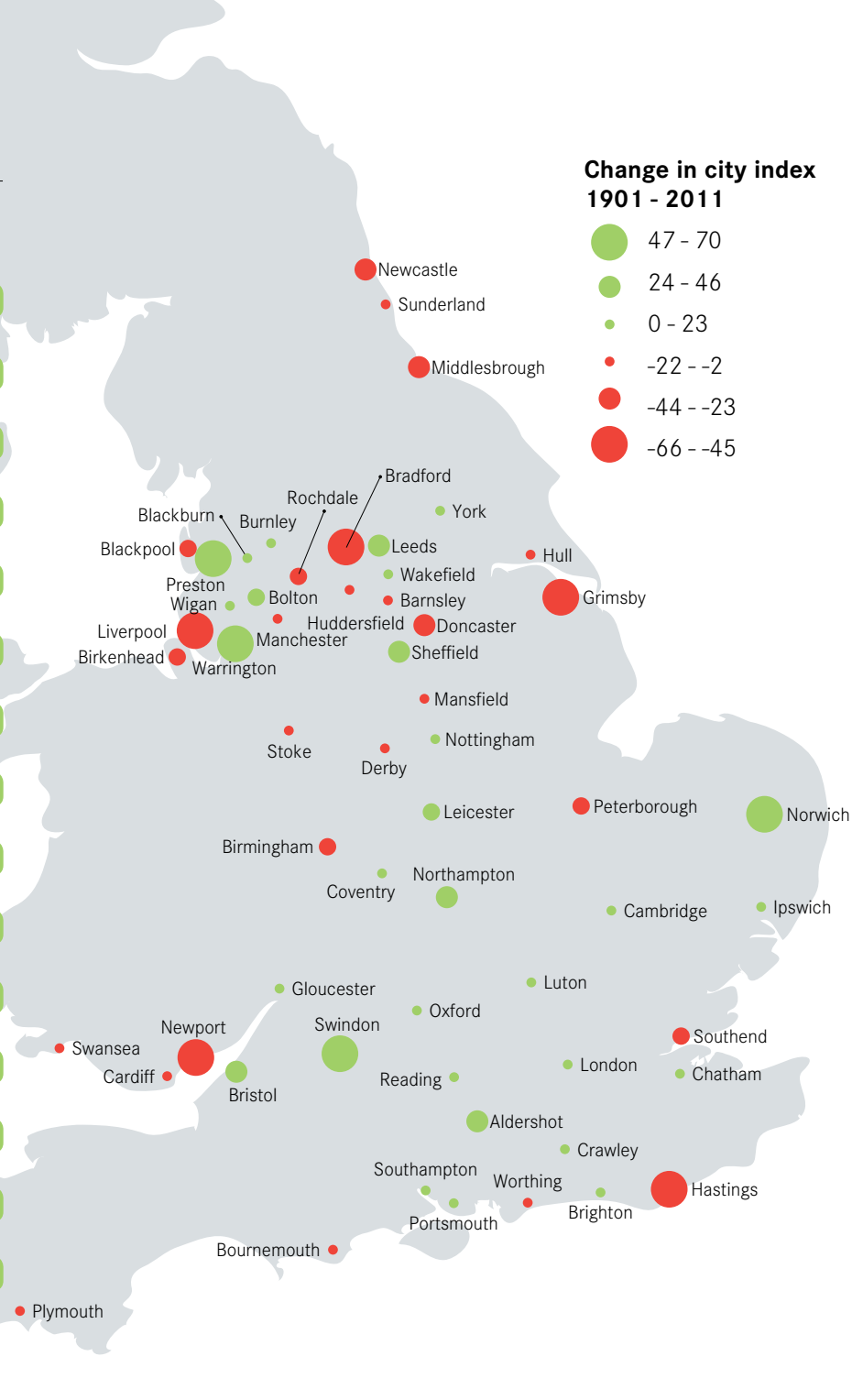
Figure 17:
2011 City Index



Source: Centre for Cities 2011 City Index

Figure 18:
Change in City Index, 1901 - 2011

City	Change in City Index	City	Change in City Index
Warrington	69.6	Luton	0
Preston	60.7	Worthing	-1.8
Swindon	57.2	Swansea	-1.8
Norwich	46.5	Manchester	-5.3
Bolton	46.4	Huddersfield	-7.1
Leeds	39.3	Barnsley	-8.9
Aldershot	33.9	Rochdale	-8.9
Bristol	26.8	Southend	-10.7
Northampton	26.8	Hull	-10.7
Sheffield	23.3	Cardiff	-12.5
Reading	23.2	Plymouth	-12.5
Portsmouth	23.2	Stoke	-12.5
Chatham	23.2	Bournemouth	-14.3
Coventry	21.4	Mansfield	-16.1
York	19.7	Sunderland	-16.1
Nottingham	19.6	Derby	-17.9
Burnley	17.8	Birkenhead	-25
Blackburn	14.3	Peterborough	-25
Cambridge	12.5	Middlesbrough	-25
Ipswich	10.7	Birmingham	-26.7
Southampton	10.7	Newcastle	-33.9
Wigan	5.3	Doncaster	-39.3
London	1.8	Blackpool	-41.1
Crawley	1.8	Newport	-44.7
Gloucester	1.8	Grimsby	-50
Wakefield	1.8	Liverpool	-53.6
Brighton	1.8	Bradford	-55.3
Leicester	1.7	Hastings	-66.1
Oxford	0		



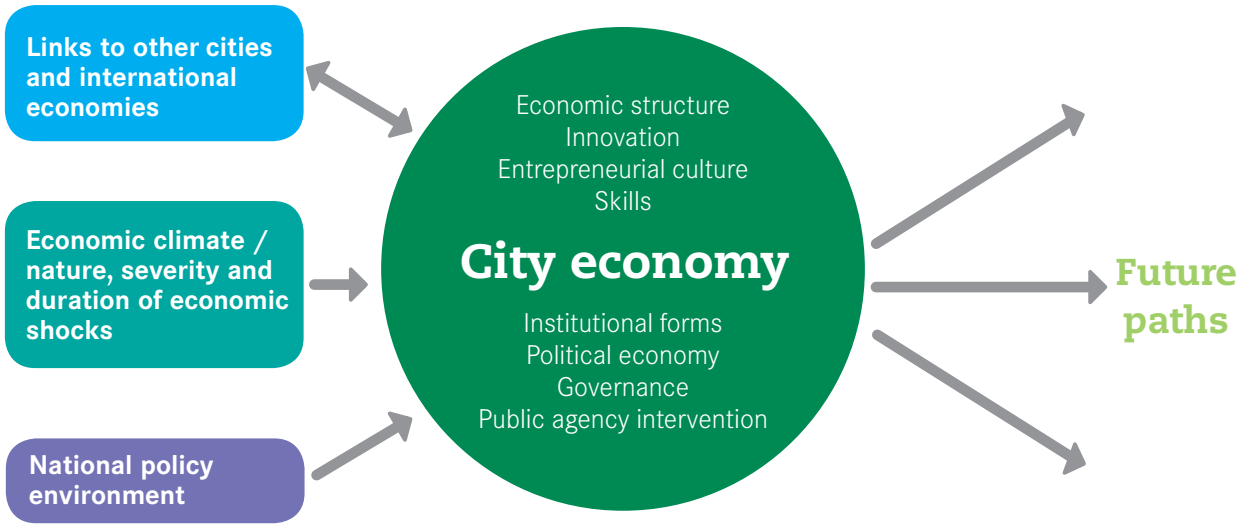
Source: Centre for Cities 2012
Note: The 1901 and 2011 indices where compiled using indicators comparable over the time period. Change on the city index takes a city's percentile rank in 1901 and compares it to its percentile rank in 2011.
See methodological note for further details at www.centreforcities.org/outlook1901

Some cities were able to better adapt to the changing economy; other cities fell into spirals of decline.

Patterns of urban growth across the 20th century were influenced by a range of interconnected factors: the nature, severity and duration of economic shocks; city characteristics, including the strength of institutional networks, firm structure, human capital, infrastructure; and cities' links to other economies (Figure 19).[29]

The remainder of this section explores these factors in greater detail.

Figure 19:
Factors affecting city growth paths



Source: Centre for Cities, 2012

29. Martin R (2012) 'Regional economic resilience, hysteresis and recessionary shocks', *Journal of Economic Geography*, 12: 1-32

Case study: Three Lancashire Mill Towns

The three Lancashire towns of Blackburn, Burnley and Preston shared common characteristics in 1901. Located within 20 miles of each other, to the north of Manchester, the three cities were similar in size with populations of between 170,000 and 200,000. The cities were transformed by the rapid expansion of the cotton industry during the Industrial Revolution which dominated the city economies in 1901. Yet over the course of the 20th century, the three cities followed different trajectories.

The three towns were primarily weaving towns, although spinning was also an important industry in Preston. Blackburn and Burnley were more heavily specialised in the textiles industry in 1901: textiles accounted for more than 35 percent of employment in the two cities, compared to 22.8 percent in Preston.

Lancashire was a world leader in the cotton industry during the 19th century but by 1901 it had started to falter. From the 1900s onwards, the decline in imperial trade and rising international competition in cotton from Japan was felt throughout Lancashire's cotton industry. The First World War also had serious impacts on cotton manufacture, as raw material was difficult to obtain, there was a shortage of manpower and many important markets were lost.

The 'Indian Cotton Boycott', in the 1920s and 1930s, further compounded problems in Blackburn as it was a town that specialised in the production of the 'dhoti' (a traditional garment worn by Indian men) and shirting exclusively exported to India.

The decline of the industry continued through to the 1970s, with the rapid collapse of British industry during the inter-war years. Of Blackburn's 129 mills, just four were still operational in 1991.[30]

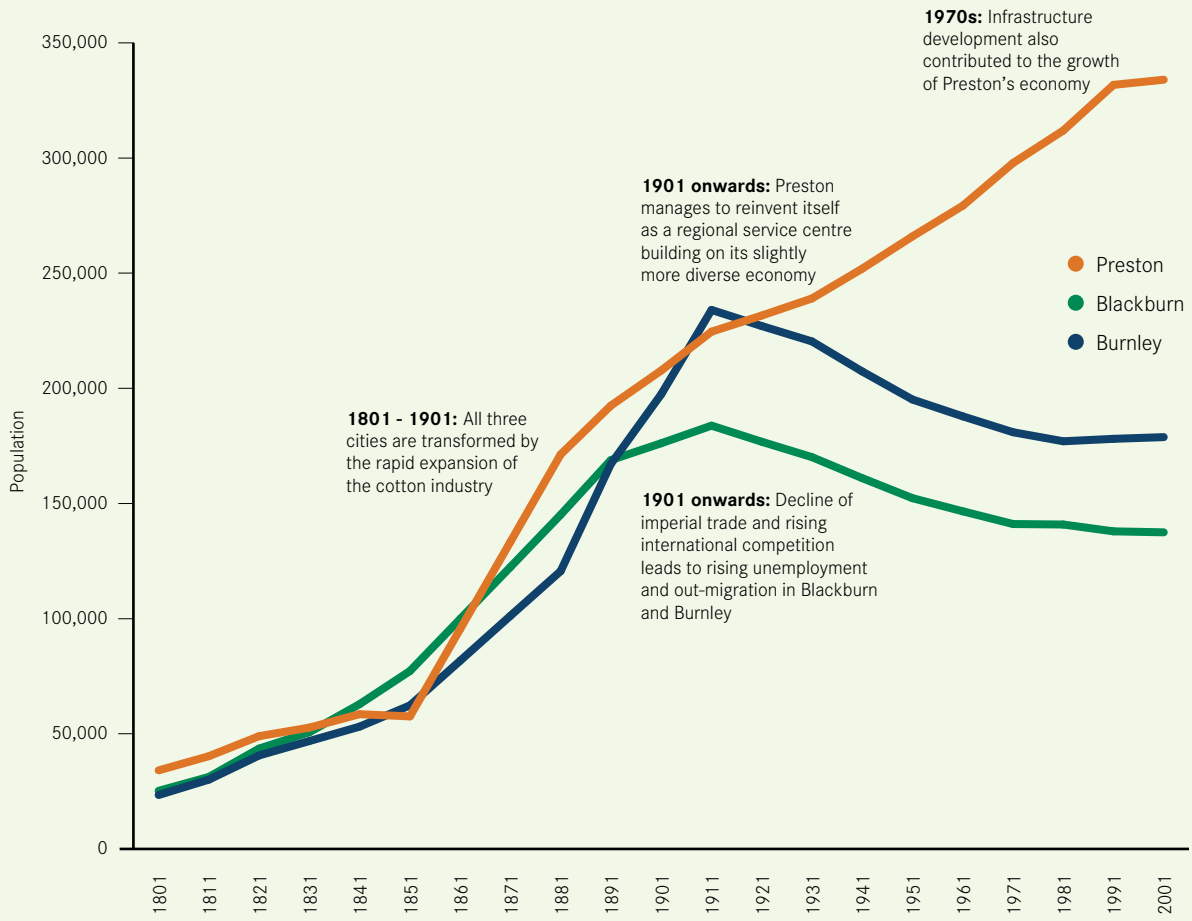
Blackburn and Burnley experienced mass out migration throughout the 20th century, while Preston continued to grow. Preston managed to reinvent itself as a regional service centre by building on its slightly more diverse economy and attracting engineering and companies manufacturing electrical goods. The 1950s and 1970s also saw the growth of aerospace industry in South Ribble, just south of Preston.

Alongside greater industrial diversity, infrastructure development also contributed to the growth of Preston. A new network of roads provided as part of the abandoned 1970s Central Lancashire New Town project facilitated the growth of business parks and attracted new firms to the city.[31]

The gap continues to widen between the three cities. Between 1998 and 2008, Preston saw the third highest rate of private sector jobs growth (16.2 percent) amongst English cities, whereas private sector employment fell in Blackburn and Burnley by 10.5 percent and 14.3 percent respectively.[32]

30. Weaver A (1991) *Re-use of Textile Mills: a Case Study of Blackburn*. Unpublished Diploma in Town and Regional Planning dissertation, Leeds Polytechnic, 77-8
31. See http://www.planningresource.co.uk/Business/article/1020832/Why-Preston-works/
32. Webber C & Swinney P (2010) *Private Sector Cities: A new geography of opportunity*, London: Centre for Cities

Figure 20:
Population change in Blackburn, Burnley and Preston, 1801 to 2001



Source: Southall, 2010 and Centre for Cities, 2012

Location and transport

Location advantages changed over the 20th century. Firms often chose to locate close to raw materials and sites of production prior to 1901 due to high transportation costs. Reductions in the cost of transport meant this was no longer a source of comparative advantage. Electric power generation also reduced the reliance on coal supplies and the advantages of locating in close proximity to them.

Ironically as transport improved and reduced in cost, cities and towns in the North, Wales and Scotland became more peripheral to London. In 1911, Newcastle and Sunderland were closer to markets in London than Birmingham and Coventry as the majority of goods were transported by ship (Figure 21). By 1931, land-locked West Midlands was in a relatively better position due to increases in road use.[33]

This suggests that policymakers seeking to improve the economic fortunes of cities can reap dividends by investing in transport, and this is borne out by the experiences of cities such as Preston and Swindon.

To successfully support economic growth, however, our research suggests that investment in transport needs to be targeted on areas or projects with significant growth potential. It is also important to note that transport improvements alone cannot explain why cities like Liverpool and Bristol or Leeds and Bradford followed such different trajectories from 1901 to 2011; it is the interaction of transport with the other factors discussed below that makes the difference.

Specialisation vs. diversity

Highly specialised cities were more vulnerable to changes in the market. Blackburn and Burnley were hit hard by the UK's declining comparative advantage in textiles. Nearly 6,500 people in Wigan and 3,500 in Barnsley were employed in mining in 1901;[34] just a handful of people were employed in the industry in 2011.[35] Population growth in the two cities slowed to 0.4 percent and 0.2 percent per annum, respectively, over the 20th century, from 1.8 percent and 2.1 percent per annum in the 19th century, as both struggled to adapt to the changing economy.

Cities and towns with a range of industries serving a range of markets, were less exposed to risk and business failure. Leeds' industrial structure changed significantly in the latter part of the 19th century; employment in textiles fell by 20 percent between 1891 and 1901.[36] But unlike other city economies undergoing structural change, the decline of the textiles industry did not lead to high long-term unemployment in the city as other sectors expanded to fill the gap.

The expansion of sectors such as engineering, clothing and services in Leeds was in part related to the existing diversity of its economy and the adaptability of entrepreneurs. An example of the innovation in Leeds was the introduction of clothing to be sold in manufacturers' own shops by Joseph Hepworth and Sons in 1883, the firm now known as Next.[37]

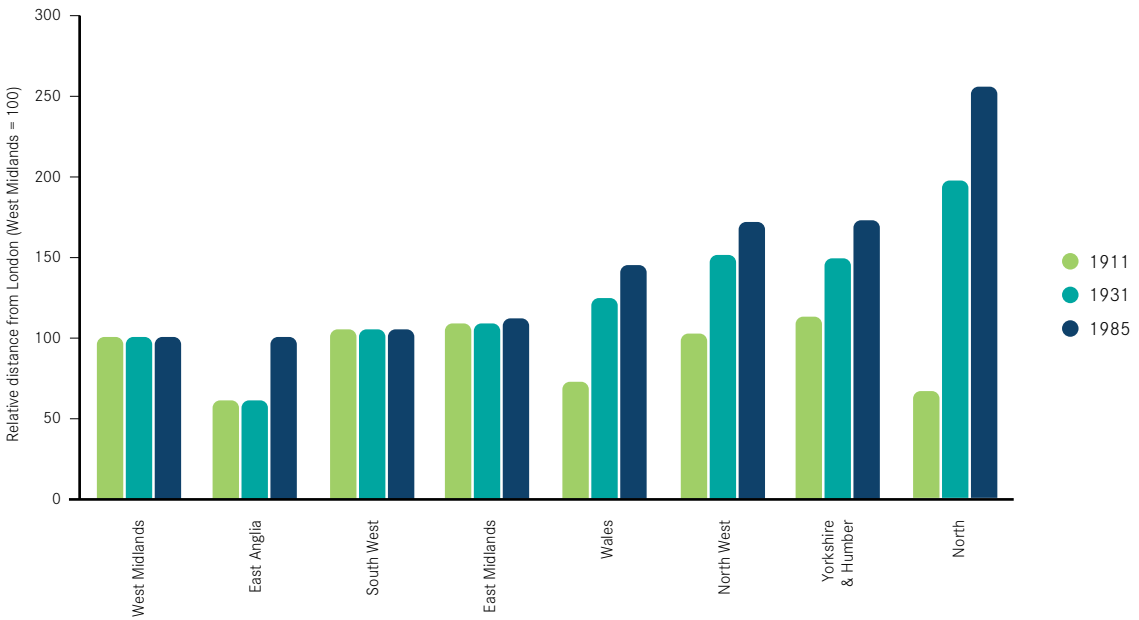
Larger cities tended to be more diverse, providing greater insulation from wider economic changes. England's Core Cities were already regional centres of

33. Crafts NFR (2004) 'Market Potential in British Regions, 1871-1931', Department of Economic History, London School of Economics, Working Paper No. 04/04
34. Source: Census 1901
35. Source: Business Register and Employment Survey, 2011
36. The failure of Leeds' flax industry to adopt new technologies sufficiently quickly in the face of competition from Belfast was a contributing factor.
37. Bateman M (1986) 'Leeds: a study in regional supremacy' in Gordon G (ed) (1986) *Regional Cities in the UK 1890-1980*, London: Harper and Row Publishers

public administration and education in 1901, as well as providing access to a range of specialist and professional services for firms. The textiles industry did not have a large enough stake in Manchester's economy, for example, to start a spiral of decline. Manchester's diversity can be partly attributed to its Ship Canal that led to the establishment of the UK's first industrial park, Trafford Park: it "gave a first major stimulus to economic diversification away from the old textile base and its ancillaries".[38]

Cities with higher income levels were also more insulated from economic downturns as local demand for services and consumer goods was more likely to be sustained.[39] This suggests that cities need to constantly be considering how they can both make the most of niche strengths, but also ensure that they are not over-reliant on one industry. Investment in supporting start-ups and small and medium sized business growth is important, alongside strategies to attract inward investment.

Figure 21:
Relative distance from London, 1911, 1931 and 1985



Source: Crafts, 2004

38. Rodgers B (1986) 'Manchester: metropolitan planning by collaboration and consent; or civic hope frustrated', in Gordon G (ed) (1986) *Regional Cities in the UK 1890-1980*, London: Harper and Row
39. Reeder D & Rodger R (2000) 'Industrialisation and the city economy 1840–1950' in Daunton M (ed) (2000) *The Cambridge Urban History of Britain*, Cambridge: Cambridge University Press

Case study: Reinvention - Birmingham, Coventry and the automotive industry

Pre-1850s: Birmingham has been the home of metalworking since the 17th century. The increased demand for machinery as a result of the Industrial Revolution and innovation in iron smelting led to an upsurge in metalworking in Birmingham. Coventry remained specialised in ribbon and watch making, industries that predated the Industrial Revolution. Both cities developed industrial structures based on small firms with highly skilled workers.[40]

1850s: Birmingham grew rapidly in the 19th century producing a wide range of differentiated products, from coins and light castings to toys and pens.[41] The city became known as the 'City of a Thousand Trades' as a result of its wide industrial base and the vast numbers of small workshops that operated in the city.

1900s: In 1901, 38 percent and 36 percent of the workforce in Coventry and Birmingham respectively were employed in metals and machinery.[42] Coventry's market share in watchmaking was declining as a result of rising international competition. However, the industry's skilled labour force enabled it to transition to cycle manufacturing; 66 percent of Coventry's employment in metals and machinery was in cycle and other vehicle manufacture. In contrast in Birmingham only 12 percent of the sector was concentrated in vehicle manufacturing.

Inter-war years: The falling value of the Pound, cheap credit policies, and rearmament in the late 1930s led to the expansion of car manufacturing in Birmingham and Coventry. Cycle manufacturers such as Singer, Rover and Triumph were to eventually transition to car manufacturing by harnessing existing expertise in light engineering. Firms in Birmingham turned increasingly towards the manufacture of car components. Organisational and technological change during this period led to the massive expansion of unskilled and semi-skilled labour in the cities.[43]

Post-war period: Birmingham and Coventry were second and third only to London in the growth of new jobs between 1951 and 1961 and the cities became increasingly specialised in automotive manufacture. New branches of manufacturing found it increasingly difficult to locate in Birmingham however, partly because of the 1945 Distribution of Industry Act which was passed to foster the redistribution of industry from congested to depressed areas. This was reinforced by high wages and rents in the city. These factors led to an over-reliance on the automotive industry: 72 percent of the manufacturing workforce in Birmingham were employed in the motor industry in 1951.[44]

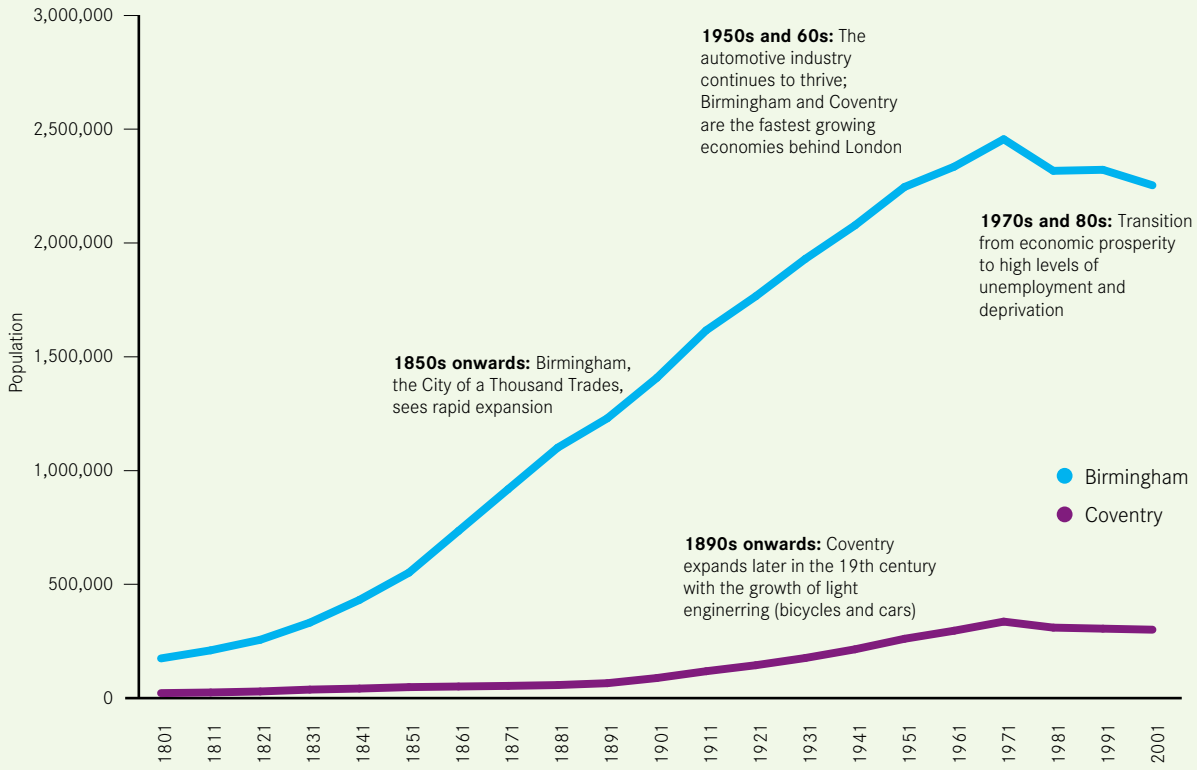
1970s and 80s: The period from the 1960s up to the 1980s was one of striking transition, from prosperity, high employment and high wages to high levels of unemployment and deprivation as the recession led to the collapse of the automotive industry. Unemployment rose in Birmingham from 5.5 percent in 1979 to 13.7 percent in 1981.[45]

40. Barber A & Hall S (2008) 'Birmingham: Whose Urban Renaissance? Regeneration as a response to economic restructuring', *Policy Studies*, 29 (3): 281-292
41. Sutcliffe A (1986) 'The Midland Metropolis: Birmingham 1890-1980' in Gordon G (ed) (1986) *Regional Cities in the UK 1890-1980*, London: Harper and Row Publishers
42. Source: Census 1901
43. Scott P (2000) 'Women, Other Fresh Workers, and the New Manufacturing Workforce of Inter-war Britain' *International Review of Social History*, 45: 449-474
44. Sutcliffe A & Smith R (1974) *Birmingham 1939-1970*, London: Oxford University Press

1990s onwards: Manufacturing employment has continued to decline, but both cities have experienced modest employment growth, driven primarily by the public sector. Birmingham saw one of the largest falls in private sector employment – over 60,000 – in the decade prior to 2008.[46]

Summary: The story of Birmingham and Coventry is one of transition from highly skilled, diverse economies to economies reliant on automotive industry. Industrial diversity meant the cities were more resilient in the recessions of the 1930s and enabled new areas of industrial growth. By contrast, the success of the automotive industry coupled with constraints on urban growth led to increased concentration and delocalisation of the industry, which ultimately inhibited the region from expanding into new sectors. The failure to diversify meant the cities were hit hard in the 1970s recession, a legacy which still overshadows the region.

Figure 22: Population change in Birmingham and Coventry, 1801 to 2001



Source: Southall, 2010 and Centre for Cities, 2012

45. Sutcliffe A & Smith R (1974) *Birmingham 1939-1970*, London: Oxford University Press
46. Webber C & Swinney P (2010) *Private Sector Cities: A new geography of opportunity*, London: Centre for Cities

Firm structure and supply chains

Industrial concentration was reinforced in some cities, such as Middlesbrough, by the presence of a small number of very large firms, making them more vulnerable business failure.

Cities with many small firms were able to better adapt and respond to changing markets and competitive pressures. For example, small firms in Sheffield played a significant part in the transition to steel production in the 19th century. The prevalence of small firms in Sheffield alongside large firms 'encouraged greater product differentiation' and 'facilitated quick responses to changes in design and fashion'.[47] Small metal-working firms in Birmingham were able to rapidly adapt to the emerging automotive trade in the 1950s and 1960s.

Yet small firms were not immune from economic shocks. The iron and steel industry in Sheffield continued to expand against national trends up until 1921. However, from the 1930s onwards Sheffield's small firms were hit hard by rising international competition as demand increased for more standardised, low cost products in the 20th century.

Small firms' relationship with large firms had an important bearing on their adaptability. Many of Britain's staple industries, such as textiles, iron and steel, coal mining, shipbuilding and engineering, were characterised by a high degree of vertical specialisation where a great number of small firms were dependent on a small number of very large firms.

Later in the 20th century, Birmingham's decline was in part a result of small specialist firms of manufacturing suppliers becoming dependent on a few dominant firms in the automotive industry, who themselves were in decline.

The business strategies employed by firms are regarded as a key factor in explaining the decline of British manufacturing the 20th century. The strategies of British companies contrasted to the approaches taken in the US and Germany where firms invested in R&D and high technology. In Britain, the adoption of new technologies in many firms was reliant upon trial and error on the shop-floor rather than on more systematic research and development.[48]

The importance of the links between firms highlights the need for Government and cities to take a mixed approach to supporting business. This means supporting existing small and medium sized businesses to grow as well as seeking to attract inward investment. It is also about the encouraging greater interaction between businesses through networking and supply chains programmes, and providing incentives that encourage greater R&D investment. Improving management skills across the UK should also be a priority as this is one of the reasons that on average US and German firms continue to outperform UK firms.

47. Reeder D & Roger R (2000) 'Industrialisation and the City Economy', in Daunton M (ed) *The Cambridge Urban History of Britain, Vol. 3.1840–1950* Cambridge: Cambridge University Press
48. Knick HC & Crafts N (1998) 'Productivity of growth during the First Industrial Revolution: inferences from the pattern of British external trade', *Economic History Working Papers 22396*, London: London School of Economics and Political Science, Department of Economic History

Case study: The role of the public sector in Swindon

The railway has played an important role in the economic development of Swindon, since the establishment of the Great Western Railway's locomotive works in 1841. The works became a major employer, employing over 10,000 workers by 1911.[49]

Railway employment declined in the 1930s and the iconic locomotive works shut down in 1986. Although the town was heavily reliant on the rail industry, it managed to transform its economic fortunes in the midst of the industry's decline through the emergence of high tech industries. Swindon's transition away from its more traditional industries was supported by the leadership of Swindon's local government.

The Town Development Act in 1951 aimed to provide relief to congested conurbations. David John Murray, the Town Clerk, successfully negotiated with the London Borough of Tottenham and London County Council for Swindon to be an official overspill district. Under the scheme, Swindon benefitted from financial assistance from the government and compulsory purchase. As a result, Swindon expanded its population by almost 43 percent between 1951 and 1966.

The completion of the M4 in 1971 improved Swindon's access to London. This improved connectivity combined with affordable business premises attracted manufacturing firms, such as Roussel, Raychem and Emerson Electrics, in the advanced manufacturing sector, as well as service sector firms, such as Hambro Insurance (now Allied Dunbar) and the Nationwide Building Society.

Yet Swindon's traditional industries faced major decline in the economic turbulence of the 1970s. In response to this the Council's 1976 Corporate Plan set the target of 3,000 new jobs a year. A marketing strategy was devised with the former Plessey commercial director, Douglas Smith, at the helm.[50] The marketing strategy entailed the contacting of US electronics and pharmaceutical companies, building up contacts with London-based property agents and the acquisition of a wider portfolio of sites to attract new companies.

New firms continued to locate in Swindon, even during the 1979–1983 recession. Manufacturing employment grew by three percent, compared with an 11 percent drop nationally, and service sector employment grew by nearly nine percent.[51]

49. Bassett & Harloe, 'Swindon: the rise and decline of a growth coalition' in Harloe M, Pickvance CG & Urry J (eds) (1990) *Place, policy and Politics: Do Localities Matter?* London: Routledge
50. ibid
51. ibid

Skills

Skill levels in 1901, as measured by employment in professional occupations, is the most important predictor of economic performance in 2011. Cities with higher proportions of employment in the professional occupations in 1901 tend to have more innovative and highly skilled economies in 2011. Skill levels in 1901 account for over 20 percent of the variation in the size of knowledge-intensive service sectors and the levels of graduate labour across city economies in 2011.

Firms and industries with more skilled workforces were more adaptable across the 20th century. Many of the manufacturing cities and towns in 1901 were characterised by low skill employment, as the business strategy of British industrialists was essentially a low-wage, labour-intensive mode of production. Many of these firms also lacked the corporate management skills of their international competitors.[52]

Low levels of workforce and management skills made it more difficult for firms to capitalise on emerging markets. This finding is also backed by international evidence: Glaeser's study of Boston from 1630 to 2003 demonstrates how the city's ability to respond to economic change and reinvent itself was a result of "its historic commitment to skills".[53]

This clearly highlights that investment in skills, from early years to workforce, is critical. Research shows that this matters to people and to places, and is the single most important determinant of future success for both.

Summary

The standard of living has increased over the last 100 years across all cities but the relative economic position of cities has changed. A city's industrial structure, firm and institutional structures, skills profile, and links to other economies in 1901 all have a bearing on its economy today.

These factors mediated the changes that took place over the 20th century in the wider economy and influenced the way cities evolved. Yet, while some cities share common characteristics, the history of every city is unique, as are the growth paths cities took over the 20th century.

52. Reeder D & Roger R (2000) ibid
53. Glaeser E (2004) 'Reinventing Boston: 1630-2003', *Journal of Economic Geography*, 5: 119-153

Blackpool, 1901. Copyright The Francis Frith Collection

Liverpool, 1890. Copyright The Francis Frith Collection

04 / Future cities: Lessons for policy

For policymakers seeking to learn lessons from the past when confronting today's economic challenges, there is one over-arching message: invest in skills and infrastructure. Failure to invest now will leave the country paying for decades to come.

Some geographical differences are long-standing. Even in 1901 there was a North-South divide. Current geographical differences across the UK can be traced back not just decades but a century or more. Cities such as Blackburn and Hull have seen continued economic decline and others, such as London and Cambridge, have seen rising prosperity.

A city's economic past has a profound influence on its future but cities do not necessarily follow the same continual path. Cities evolve and adapt to changing economic circumstances, although change is often unpredictable and can take decades. For some cities, such as Burnley, global economic change has led to effects dating back beyond 1901. For other cities, such as Birmingham, the impacts of wider economic change have been felt more recently

If the Government wishes to 'rebalance the economy' then understanding the impact of history and the time that economic change can take is crucial. Where a city starts from in terms of its skills base, its infrastructure, the diversity of its industries, its institutional networks and its links to other economies can give it a headstart in a rapidly changing economy. Nonetheless, policy can have a role to play in altering a city's economic path – although change can take decades.

Cities Outlook 1901 shows that skills are the most important factor shaping a city's destiny. Seven out of eight of the best performing cities today had above average skills levels in 1901, while 80 percent of cities with vulnerable economies in 2012 fall into the bottom 20 cities for skills levels in 1901.

Targeted investment in infrastructure can have a significant impact upon city performance. Cities like Warrington, Preston and Swindon improved their relative economic performance partly as a result of government investment in infrastructure. All three cities are close to major motorways and are stations on mainline rail routes. Preston, for example benefited from a new network of roads from the abandoned 1970s Central Lancashire New Town project, and is now performing better than might have been expected based on its 1901 performance.

Cities Outlook 1901 also illustrates the way that lack of investment is compounded over time. Failure to invest in skills or infrastructure in 1901 had knock-on long-term impacts on a place and its people over decades, while targeted investment in infrastructure and ongoing investment in skills succeeded in helping some places and people improve their performance.

For policymakers seeking to learn lessons from the past when confronting today's economic challenges, there is one over-arching message: invest in skills and infrastructure. Failure to invest now will leave the country paying for decades to come.

Policy recommendations that emerge from our report include:

1. Short-term cuts in expenditure on the key drivers of urban success are likely to result in a big bill in the medium to longer-term.

Government should:

- Sustain its investment in the policy areas that are most responsive to intervention, particularly skills and targeted infrastructure investment.

2. Skills are the biggest determinant of success for cities, and are critical to the life chances of individuals.

Government should:

- Ensure its skills investment, ranging from early years to workplace skills, continues to adapt to the needs of a rapidly changing economy. This means combining investment in core skills such as literacy, numeracy and ICT with investment in more technical courses such as engineering, predicted to be a key skills shortage over the next decade;
- Regularly undertake reviews to identify how provision needs to adapt as the economy continues to change.

Cities should:

- Work with providers to ensure that education and training are responsive to the needs of the modern economy;
- Convene businesses and local institutions, including universities and further education (FE) colleges, to support managerial skills development and encourage investment in job-related training.

3. Targeting investment in infrastructure can have a significant impact upon the economic prospects of a place.

Government should:

- Work with local authorities to identify where investment in transport is most likely to release economic potential. Often this may be through linking less successful cities to those with greater economic potential, for example working on transport schemes that link cities across Greater Manchester to capitalise on Manchester's success;
- Continue to seek opportunities to devolve major transport scheme funding to functional economic areas.

Cities should:

- Work with transport providers and national agencies to plug gaps in transport networks;
- Ensure transport is integrated across the whole functional economic area.

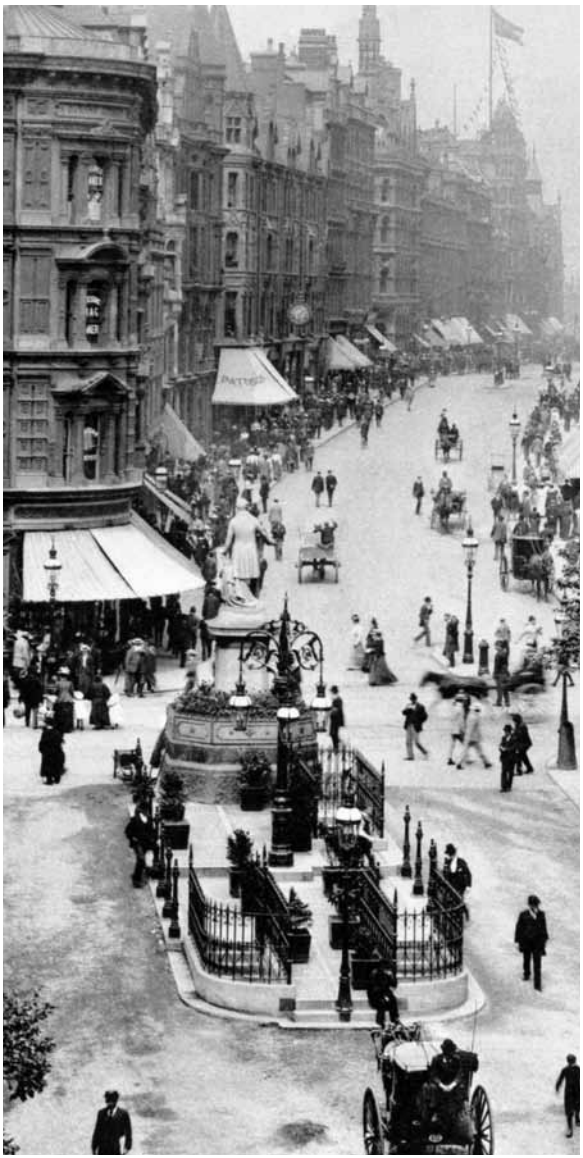
4. A more diverse city economy is better protected against economic shocks.

Government should:

- Ensure UKTI understands and promotes the distinctive assets of different cities when encouraging external investment;
- Ensure cities have the freedoms and flexibilities to respond to the needs of the local business base.

Cities should:

- Work with partners to improve access to local and international networks of universities and research institutes to support businesses to innovate and take innovations to market;
- Work with entrepreneurs and local businesses to identify barriers to business entry and growth – such as the suitability of business premises, communications infrastructure, planning regulation or legislation – and work with partners to remove these;
- Seek to attract inward investment by working with UKTI and other partners to develop marketing strategies based on a city's key assets.



Birmingham, 1890. Copyright The Francis Frith Collection

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All views expressed are those of Centre for Cities.

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