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Policy Report Series

Townscapes

6. West Midlands

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Foreword by Michael Kenny

The declining economic fortunes of many towns, and the chasm that divides the experiences and outlooks of many of their inhabitants from the metropolitan centres where wealth and power have become concentrated, are issues of growing interest in political life and public policy.

In the UK, the preponderance of support for Brexit among town-dwellers, and the countervailing values of many young urbanites, has sparked a deep debate about how and why towns are locked out of the circuits of growth in the modern economy, and how the inequalities associated with economic geography can be more effectively tackled.

The *Townscapes* project launched at the Bennett Institute brings together a variety of different data sources to offer a deeper analysis of how towns are faring across the regions and nations of Britain. It aims to step away from the generalisations and dogmas that infuse much of the contemporary policy debate and offer instead a more finely grained picture of how different towns relate to their wider regions and nations, as well as to their nearest cities. It showcases the merits of a more granular and regionally rooted perspective for our understanding of geographical inequalities and the kinds of policy needed to address them.

Analysts at the Bennett Institute have pulled together a variety of different data sources - from the ONS, Ordnance Survey and National Records of Scotland - and created new indicators to measure the relative economic performance of towns, and compile a picture of changes in levels of public service provision. Specifically we have compiled an **Improvement Index** for all towns, which measures relative changes across a basket of economic and demographic indicators, and separate **Public Services Indices**, which supply a picture of changes to service provision in areas like health, education, transport and infrastructure.[1]

On the basis of these findings, we argue that policy makers need to consider multiple town categorisations, to get beneath the broad groupings that have become so dominant in this debate such as 'university', 'coastal', or 'post-industrial' towns. Instead we adopt a more useful data-driven typology developed by the ONS (2019) to contrast the fortunes of 'working', 'partially residential' and 'residential' towns in different parts of the country, and explore the crucial importance for many towns of their geographical distance from large urban centres.

These reports bust some of the prevalent myths about towns and their fortunes since the recession of 2007-08, and lead us towards a better appreciation of the very different circumstances and factors which affect the lives and opportunities of those who live in them. In addition to the insight and evidence which each supplies, we point policy-makers to ideas and proposals that are tailored to the regional and national circumstances which are pertinent to the townscapes of modern Britain.

Professor Michael Kenny
Director of the Bennett Institute, Cambridge University

1. These measures are developed drawing on the work of Pike et al (2016) and Jennings and Stoker (2019).

West Midlands - Key Findings

- Most towns in the West Midlands are working towns, including those surrounding the major cities of the region which, in other parts of Britain, often function as commuter towns.
- There are hardly any exceptionally deprived and exceptionally affluent towns in the West Midlands.
- A cluster of towns with the most declining economies are rural and have relatively small populations.
- Overall, West Midland towns have a slightly lower average number of public services within them, compared to other regions.
- All towns in the West Midlands have had significant increases in the number of people claiming income support since the economic effects of COVID-19 have taken hold.

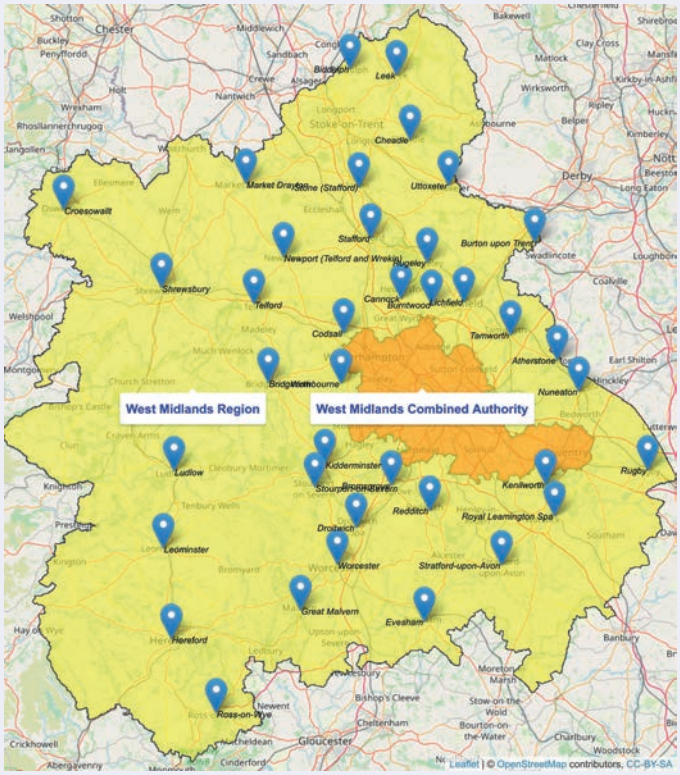
Introduction

The West Midlands region is the only landlocked region in England other than London. Its landscape consists of rural towns and villages in Shropshire, the large urban agglomeration of Birmingham, large towns in Warwickshire and the less sizable cities of Coventry and Stoke. Many towns in the West Midlands have their roots in Britain's industrial heritage -- for instance the breweries in Burton upon Trent, the carpet weavers of Kidderminster, or the mines of the Black Country. These long industrial histories have shaped the region's towns and left an enduring impact on its local economies.

Very few towns in the region are residential in nature, and consequently very few – including those surrounding the large cities in the region – function primarily as commuter towns. This suggests that, for many inhabitants, the local economy of their hometown is the key source of their livelihood.

Some of the most deprived towns in the West Midlands are also some of the largest and most built-up places. Towns such as Telford, Burton upon Trent and Nuneaton are home to relatively large proportions of residents who experience some form of poverty.

The West Midlands region encompasses the jurisdiction of the West Midlands Combined Authority within its borders (see image). The West Midlands Combined Authority is one of eight mid-tier authorities with an elected mayor and has responsibilities for policy in areas such as planning, transport and further education. The region includes many rural towns in counties such as Herefordshire and Shropshire. **These towns, with small populations and low levels of connectivity have some of the most declining economies in the region.** How these economies are revived, and who is responsible for that process, are crucial questions for the economic future of the region.



Image, above: West Midlands Region and West Midlands Combined Authority. Comparing the West Midlands Combined Authority to the West Midlands Townscape

Every town in the region has seen significant increases in the number of people claiming income support since last year. The economic effects of the COVID-19 pandemic are starting to take hold and a cluster of towns with the highest levels of deprivation have also seen the largest increases in claimant rates since 2019.

The region is also home to a group of more prosperous towns. **According to a number of measures, Royal Leamington Spa, Rugby and Stratford-upon-Avon – all located in Warwickshire – have low levels of deprivation and thriving local economies.** Their experiences are in stark contrast to towns in rural Staffordshire and places in the north of the region – surrounding Stoke-on-Trent – which have not seen similar levels of growth in recent years and experience much more deprivation – towns like Leek, Rugeley and Market Drayton.

Economic Performance

The most rapidly improving towns in the West Midlands are Rugby, Burton upon Trent and Royal Leamington Spa. These three places have all seen large increases in their population levels and the number of businesses they contain in recent years. Royal Leamington Spa and Rugby are both relatively affluent towns in Warwickshire which function as employment hubs for many workers. Both engineering in Rugby and brewing in Burton upon Trent provide strong economic foundations for these towns whilst the growth of the gaming industry in 'silicon spa' provides Royal Leamington Spa with its own unique industrial strength.

The Improvement Index

- The Improvement Index is a measure of town improvement or decline, relative to the average for British towns.
- The index reports changes in five indicators: population levels, youth population (15-19 year old %), education (NVQ Level 3+ %), business counts and employment levels (%).
- Changes are measured between the two censuses of 2001 and 2011, although business counts changes are measured between 2010 and 2016.
- Changes for each of the five indicators are standardised and summed to create the index.
- This is a revised version of an index developed by Pike et al. (2016) and Jennings & Stoker (2019) but is applied here at the Built-Up Area (BUA) geographic scale.

Image, above: Wall Art in Royal Leamington Spa

Economic Performance

Figure 1:
Improvement or Decline in West Midlands Towns and Distance from City

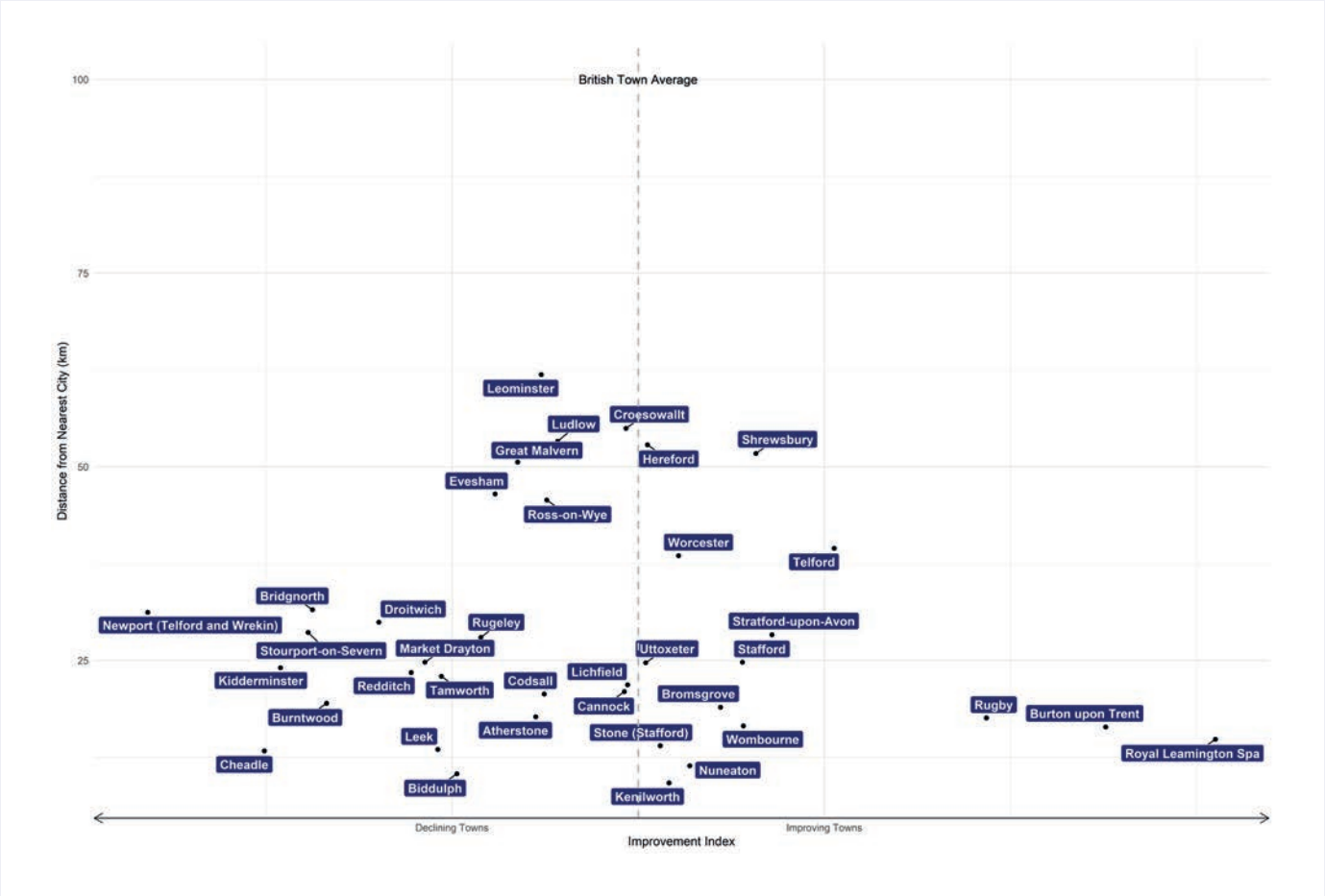


Figure 1.
Notes: Towns are any Built-Up Area with an estimated 2016 population of 10,000-175,000. 'Distance from Nearest City' measures the straight-line distance between geographic centres of a town and its nearest city.
Source: Census 2011; Office for National Statistics – UK Business: Activity, Size and Location; Built-up Areas Boundaries, V2; Scotland's Census 2011.

Economic Performance

Newport in Shropshire is the third most 'declining' town in Britain. It has performed badly on several different measures – most notably in declining employment rates between the last two censuses. Cheadle, meanwhile, is one of the 62 towns in Britain that has experienced a decline in its population in the last decade. One of its large employers, JCB, recently announced it would be cutting around 20% of its workforce as the economic impacts of Covid-19 begin to affect the towns which are most vulnerable to economic decline (Watson, 2020).

As is clear from Figure 1, many of the most 'declining towns' are small, rural market towns. Places like Leek, Newport, Bridgnorth and Cheadle have not kept pace with the growth trajectories of larger towns and cities.

Figure 1 also shows the distance between the region's towns and its nearby cities[2]. Birmingham, Coventry and Stoke-on-Trent are the major cities in the region. However, despite these large urban agglomerations, there are also many towns without easy access to them, for example, Leominster in Herefordshire.

Over the last decade, the West Midlands has a slightly lower than average density of public services, and a slightly lower than average change in the number of services, like bus stops and children's nurseries, within its borders[3]. Within the region there is large variation. Shrewsbury, Royal Leamington Spa, Worcester and Telford are all in the worst 15 towns in Britain for service decline between 2011 and 2018[4]. Worcester indeed had the second highest losses of health-related services in Britain. But other places are faring better: Tamworth reported more GP surgeries and more health-related services in 2018 than 2011.

Public Service Indices

- The public service indices are measures designed to capture the relative density of, and changes to, public service provision in, British towns.
- There are two separate measures:
  1. 'Public Service Levels' reports the per capita number of: GPs, schools, nursery schools, bus stops, community halls, post boxes and health services.
  2. Changes to Public Services' counts changes in the numbers of GPs, schools, nursery schools, bus stops, community halls, police stations and health services between 2011 and 2018.
- For both measures, each indicator is standardised and summed to create an index score.
- These measures cannot indicate the quality of public service provision, nor the accessibility, as such a high score is not necessarily better than a low score.

2 Distance from Nearest City' measures the straight-line distance between geographic centres of a town and its nearest city.

3. The Public Service Index is a measurement intended to indicate the relative level of overall public services per person. It aggregates standardised levels of: GPs, schools, nursery schools, bus stops, community halls, post boxes and health providers per person. 'Health providers' includes all establishments that provide some health service. Such as: all types of hospitals, GPs, specialist care, pharmacies, opticians and physiotherapists etc. The Public Service Index cannot measure the quality, nor the accessability, of services. You can find all of our code used in this report available at https://github.com/BenGoodair/Townscapes.

4. It may be the case that the number of services in a town does not represent the amount of provision as we have no means for measuring the size, funding or demand for these services.

Economic Performance

Figure 2:
Public Services in West Midlands Towns: Changes and Per Capita Provision

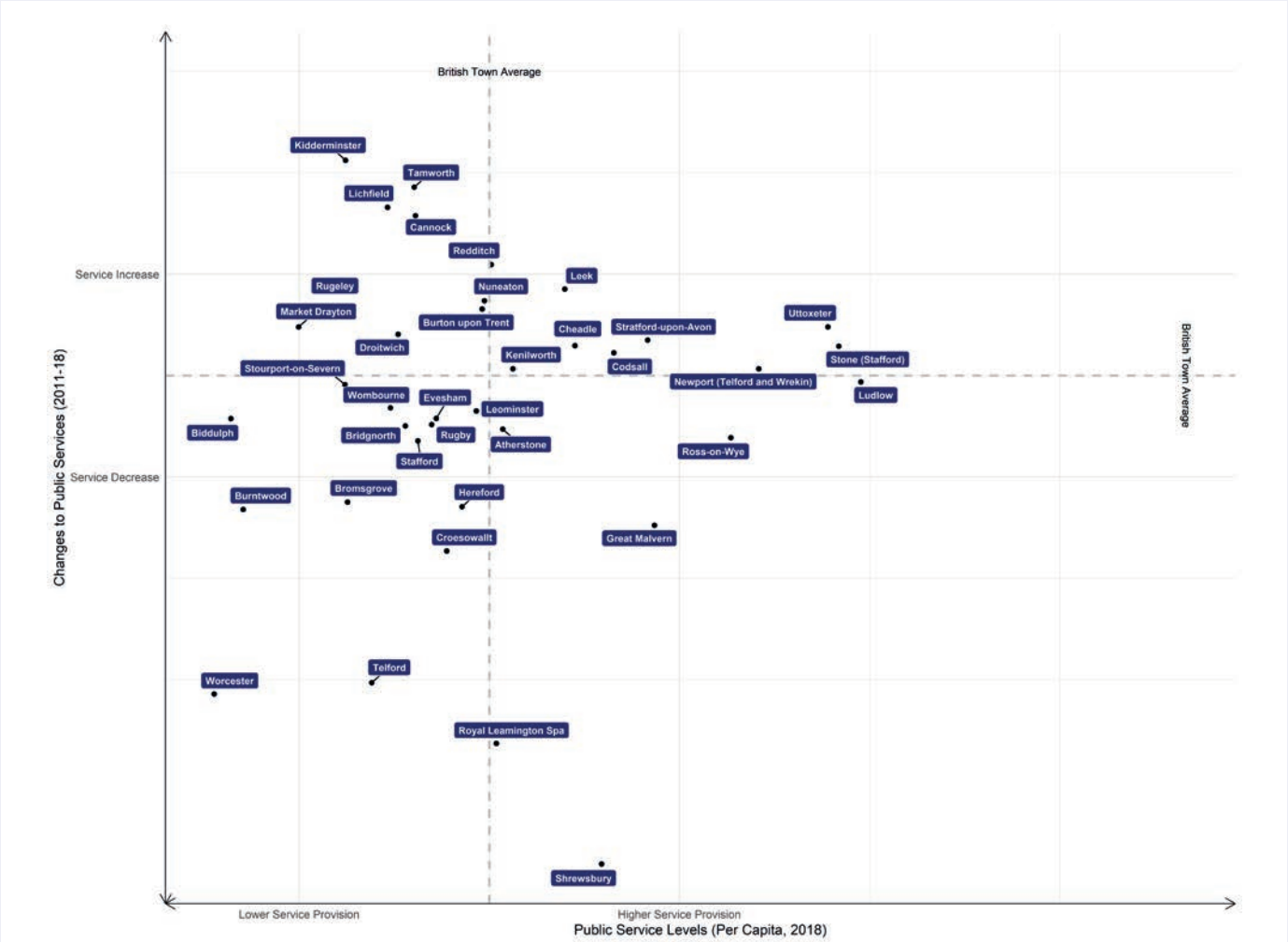


Figure 2.
Source: Census 2011, Office for National Statistics – Mid-Year Population Estimates; Built-up Areas Boundaries, V2; UK Business: Activity, Size and Location, Ordnance Survey – Points of Interest (© Crown copyright and database rights 2019 Ordnance Survey (100025252)); Scotland's Census 2011. National Records of Scotland – Mid-Year Population estimates.

Economic Performance

Figure 3:
Job Density and Population Size

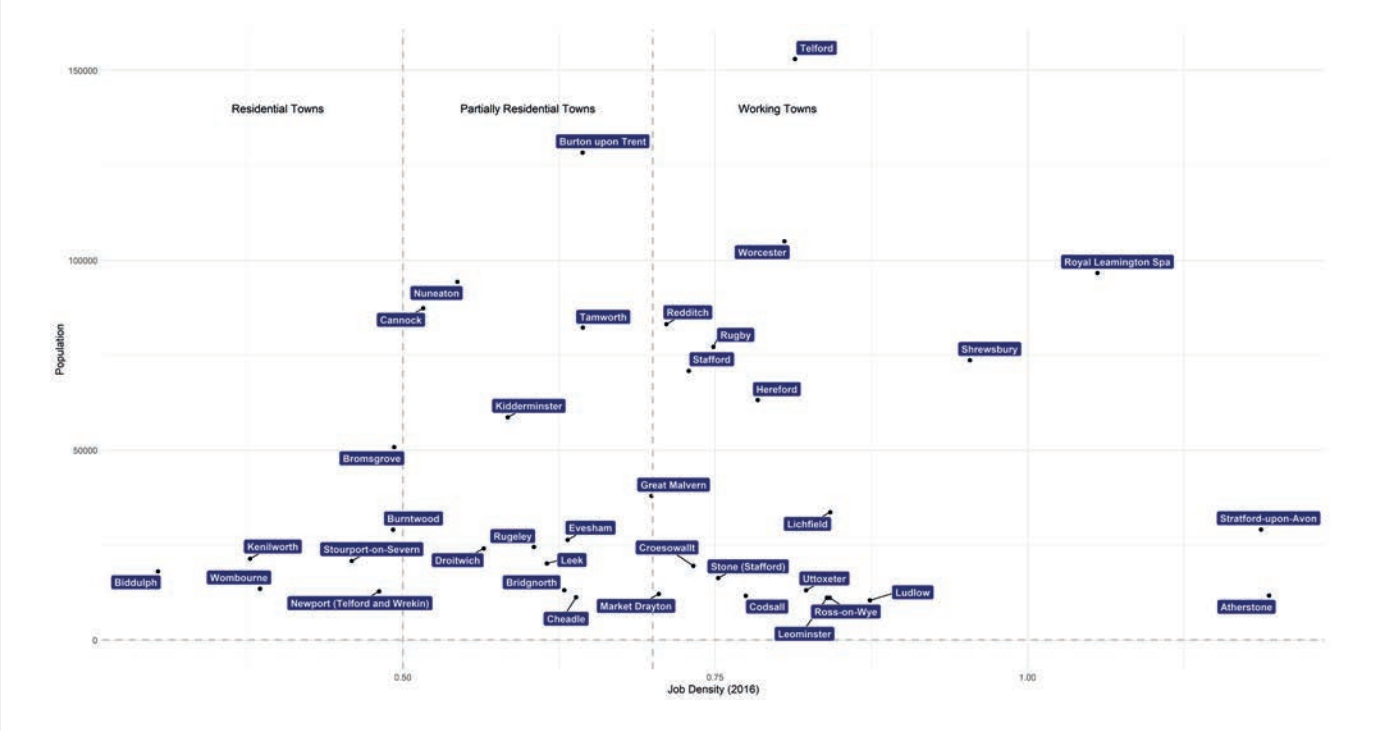


Figure 3.
Notes: Job density, as measured here, does not include self-employment.
Source: Census 2011, Office for National Statistics – Business Register and Employment Survey; Mid-Year Population Estimates; Scotland's Census, 2011; National Records of Scotland – Mid-Year Population Estimates.

Figure 3 builds on research undertaken by the ONS (2019) which reveals that many towns in England and Wales are largely residential in nature, with different characteristics and functions to working towns[5]. But in this region, only a small number are primarily residential. there are only a couple of towns which appear to be reliant on their neighbouring city's agglomeration economies, for example Wombourne sitting just outside Wolverhampton and Kenilworth neighbouring Coventry.

Image, above: Tamworth Market Stalls

5 Distinction between working, partially residential and residential towns is made based on the 'job density' in a town. Job density is total employment in a town divided by its estimated population. This typology was created by the ONS (2019) to express the different functions of towns.

Figure 4:
Deprivation in West Midlands Towns: Percentage of Households with many levels (severe) or at least one level of deprivation

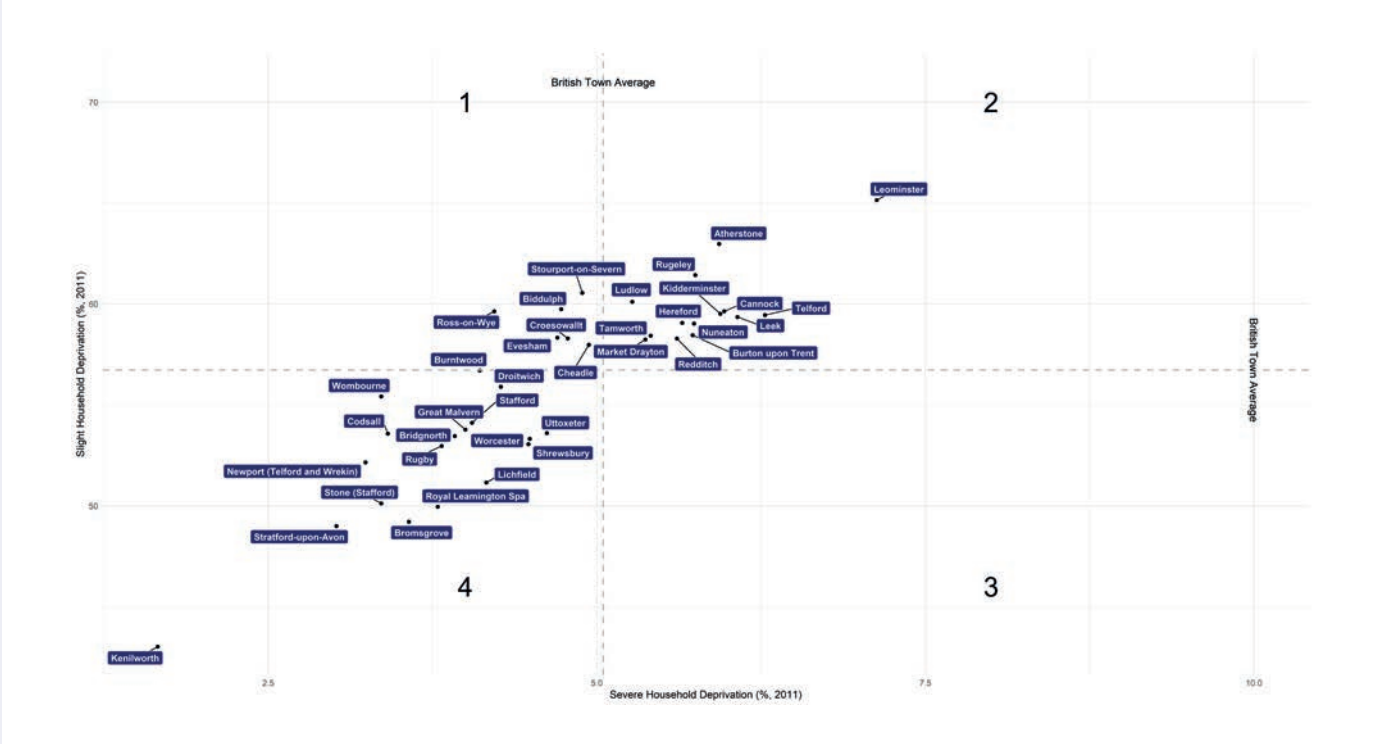


Figure 4.
Notes: Slight deprivation is counted as any household that contains at least one of the following: an unemployed/ long-term sick member; no member with at least level 2 qualifications; a member with 'bad or very bad' health; no central heating or is overcrowded/ shared. Severe deprivation is measured as any household with at least three of these forms of deprivation.
Source: Census 2011

Figure 4 displays two measures of deprivation. On the y-axis is the percentage of households that are slightly deprived, and the x-axis displays severe deprivation[6]. This distinction relates to how many forms of deprivation each household experiences.

Amongst the most deprived towns in the West Midlands are larger working towns like Telford, and also smaller and relatively isolated towns like Leominster.

6 Deprivation rate data is taken from the 2011 Census. Slight deprivation is counted as any household that contains at least one of the following: an unemployed/ long-term sick member; no member with at least level 2 qualifications; a member with 'bad or very bad' health; no central heating, or is overcrowded/ shared. Severe deprivation is measured as any household with at least three of these forms of deprivation.

Economic Performance

The figure has four labelled quadrants. In quadrant 4 there are 18 towns which have below average levels of both severe and slight household deprivation. Nearly half the towns in the West Midlands can be characterised as relatively affluent. Quadrant 1 includes towns such as Biddulph, Ross-on-Wye and Stourport-on-Severn. These conurbations have lower levels of households experiencing severe deprivation than the British average, but they have above average rates of slightly deprived households – homes where residents experience at least one of the different forms of poverty. Compared to the British average, more households in these places experience at least one form of employment, health, education or housing deprivation. Quadrant 2 includes 14 towns from the West Midlands, and these have higher-than-average levels of slight and severe deprivation. However, in the West Midlands very few small conurbations have drastic levels of deprivation. Leominster stands out as the most deprived place, but it is not in the top 50 most deprived towns in Britain for either measure. Whilst there are outliers – like relatively affluent Kenilworth -- inequalities between towns in the West Midlands do not appear to be as severe as those in most other regions and nations in Britain.

Image, above: Engineering works, Telford

Economic Performance

Figure 5:
Recent changes to Deprivation in the West Midlands

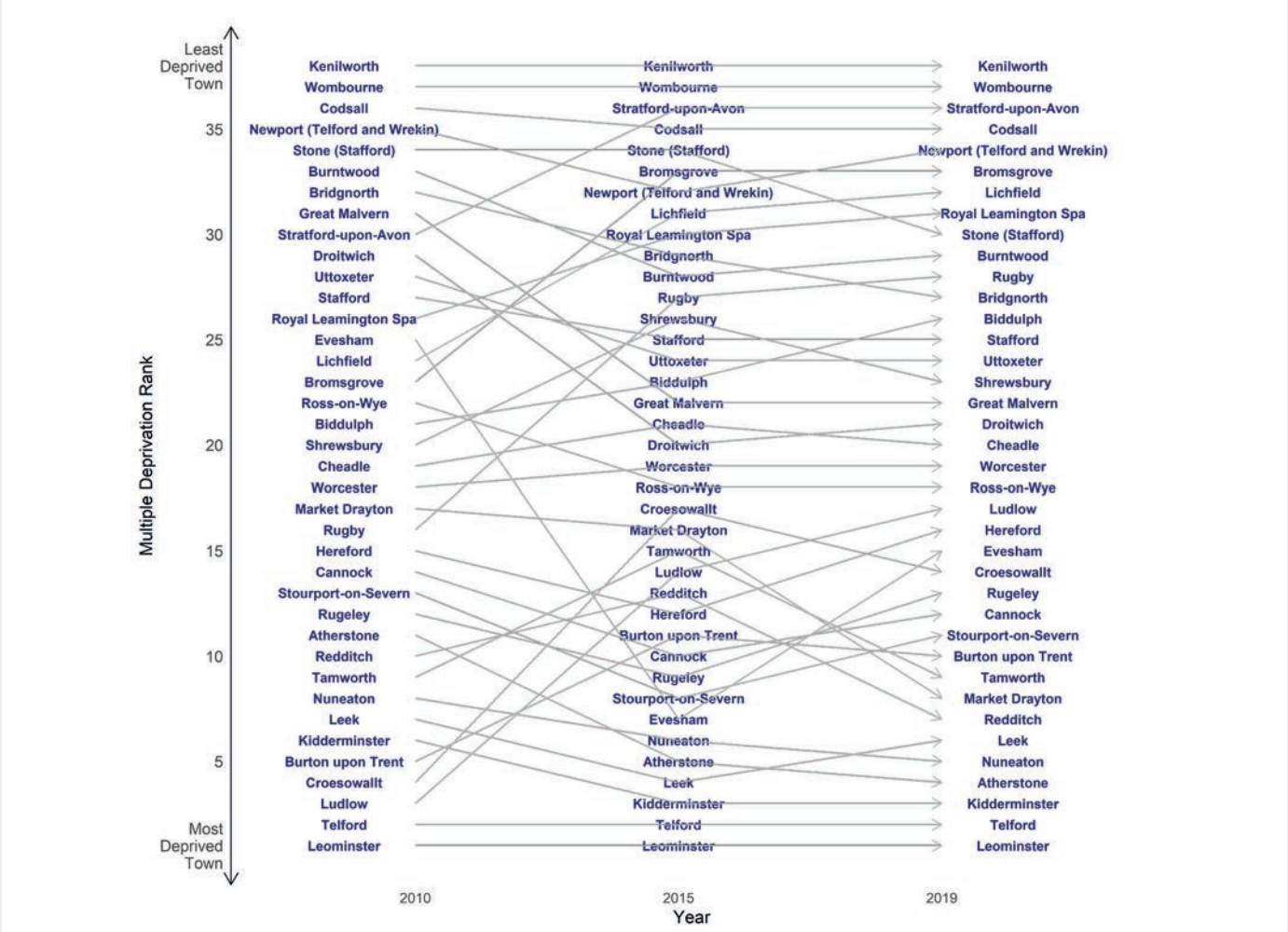


Figure 5.
Notes. Deprivation rankings are constructed from the Index of Multiple Deprivation. Built up from LSOA to BUA using ONS best-fit lookups. Population-weighted averages from the small-scale geographies are taken for each town. Changes to the methods of creating the index occur between the years and are therefore measuring slightly different aspects of deprivation which may explain some movement in rankings.
Source. MHCLG -English Indices of Deprivation 2019 - LSOA Level.

Figure 5 reports changes to a more recent measure of deprivation produced by the Ministry for Housing, Communities and Local Government. It shows very clearly that many of the most deprived towns in the West Midlands, on this metric, are larger in size. Telford, Burton-upon-Trent and Nuneaton all have a population size over 90,000 and have been amongst the most deprived towns since 2010. The rankings in 2010, 2015 and 2019 show that some towns' relative deprivation levels have shifted quite dramatically in the last decade, and others have remained constant. Many of the bottom ten towns have been in this place for the last ten years. However, in 2019, Bideford slipped into the bottom ten, whilst Newquay moved out of the bottom cluster.

Economic Performance

Figure 6:
Index of Town Improvement

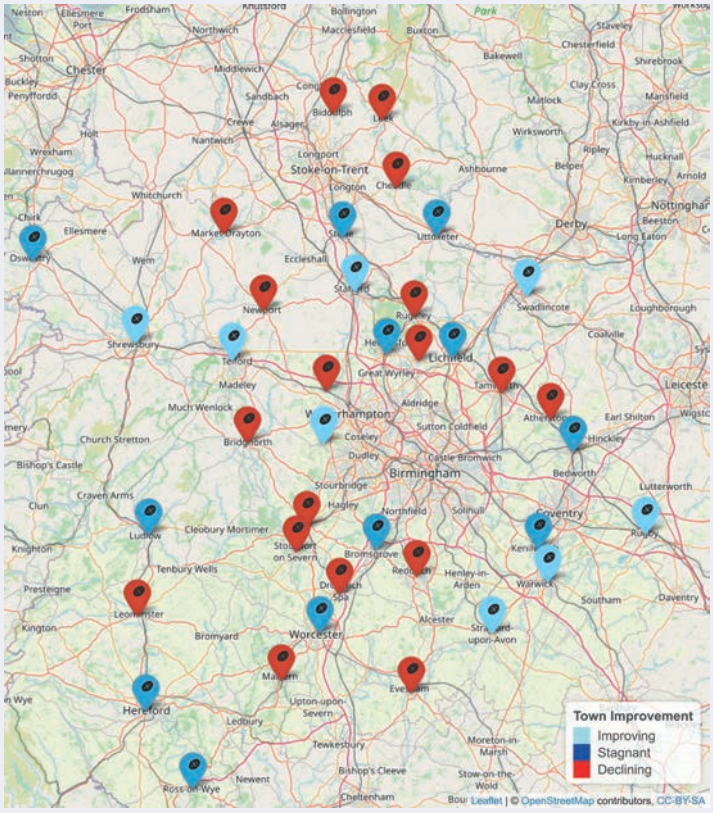


Figure 6.
Notes: These relative indices are aggregates of standardised measures. Light Blue markers have an Improvement Index score > 1, red markers have a total of <1.

Source: Census 2011; Scotland's Census, 2011; Office for National Statistics – UK Business: Activity, Size and Location; Built-up Areas Boundaries, V2.

Figure 6 shows the spatial distribution of towns in the region, and illustrates how they are improving or declining according to our *Improvement Index.* This sheds light on the variable fortunes of towns in the region. At one extreme are places like Royal Leamington Spa in the south of Warwickshire that are clearly prospering, while others, like Leek, in the North of Staffordshire are declining. A similar contrast can be identified between some of the towns near to Coventry, such as Rugby, and those near Stoke-on-Trent, like Cheadle, that are doing much worse. The towns surrounding Coventry score particularly highly in terms of their changes to business counts. Rugby, Royal Leamington Spa and Nuneaton have all excelled in this respect. However, on other measures - particularly their change to youth population and educational attainment – they are not outperforming the declining towns surrounding Stoke-on-Trent.

Figure 6 also suggests that towns surrounding the Birmingham agglomeration have not had significant economic growth in the last decade. Instead it appears that some of the most improving towns are large places with their own resilient economies, such as Shrewsbury, Telford and Rugby. This suggests that there have been relatively few spill over benefits from agglomeration for towns that sit beyond its boundaries, including places like Tamworth, Redditch and Kidderminster.

Figure 7:
Public Service Levels

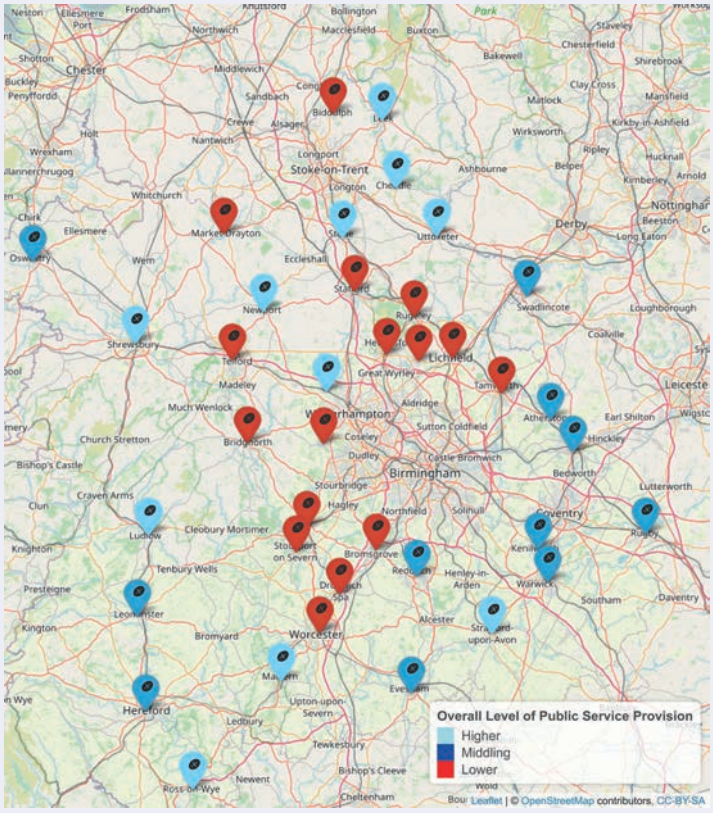


Figure 7.
Notes: These relative indices are aggregates of standardised measures. Light blue markers have a total score > 1, red markers have a total of <1.

Source: Office for National Statistics – Mid Year Population Estimates; Built-up Areas Boundaries, V2; Ordnance Survey – Points of Interest (© Crown copyright and database rights 2019 Ordnance Survey (100025252)); National Records of Scotland – Mid-Year Population Estimates.

Figure 7 shows that many towns in the West Midlands have relatively low levels of public service provision within them. Particular clusters of towns around Lichfield and Droitwich Spa appear to have sparse provision whilst individual towns with higher provision rates are scattered across the region.

Economic Performance

Figure 8:
Changes to Public Service Levels

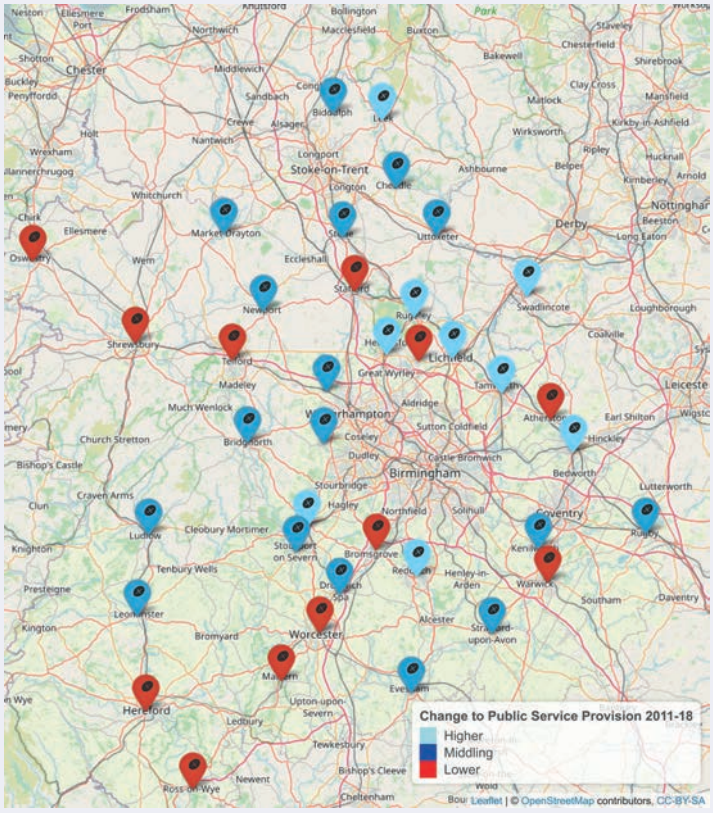


Figure 8.
Notes: These relative indices are aggregates of standardised measures. Light blue markers have a total score > 1, red markers have a total of <1.

Source: Office for National Statistics – Mid Year Population Estimates; Built-up Areas Boundaries, V2; Ordnance Survey – Points of Interest (© Crown copyright and database rights 2019 Ordnance Survey (100025252)); National Records of Scotland – Mid-Year Population Estimates.

Figure 8 supplies a mixed picture of changes to the numbers of public service providers in the West Midlands. Some of the more peripheral towns appear to be worse off than the British average in terms of public service decline.

Figure 9:
Residential vs Working Towns

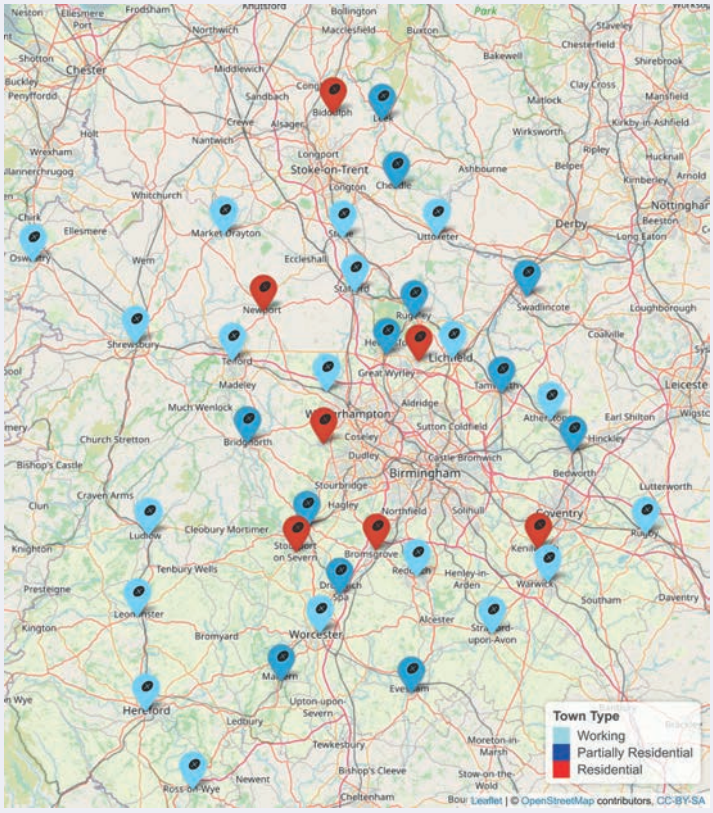


Figure 9.
Notes: 'Residential towns' are all towns with fewer than 0.5 jobs per resident, 'working towns' have greater than 0.7 jobs per resident.

Source: Census 2011; Scotland's Census, 2011; National Records of Scotland, Mid-Year Population Estimates; Office for National Statistics – Business Register and Employment Survey; Mid-Year Population Estimates.

Figure 9 highlights that most of the towns in the West Midlands are working, not residential, towns. Many of the towns in the region have their own sources of employment, and very few are dominated by commuting. For example, Cannock was a large mining town, but has, since the closure of its mines, been able to survive as a centre of other types of employment in other sectors including logistics/distribution, automotive and construction. Examples of these employers include; APC, Veolia, HellermannTyton, First Choice and Amazon (Cannock Chase Council, 2020).

Public Service Provision

The West Midlands includes a number of towns which have experienced among the worst decline in public services of any town in Britain since 2011. And reductions to particular services have been commonplace here. Shrewsbury has fewer schools in 2018 than in 2011.

In Worcester and its surrounding towns, many tertiary health services have been transferred to the Royal Worcester Hospital site. Walk-in centres, maternity services and mental health services have been relocated to the Royal Worcester Hospital in this period (BBC, 2015; Farrington, 2016; BBC, 2014). There have been closures of GP surgeries too (Express and Star, 2015). The consolidation of public services in large cities, in areas like education, health and transport, has affected places across the whole of the region.
In terms of the numbers of services per capita, however, towns in the West Midlands are not much different to those in the rest of Britain. Indeed, there is a slightly higher provision of some educational services.
For instance, places in the West Midlands have, on average, more nursery schools and pre- and after-school clubs than elsewhere, and are also more likely to have a Further Education college within their boundary than other towns in Britain.

Image, above: *Worcester City of Spires and Domes*

Figure 10:
Services in West Midlands Towns compared to the rest of Britain

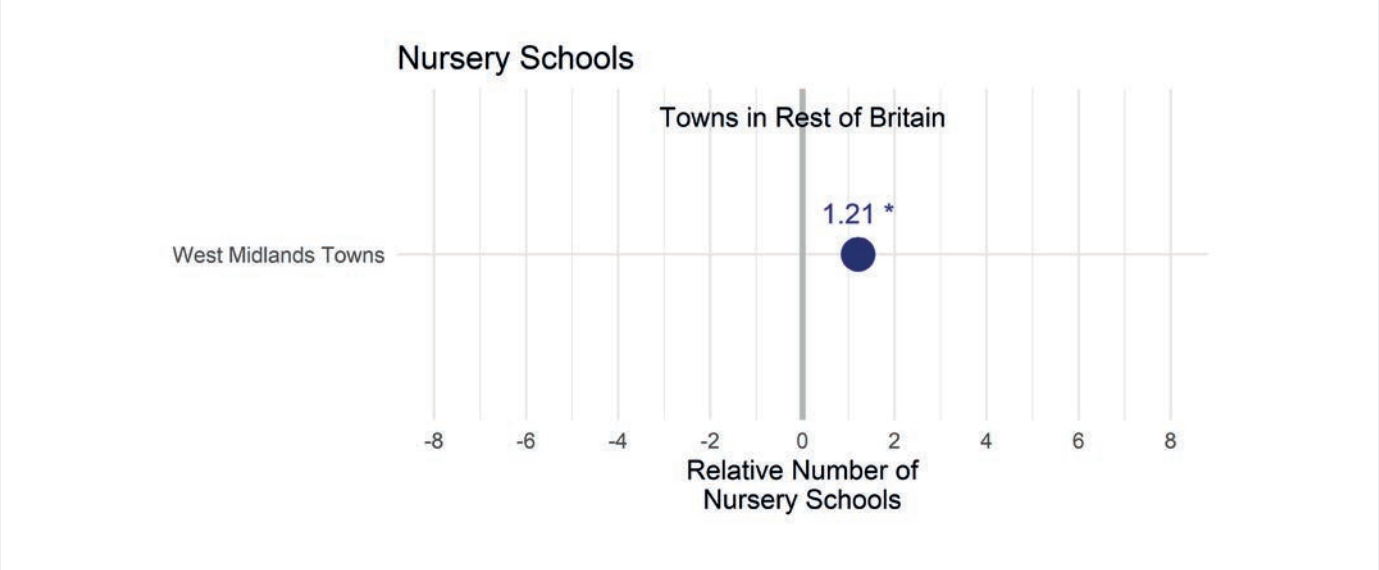


Figure 10.
Notes: OLS regression controlling for: area, population, deprivation rate, the improvement index, job density and distance from nearest city. *p<0.1, **p<0.05, ***p<0.001.
Source: Census 2011, Office for National Statistics – Business Register and Employment Survey; UK Business: Activity, Size and Location; Built-up Areas Boundaries, V2; Mid-Year Population Estimates; Scotland's Census, 2011; National Records of Scotland – Mid-Year Population Estimates; Ordnance survey – Points of Interest (© Crown copyright and database rights 2019 Ordnance Survey (100025252)).

Figure 11:
Predicted Probability of a Further Education College

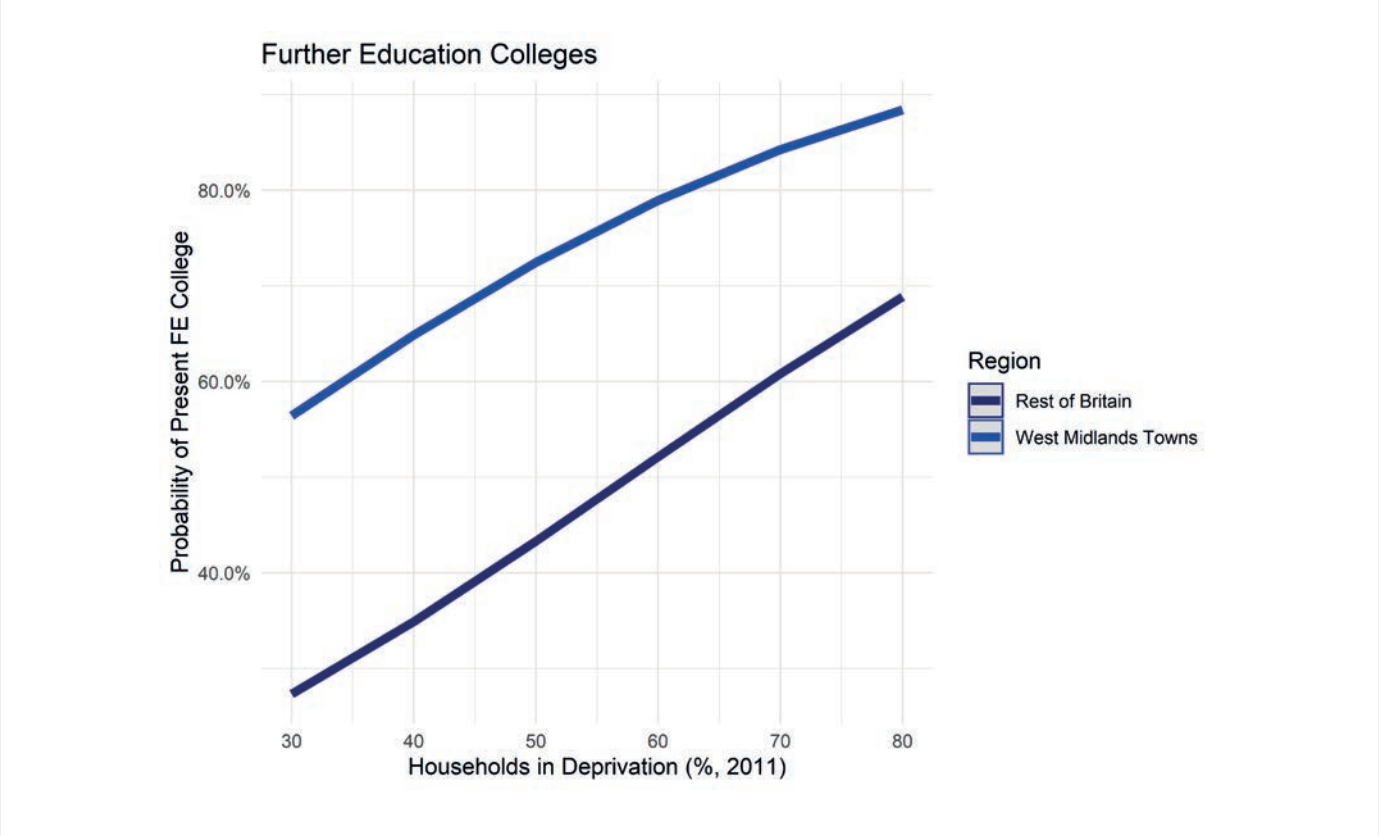


Figure 11.
Notes: Logistic regression controlling for: area, population size, distance from nearest city, job density and Improvement Index.
Source: Census 2011, Office for National Statistics – Business Register and Employment Survey; UK Business: Activity, Size and Location; Built-up Areas Boundaries, V2; Mid-Year Population Estimates; Scotland's Census, 2011; National Records of Scotland – Mid-Year Population Estimates; Ordnance survey – Points of Interest (© Crown copyright and database rights 2019 Ordnance Survey (100025252)).

Figure 11 shows that Further Education colleges are more common in deprived towns, and that smaller conurbations in the West Midlands are more likely to have an FE college in them, compared to the rest of Britain.

Covid-19

The full impact of COVID-19 on this region is, as yet, hard to assess. Drawing upon ONS (2020) data on deaths from COVID-related causes between March and June 2020, we have mapped the geographical impact of the virus. Based on the data covering this period, the worst affected towns appear to be distributed across the region. Ross-on-Wye, a relatively small town in rural Herefordshire, appears to be badly affected, but so too do some of the large towns in Warwickshire such as Kidderminster, Bromsgrove and Nuneaton. The town with the fewest mortalities per capita over this period is Leominster – the most deprived town in the region.

Figure 12:
Covid-19 Deaths between March and June

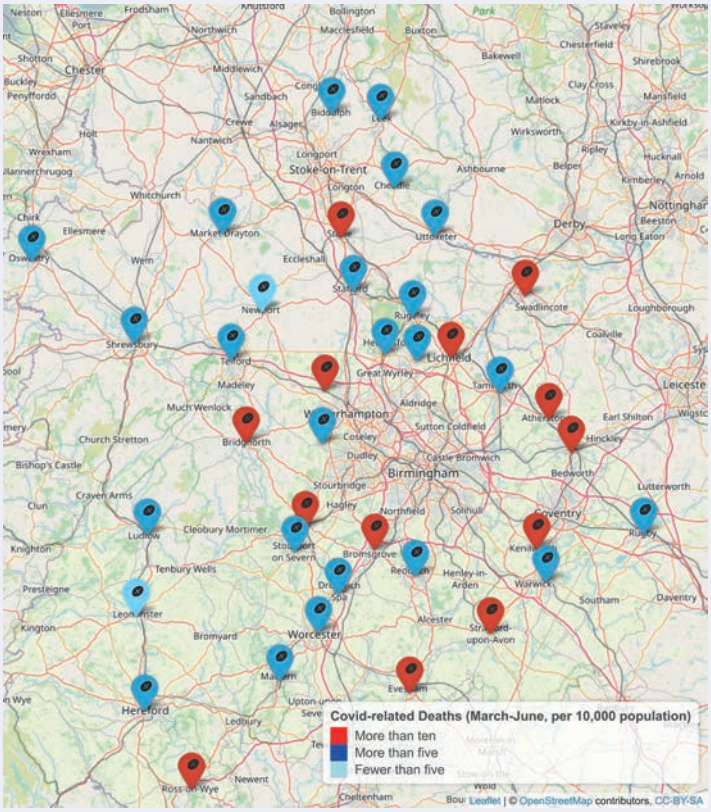


Figure 12.
Source. ONS - Deaths involving COVID-19 by local area and deprivation.

Figure 13:
Claimant Rate Change between May 2019 and May 2020

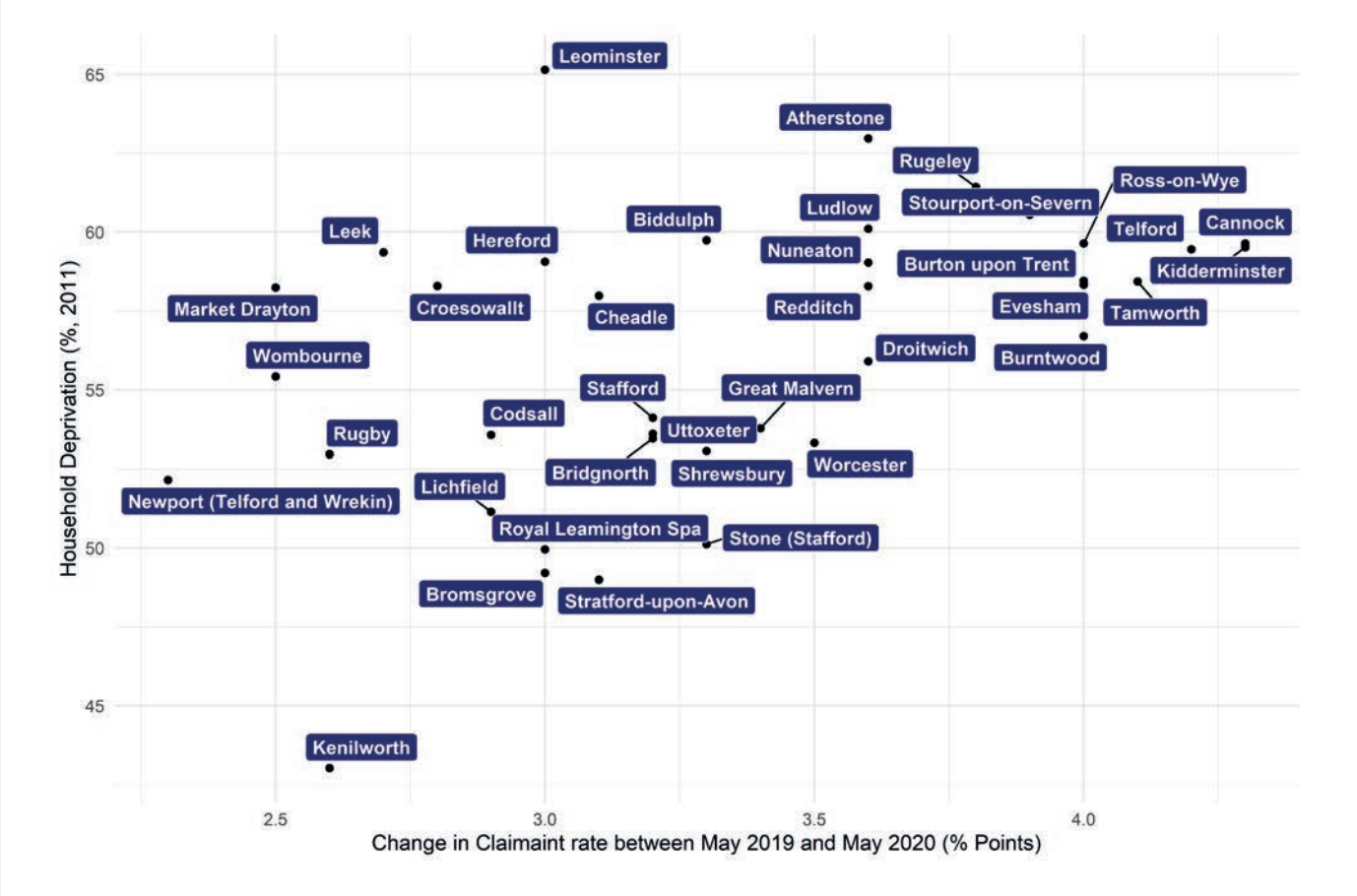


Figure 13.
Notes: Job density, as measured here, does not include self-employment.
Source: Census 2011, Office for National Statistics – Business Register and Employment Survey; Mid-Year Population Estimates; Scotland's Census, 2011; National Records of Scotland – Mid-Year Population Estimates.

The wider economic effects of the pandemic are now starting to become clear. All towns in the West Midlands have seen significant increases in the numbers of people claiming income support. Although there are exceptions, as Figure 13 shows, increases in claimant rates this year have been highest in the more deprived towns. For instance, Tamworth, Cannock and Telford have an extra 4% of their population claiming income support compared to last year.

Overview and Implications

The West Midlands includes a number of former industrial towns with sectoral strengths that are historically rooted. Some places have fared better than others in maintaining those industries or attracting others in recent years. The rising fortunes of the new gaming industry in Royal Leamington Spa stand in marked contrast to Kidderminster's declining carpet industry. Many of the region's towns have high levels of employment within their boundary. However, this model has not sustained a particularly affluent region, with many towns no better off than the British average.

In addition to its former industrial towns, the region's townscape comprises many rural towns with very different local economies. We found that many of these smaller places are among the most economically declining in the region. How to stimulate the rural economy, whilst also addressing the needs of deprived larger towns, is a challenging and urgent question for policymakers.

Overview and Implications

This problem cannot be addressed merely by improving connectivity between the region's towns and cities. We found that towns nearer the large cities had not experienced higher relative levels of economic growth. Those nearest to Birmingham, for instance, have not grown faster than others further away.

Meanwhile, across the region, the health and economic effects of COVID are starting to take their toll. All towns are seeing increases in the claimant rate for income support compared to last year, especially in the most deprived parts of the region.

Key Findings from our West Midlands Townscapes Survey:

- Most towns in the West Midlands are working towns, including those surrounding the major cities of the region which, in other parts of Britain, often become commuter towns.
- There are few exceptionally deprived and few exceptionally affluent towns in the West Midlands.
- A cluster of towns with the most declining economies are rural and have a small population.
- Overall, the West Midlands' towns have a slightly lower number of public services within them, compared to other parts of Britain.
- All towns in the West Midlands have seen significant increases in the numbers of people claiming income support since last year, as the economic effects of COVID-19 take hold.

Descriptive Statistics and Regression Tables

Table 1:
Descriptive Statistics

Towns	Population	Distance from City (KM)	Land Area (Km²)	Household Deprivation (%)	Job Density
Atherstone	11721	17.74	3.40	62.97	1.19
Biddulph	18101	10.38	4.87	59.74	0.30
Bridgnorth	13167	31.55	3.68	53.46	0.63
Bromsgrove	50822	18.96	15.33	49.21	0.49
Burntwood	29087	19.47	7.40	56.70	0.49
Burton upon Trent	128384	16.41	35.04	58.46	0.64
Cannock	87396	20.98	21.93	59.64	0.52
Cheadle	11303	13.32	3.62	57.98	0.64
Codsall	11681	20.66	3.11	53.57	0.77
Croesowallt	19577	54.97	5.67	58.29	0.73
Droitwich	24153	29.94	6.87	55.90	0.56
Evesham	26422	46.50	5.73	58.33	0.63
Great Malvern	37989	50.60	13.52	53.78	0.70
Hereford	63233	52.84	17.05	59.06	0.78
Kenilworth	21450	9.20	5.96	43.02	0.38
Kidderminster	58660	24.06	16.89	59.52	0.58
Leek	20194	13.51	5.09	59.36	0.62
Leominster	11183	61.89	3.22	65.15	0.84
Lichfield	33704	21.87	8.68	51.15	0.84
Ludlow	10477	53.28	3.20	60.11	0.87
Market Drayton	12177	24.77	3.51	58.24	0.70
Newport (Telford and Wrekin)	12859	31.22	3.20	52.15	0.48
Nuneaton	94373	11.42	23.00	59.03	0.54
Redditch	83231	23.44	22.23	58.29	0.71
Ross-on-Wye	11179	45.71	3.43	59.64	0.84
Royal Leamington Spa	96693	14.83	22.38	49.96	1.06
Rugby	77220	17.60	19.13	52.96	0.75
Rugeley	24526	27.96	6.49	61.43	0.60
Shrewsbury	73724	51.70	21.49	53.06	0.95
Stafford	70933	24.78	20.46	54.11	0.73
Stone (Stafford)	16368	13.99	4.99	50.12	0.75
Stourport-on-Severn	20855	28.62	6.03	60.55	0.46
Stratford-upon-Avon	29121	28.33	8.47	49.00	1.19
Tamworth	82326	22.95	20.68	58.43	0.64
Telford	153051	39.48	47.68	59.45	0.81
Uttoxeter	13130	24.71	3.61	53.61	0.82
Wombourne	13555	16.55	4.55	55.42	0.39
Worcester	105042	38.53	24.67	53.32	0.81

Table 1
Source: Census 2011, Office for National Statistics – Business Register and Employment Survey; Built-up Areas Boundaries, V2; Mid-Year Population Estimates

Descriptive Statistics and Regression Tables

Table 2a:
Public Services

Towns	Nurseries	Community Halls	Post Boxes	Schools	Health Services	Bus Stops	Further Education Colleges
Atherstone	3	3	16	5	17	61	0
Biddulph	4	3	22	8	17	91	1
Bridgnorth	5	2	15	6	23	59	0
Bromsgrove	17	8	54	16	97	241	1
Burntwood	5	7	21	10	45	112	0
Burton upon Trent	41	34	141	47	183	873	2
Cannock	29	18	65	29	124	442	1
Cheadle	4	3	11	5	20	36	2
Codsall	3	5	13	7	22	30	1
Croesowallt	6	6	20	6	35	104	1
Droitwich	4	9	32	7	54	98	0
Evesham	10	6	28	7	57	122	1
Great Malvern	7	10	79	13	102	215	3
Hereford	20	12	78	17	125	341	6
Kenilworth	11	2	29	8	44	111	1
Kidderminster	16	16	61	18	116	268	1
Leek	4	5	28	9	54	95	1
Leominster	3	2	23	1	37	35	1
Lichfield	7	10	37	13	68	141	1
Ludlow	3	2	23	4	30	81	0
Market Drayton	2	5	15	4	23	35	0
Newport (Telford and Wrekin)	5	3	17	8	24	78	0
Nuneaton	36	26	88	31	138	531	3
Redditch	32	22	91	30	112	502	2
Ross-on-Wye	3	3	21	4	33	61	0
Royal Leamington Spa	37	24	96	32	220	464	2
Rugby	24	24	77	31	121	379	1
Rugeley	2	8	24	10	41	104	0
Shrewsbury	30	18	115	23	153	496	3
Stafford	22	17	79	27	123	360	1
Stone (Stafford)	9	8	24	8	36	63	1
Stourport-on-Severn	4	8	26	7	29	99	0
Stratford-upon-Avon	10	4	42	11	83	198	1
Tamworth	22	24	60	31	126	398	6
Telford	44	48	145	51	196	723	5
Uttoxeter	6	2	22	7	34	80	1
Wombourne	4	3	18	6	22	31	0
Worcester	33	16	96	29	173	485	2

Table 2a
Source: Ordnance survey – Points of Interest (© Crown copyright and database rights 2019 Ordnance Survey (100025252))

Descriptive Statistics and Regression Tables

Table 2b:
Public Services

Towns	Mental Health	Hospitals	Train Stations	GPs	Job Centres	Fire Stations	Police Stations	Libraries
Atherstone	0	0	1	2	0	1	0	1
Biddulph	0	0	0	1	1	1	1	1
Bridgnorth	1	1	0	1	2	1	1	2
Bromsgrove	3	1	2	6	1	1	0	3
Burntwood	2	0	0	5	0	1	1	1
Burton upon Trent	3	2	1	17	2	2	2	2
Cannock	4	1	3	20	1	1	1	4
Cheadle	1	1	0	3	0	1	1	2
Codsall	1	0	2	2	0	1	0	1
Croesowallt	0	0	0	3	1	1	0	1
Droitwich	2	3	1	3	0	1	0	1
Evesham	2	1	1	4	1	1	0	1
Great Malvern	2	1	3	6	0	1	0	2
Hereford	4	2	1	12	1	1	1	3
Kenilworth	5	0	1	2	0	1	0	1
Kidderminster	5	1	1	6	1	1	1	1
Leek	2	1	0	3	0	1	1	1
Leominster	1	1	1	2	1	1	0	1
Lichfield	3	1	3	4	1	1	1	1
Ludlow	0	1	1	2	1	1	1	1
Market Drayton	0	0	0	1	1	1	1	1
Newport (Telford and Wrekin)	1	0	0	2	0	1	0	1
Nuneaton	3	1	1	17	1	1	0	1
Redditch	3	2	1	12	2	1	1	2
Ross-on-Wye	1	1	0	2	0	1	0	1
Royal Leamington Spa	21	2	2	14	1	1	0	3
Rugby	3	1	1	9	1	1	1	1
Rugeley	2	0	1	4	0	1	1	2
Shrewsbury	7	2	1	8	1	1	1	2
Stafford	4	3	1	8	1	1	2	5
Stone (Stafford)	0	0	1	2	0	1	1	1
Stourport-on-Severn	1	0	0	2	0	1	0	1
Stratford-upon-Avon	6	1	1	4	1	1	1	1
Tamworth	6	2	3	16	2	2	1	3
Telford	8	2	2	24	3	3	1	10
Uttoxeter	1	0	1	2	0	1	1	1
Wombourne	0	0	0	2	0	1	1	1
Worcester	9	2	2	9	2	1	1	6

Table 2b
Source: Ordnance survey – Points of Interest (© Crown copyright and database rights 2019 Ordnance Survey (100025252))

Descriptive Statistics and Regression Tables

Table 3:
Improvement Index statistics

Towns	Employment Rate Change (2001-2011)	Youth Population Rate Change (2001-2011)	Business Count Change (2010-2016)	Population Change (2001-2011)	Further Education Qualification Rate Change (2001-2011)
Atherstone	2.09	0.29	30	216	2.67
Biddulph	0.68	0.16	65	538	1.08
Bridgnorth	-0.56	-1.17	15	337	9.19
Bromsgrove	-0.33	0.41	275	4344	5.19
Burntwood	-4.15	-0.23	95	428	7.67
Burton upon Trent	1.47	0.20	505	13165	5.02
Cannock	-0.57	0.15	260	3304	4.51
Cheadle	0.27	0.43	30	-104	-9.85
Codsall	1.36	-0.56	45	430	11.93
Croesowallt	2.19	0.26	50	2083	4.35
Droitwich	-1.71	-0.03	5	626	5.10
Evesham	-0.06	0.36	105	1124	1.27
Great Malvern	-0.86	-0.04	75	953	9.15
Hereford	2.95	-0.10	30	3941	4.50
Kenilworth	0.69	0.01	65	197	15.59
Kidderminster	-2.15	-0.17	20	-84	2.38
Leek	2.28	-0.29	15	514	1.59
Leominster	0.95	0.28	40	577	4.90
Lichfield	0.70	-0.45	180	4319	7.48
Ludlow	3.12	-0.29	40	996	5.37
Market Drayton	-0.36	0.00	25	1366	2.67
Newport (Telford and Wrekin)	-4.38	-0.28	15	521	-0.11
Nuneaton	-0.83	0.28	450	3237	3.35
Redditch	-1.86	-0.60	170	4656	1.73
Ross-on-Wye	0.80	-0.12	10	497	10.13
Royal Leamington Spa	-0.23	0.05	1120	10373	6.71
Rugby	0.83	-0.19	765	8812	4.20
Rugeley	0.17	-0.10	105	1320	3.73
Shrewsbury	1.91	-0.14	325	4666	5.33
Stafford	0.16	0.02	230	6452	6.40
Stone (Stafford)	0.42	0.32	50	1983	10.13
Stourport-on-Severn	-2.59	-0.22	15	579	4.52
Stratford-upon-Avon	1.31	0.07	150	5301	8.88
Tamworth	-0.88	-0.74	305	2851	2.33
Telford	-0.88	0.15	545	7485	3.60
Uttoxeter	2.74	0.40	80	1066	3.94
Wombourne	0.30	0.22	100	679	17.33
Worcester	-1.53	0.77	250	5415	0.95

Table 3
Source: Census 2011, Census 2001, Office for National Statistics – Business Register and Employment Survey; UK Business: Activity, Size and Location; Built-up Areas Boundaries, V2; Mid-Year Population Estimates

Descriptive Statistics and Regression Tables

Regression Tables
Table 4:

OLS Public Services

	Health Services			Bus Stops			Nurseries			Schools			GPs			Post Boxes		
Predictors	*Estimates*	*CI*	*p*	*Estimates*	*CI*	*p*	*Estimates*	*CI*	*p*	*Estimates*	*CI*	*p*	*Estimates*	*CI*	*p*	*Estimates*	*CI*	*p*
Intercept	20.37	6.82 – 33.91	**0.003**	-86.99	-126.72 – -47.26	**<0.001**	7.56	5.18 – 9.94	**<0.001**	-1.48	-3.71 – 0.76	0.196	-3.10	-4.48 – -1.71	**<0.001**	13.12	3.48 – 22.76	**0.008**
Improvement Index	-0.37	-1.18 – 0.44	0.368	-1.86	-4.23 – 0.50	0.123	0.06	-0.08 – 0.20	0.430	-0.10	-0.24 – 0.03	0.128	-0.08	-0.16 – 0.00	0.051	-0.15	-0.73 – 0.42	0.599
Distance from City	0.28	0.20 – 0.37	**<0.001**	0.38	0.14 – 0.63	**0.003**	0.01	-0.00 – 0.03	0.063	-0.02	-0.03 – -0.01	**0.005**	-0.00	-0.01 – 0.01	0.654	0.18	0.12 – 0.24	**<0.001**
Population	0.00	0.00 – 0.00	**<0.001**	0.00	0.00 – 0.00	**<0.001**	0.00	0.00 – 0.00	**<0.001**	0.00	0.00 – 0.00	**<0.001**	0.00	0.00 – 0.00	**<0.001**	0.00	0.00 – 0.00	**<0.001**
Land Area	-1.49	-2.15 – -0.83	**<0.001**	10.05	8.11 – 11.98	**<0.001**	-0.04	-0.16 – 0.07	0.447	0.21	0.10 – 0.32	**<0.001**	0.06	-0.00 – 0.13	0.068	0.22	-0.25 – 0.69	0.360
Household Deprivation	-0.60	-0.82 – -0.38	**<0.001**	1.20	0.54 – 1.85	**<0.001**	-0.16	-0.20 – -0.12	**<0.001**	0.04	0.00 – 0.07	0.050	0.05	0.03 – 0.07	**<0.001**	-0.25	-0.40 – -0.09	**0.002**
West Midlands Dummy	-1.10	-7.03 – 4.82	0.715	6.04	-11.33 – 23.41	0.496	1.21	0.17 – 2.24	**0.024**	0.17	-0.81 – 1.15	0.731	-0.29	-0.89 – 0.32	0.350	-0.90	-5.12 – 3.31	0.675
Job Density	15.71	9.63 – 21.79	**<0.001**	-1.27	-19.12 – 16.57	0.889	1.31	0.25 – 2.38	**0.016**	1.14	0.14 – 2.15	**0.026**	-0.32	-0.94 – 0.30	0.315	1.28	-3.05 – 5.60	0.564
Observations	516			516			516			516			516			516		
R^2 / adjusted R^2	0.908 / 0.907			0.909 / 0.908			0.904 / 0.902			0.928 / 0.927			0.889 / 0.888			0.869 / 0.867		

Table 4
Source: Census 2011, Office for National Statistics – Business Register and Employment Survey; UK Business: Activity, Size and Location; Built-up Areas Boundaries, V2; Mid-Year Population Estimates; Ordnance survey – Points of Interest (© Crown copyright and database rights 2019 Ordnance Survey (100025252)); Scotland's Census, 2011; National Records of Scotland – Mid-Year Population Estimates;.

Table 5:

Logistic Regression of Public Services availability

	Mental Health Practitioners			Hospital			Job Centre			Train Station			Further Education College			Police Station		
Predictors	*Odds Ratios*	*CI*	*p*	*Odds Ratios*	*CI*	*p*	*Odds Ratios*	*CI*	*p*	*Odds Ratios*	*CI*	*p*	*Odds Ratios*	*CI*	*p*	*Odds Ratios*	*CI*	*p*
Intercept	4.72	0.78 – 28.69	0.092	0.03	0.00 – 0.23	**0.001**	0.00	0.00 – 0.00	**<0.001**	0.22	0.03 – 1.43	0.113	0.00	0.00 – 0.03	**<0.001**	0.11	0.02 – 0.66	**0.016**
Improvement Index	0.98	0.87 – 1.11	0.749	0.96	0.84 – 1.09	0.483	0.98	0.85 – 1.12	0.725	1.24	1.10 – 1.41	**0.001**	0.98	0.87 – 1.11	0.789	1.02	0.90 – 1.14	0.797
Distance from City	1.02	1.00 – 1.03	**0.009**	1.05	1.04 – 1.07	**<0.001**	1.02	1.00 – 1.03	**0.022**	1.01	1.00 – 1.03	**0.046**	1.02	1.01 – 1.03	**0.002**	1.00	0.99 – 1.01	0.893
Population	1.00	1.00 – 1.00	**<0.001**	1.00	1.00 – 1.00	**<0.001**	1.00	1.00 – 1.00	**<0.001**	1.00	1.00 – 1.00	**0.001**	1.00	1.00 – 1.00	**<0.001**	1.00	1.00 – 1.00	0.833
Land Area	0.97	0.85 – 1.11	0.641	0.91	0.79 – 1.04	0.151	0.99	0.83 – 1.18	0.943	1.03	0.89 – 1.19	0.710	0.93	0.83 – 1.03	0.169	1.17	1.00 – 1.35	**0.046**
Household Deprivation	0.94	0.91 – 0.97	**<0.001**	0.98	0.94 – 1.01	0.120	1.12	1.08 – 1.16	**<0.001**	0.99	0.96 – 1.02	0.536	1.04	1.00 – 1.07	**0.025**	1.02	0.99 – 1.05	0.279
West Midlands Dummy	1.77	0.69 – 4.55	0.234	0.85	0.34 – 2.12	0.723	0.72	0.28 – 1.83	0.485	0.98	0.40 – 2.39	0.965	3.45	1.46 – 8.12	**0.005**	0.51	0.23 – 1.12	0.093
Job Density	2.78	1.21 – 6.35	**0.016**	20.38	7.59 – 54.75	**<0.001**	14.30	5.40 – 37.87	**<0.001**	2.72	1.19 – 6.22	**0.018**	4.70	2.07 – 10.71	**<0.001**	5.49	2.27 – 13.25	**<0.001**
Observations	516			516			516			516			516			516		
Tjur's R^2	0.230			0.397			0.440			0.250			0.341			0.148		

Table 5
Source: Census 2011, Office for National Statistics – Business Register and Employment Survey; UK Business: Activity, Size and Location; Built-up Areas Boundaries, V2; Mid-Year Population Estimates; Ordnance survey – Points of Interest (© Crown copyright and database rights 2019 Ordnance Survey (100025252)); Scotland's Census, 2011; National Records of Scotland – Mid-Year Population Estimates;.

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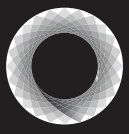

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