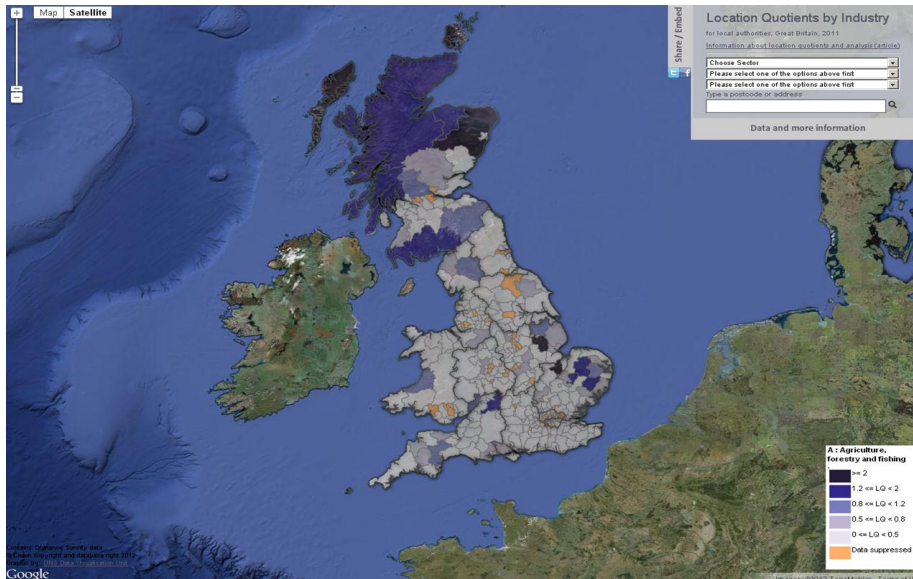


The Geography of Industry



*ONS release
November 2012*

Introduction and Context

ONS have recently published a number of articles and data tools exploring the geographical spread of industries across Great Britain. This briefing note examines both the geographical concentration of industries and the industrial specialisations of local areas. ONS have calculated a number of measures of industrial specialisation to provide a means of measuring the similarity, or otherwise, of industrial structures between areas. In addition, location quotients have been calculated which allow for a more in-depth analysis of local specialisations.

The underlying data used is from the Business Register and Employment Survey. The BRES survey is ONS' primary source for jobs estimates at a detailed geographical and industrial level. It contains information on the number of employees by industry and by geographic area down to local authority level. Estimates are subject to sampling error, which increase as geographic areas become smaller and industry classification become more detailed.

Industrial specialisation can be both positive and negative at a local level. There are wider benefits to the economy overall of spatial concentrations of industrial output through potential productivity gains. In general, an area with specialisms in high productivity sectors is likely to have higher incomes amongst its residents than an area with specialisms in lower productivity sectors. However, too much reliance on a small number of industries can be problematic if there is a negative economic shock to one of these industries. An ideal situation is often considered to be one where an area has a number of different specialisms, rather than being heavily reliant on a single industry.

It should be noted that the location quotients show a *relative* picture compared to Great Britain so it cannot be inferred from a high location quotient alone that there are a large absolute number of people working in that industry in that area. If an industry is relatively small in terms of employee jobs in Great Britain overall, it is possible for an area to have a high location quotient for that industry but only a relatively small number of actual employees. Alternatively, a sector may have a much lower location quotient despite having a much larger number of people employed in that sector as the sector is a large employer across Great Britain overall.

Also for some industries it has not been possible to calculate location quotients for all areas because some industry data is disclosive in some local authorities. This can happen where employee jobs are concentrated in only a small number of firms. Therefore, there may be a specialisation in that area which it was not possible to show in the results due to this issue of data disclosure.

Analysis

Comparisons to the national economy

Warwickshire's Districts and Boroughs are considered alongside other local authorities to examine how similar or dissimilar the industrial structure of each area is relative to the structure of the economy of Great Britain overall.

The Krugman index compares the industrial structures, in this case measured by the split of employee jobs across industries, between two areas. The more similar the industrial structure the lower the index and the more dissimilar the industrial structure the higher the index.

The majority of the regions and countries of Great Britain have local authorities amongst both those most similar to Great Britain overall and those with the largest relative specialisation. In other words, there is not one region that dominates either list. This suggests that most regions and countries have quite a mix of different industrial structures amongst their constituent local authorities, including some that have industrial structure similar to Great Britain overall and some that have particular specialisms that make their industrial structures more distinct.

At the local authority level, the areas with industrial structure most similar to Great Britain overall are Leeds, Birmingham and Bristol. The most dissimilar areas are City of London, Isles of Scilly, North Warwickshire and Tower Hamlets. North Warwickshire is considerably dissimilar to the national industrial structure, ranked 3 out of 380 local authorities where 1 represents the industrial structure most dissimilar to Great Britain.

Measures of Specialisation by Local Authority, 2011

	Relative Krugman	
	Index	Ranking (out of 380)
North Warwickshire	0.93	3
Nuneaton & Bedworth	0.65	119
Rugby	0.61	163
Stratford-on-Avon	0.58	205
Warwick	0.52	277

Source: Office for National Statistics

Notes: Rankings 1 = industrial structure most dissimilar to Great Britain, 380 = industrial structure most similar to Great Britain

With the county, Warwick District is the most similar to the national industrial structure with a ranking of 277 out of a possible 380 local authorities.

Comparisons between local areas

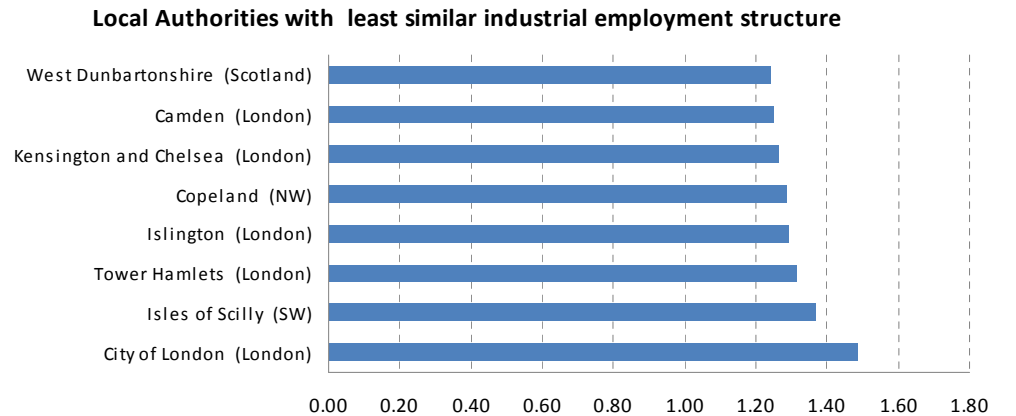
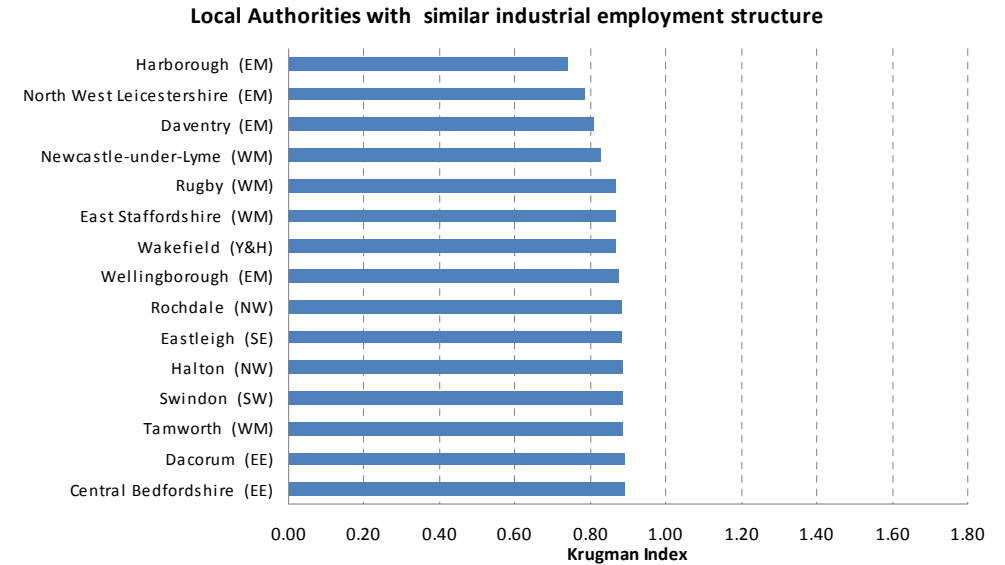
The dataset also allows a comparison between different local areas to provide an indication of which other areas have a similar industrial structure and which do not.

At a local authority level, this produces a matrix in which each local authority is compared to each other local authority and a value of the Krugman index calculated. A tool has been produced which allows users to see a list of the 15 most similar and eight least similar local authorities.

The results should be treated as being indicative. The base data being used is employee jobs split by industry for each local authority. So a similar local authority is one in which the two local authorities have a fairly similar break down of employee jobs across the industrial sectors used in the analysis. However, the analysis does not take any account of the occupation type or quality of job on offer within each industrial sector. Additionally, this data analysis is not considering other issues related to the economic structure of an area such as unemployment or inactivity rates. Even accounting for these caveats, however, the data can provide a useful tool for discovering which local authorities have relatively similar industrial structures and which do not.

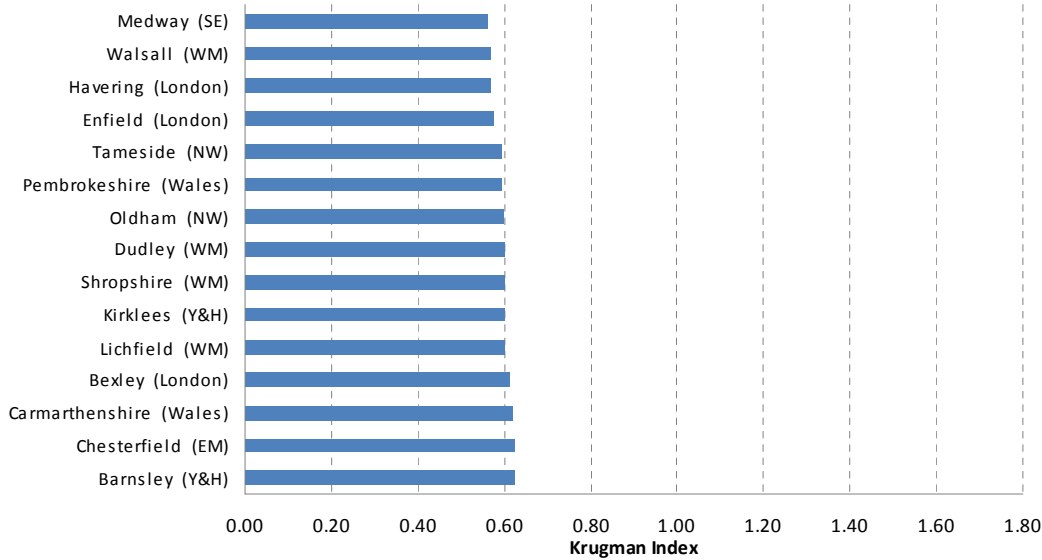
The results for Warwickshire’s five Districts/Boroughs are presented below.

North Warwickshire



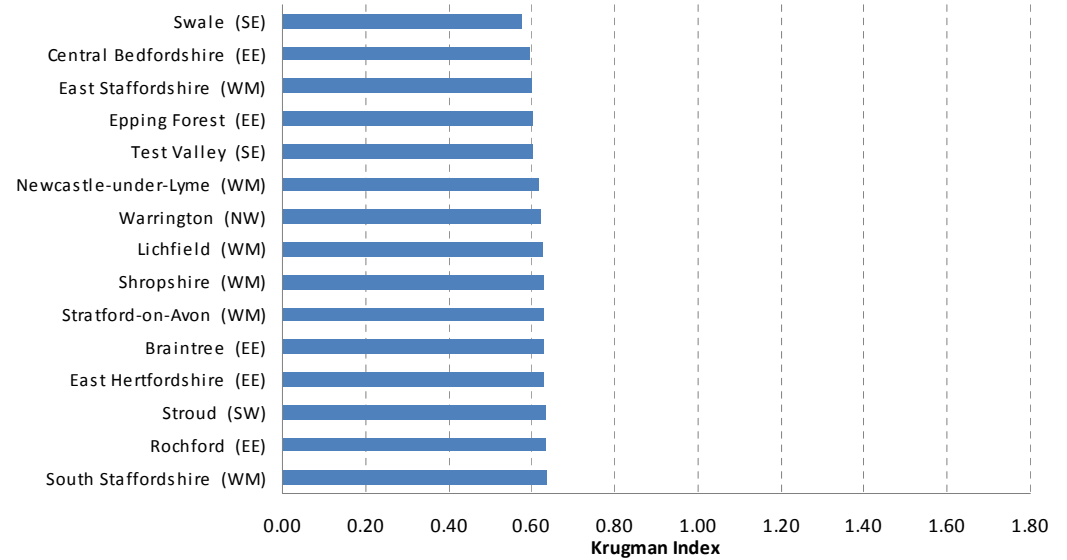
Nuneaton and Bedworth

Local Authorities with similar industrial employment structure

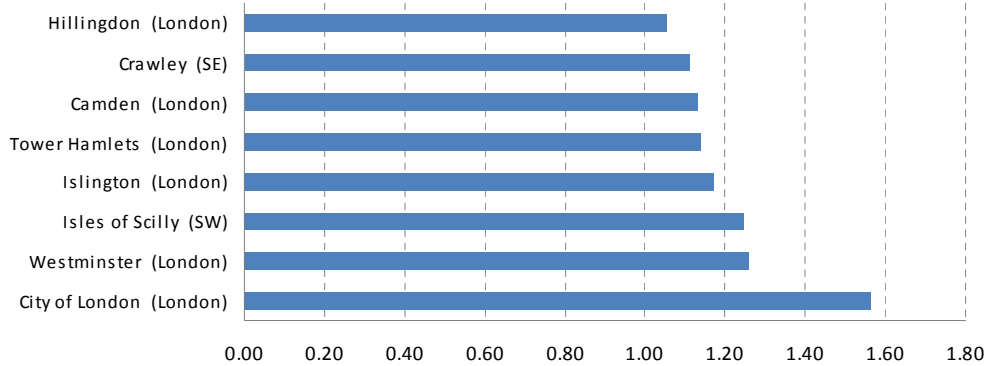


Rugby

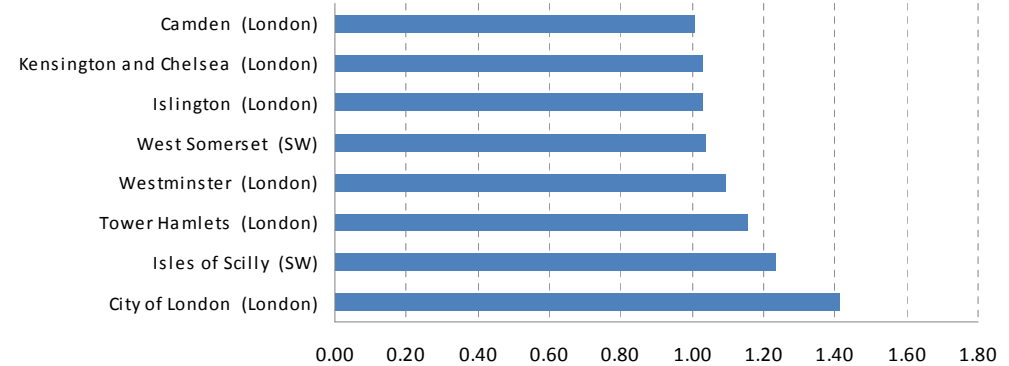
Local Authorities with similar industrial employment structure



Local Authorities with least similar industrial employment structure



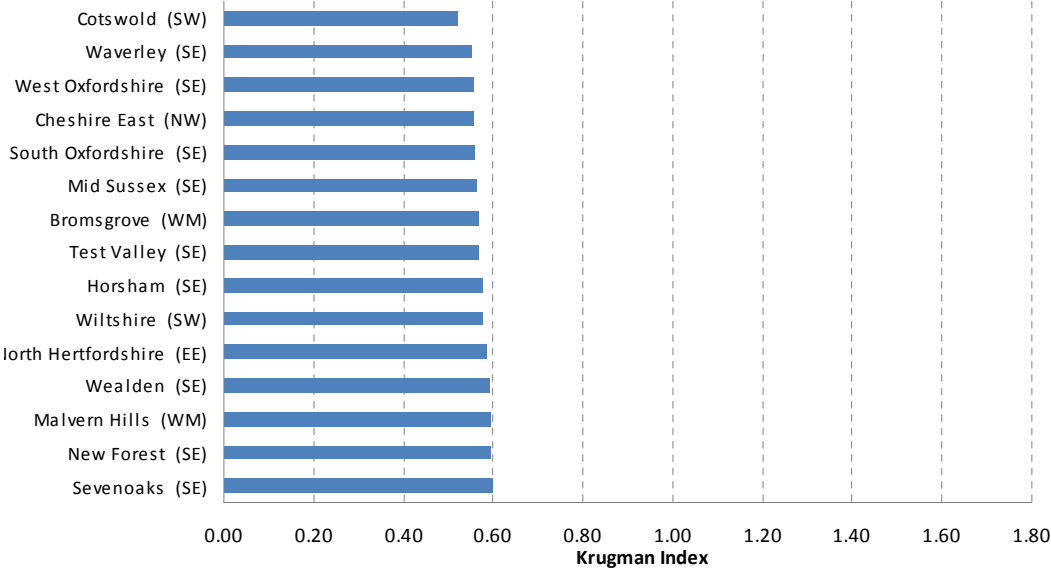
Local Authorities with least similar industrial employment structure



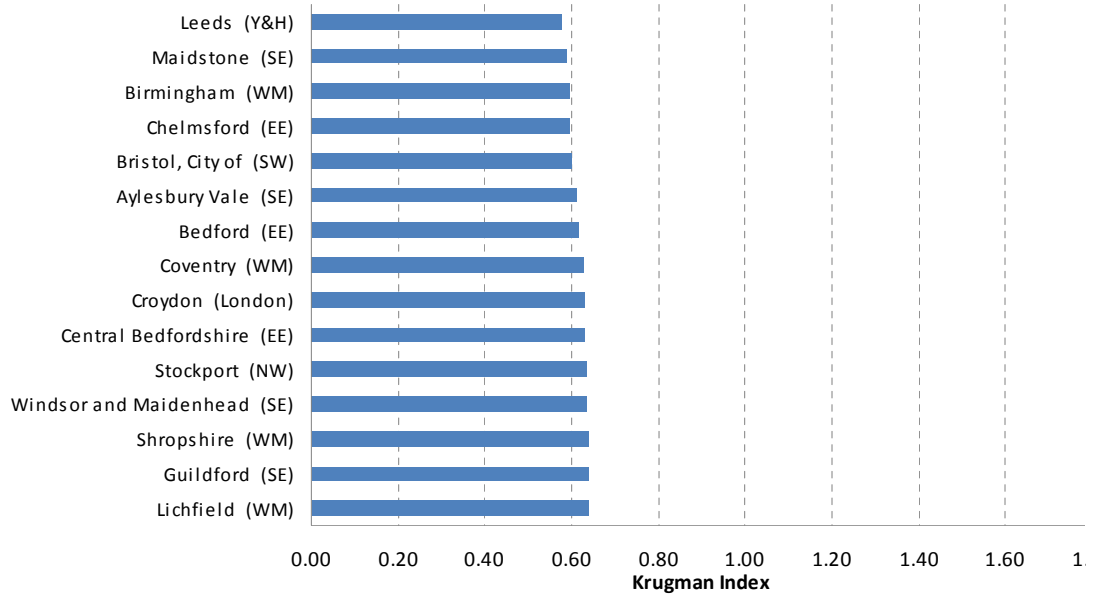
Stratford-on-Avon

Warwick

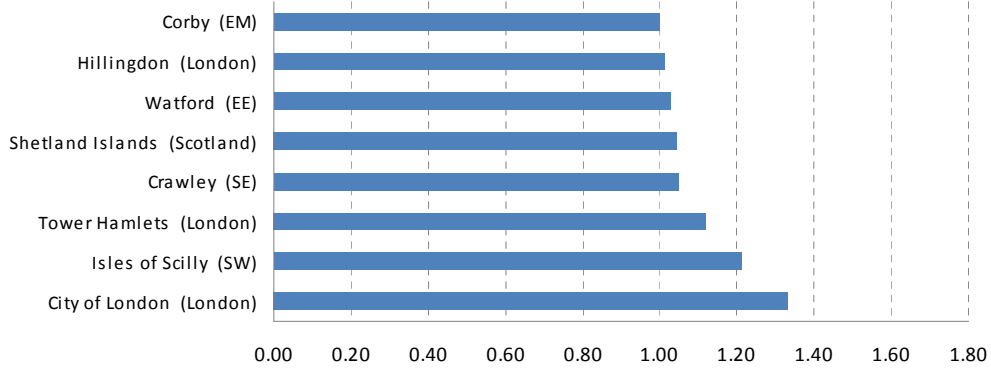
Local Authorities with similar industrial employment structure



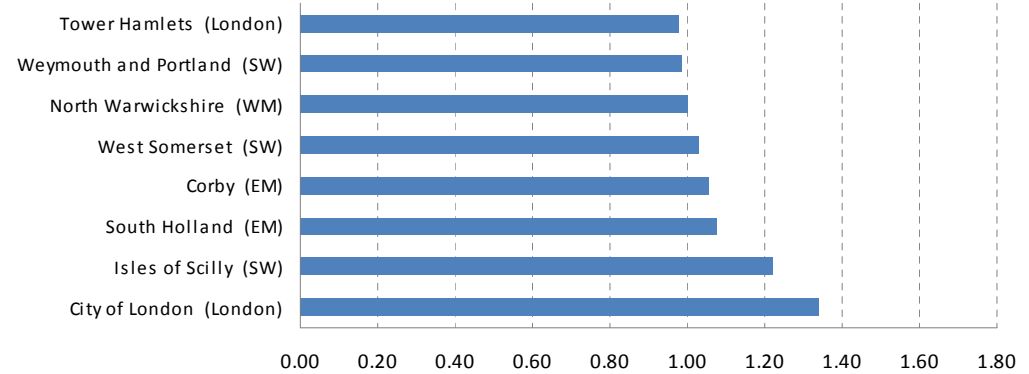
Local Authorities with similar industrial employment structure



Local Authorities with least similar industrial employment structure



Local Authorities with least similar industrial employment structure



Location Quotients

Location Quotients compare the industry share of employee jobs in a local area compared to in Great Britain overall. For example, if 5% of employee jobs in Great Britain occur in Industry Z, then any local authority which also has 5% of its employee jobs in that same industry will have a location quotient for Industry Z of 1.0. If the local authority has more than 5% of its employee jobs in Industry Z then its location quotient for that industry will be >1.0. Therefore, the higher the location quotient the more a local area has a specialisation in that industry relative to Great Britain overall.

The data for North Warwickshire shows that its main specialisation relative to Great Britain overall occurs in section H: Transportation and Storage. By contrast, it has a relatively low share of its employee jobs, relative to the shares in Great Britain overall, in the industry sections A: Agriculture, forestry and fishing.

The three digit SIC industries for which North Warwickshire has a location quotient of above 1.5 are listed below. It shows that the borough has a strong specialism in a particular area of manufacturing (Forging, pressing, stamping, roll-forming metal; powder metallurgy) and activities related to the Transportation and Storage sector.

Location Quotients by Industrial Sector, 2011

North Warwickshire

Industrial Sector	LQ
H : Transportation and storage	4.2
C : Manufacturing	1.6
I : Accommodation and food service activities	1.5
F : Construction	1.2
N : Administrative and support service activities	1.1
J : Information and communication	1.0
G : Wholesale and retail trade; repair of motor vehicles and motorcycles	0.9
S : Other service activities	0.8
R : Arts, entertainment and recreation	0.8
M : Professional, scientific and technical activities	0.7
P : Education	0.6
E : Water supply; sewerage, waste management and remediation activities	0.6
Q : Human health and social work activities	0.4
L : Real estate activities	0.4
O : Public administration and defence; compulsory social security	0.2
K : Financial and insurance activities	0.2
A : Agriculture, forestry and fishing	0.0
B : Mining and quarrying	n/a
D : Electricity, gas, steam and air conditioning supply	n/a

Note: n/a - the data is disclosive and therefore not available in this table

Source: Office for National Statistics

The Geography of Industries

The data for Nuneaton and Bedworth shows that its main specialisation relative to Great Britain overall occurs in section H: Transport and Storage, section C: Manufacturing and section P: Education. By contrast, it has a relatively low share of its employee jobs, relative to the shares in Great Britain overall, in the industry section J: Information and Communication.

Location Quotients by Industrial Sector, 2011

Nuneaton and Bedworth

Industrial Sector	LQ
H : Transportation and storage	1.7
C : Manufacturing	1.3
P : Education	1.3
G : Wholesale and retail trade; repair of motor vehicles and motorcycles	1.2
Q : Human health and social work activities	1.2
F : Construction	1.1
N : Administrative and support service activities	1.0
R : Arts, entertainment and recreation	0.8
O : Public administration and defence; compulsory social security	0.8
E : Water supply; sewerage, waste management and remediation activities	0.7
S : Other service activities	0.7
I : Accommodation and food service activities	0.7
M : Professional, scientific and technical activities	0.5
L : Real estate activities	0.4
K : Financial and insurance activities	0.4
J : Information and communication	0.3
A : Agriculture, forestry and fishing	n/a
B : Mining and quarrying	n/a
D : Electricity, gas, steam and air conditioning supply	n/a

Three digit SIC code	LQ
• 255 : Forging, pressing, stamping, roll-forming metal; powder metallurgy	14.4
• 532 : Other postal and courier activities	11.6
• 521 : Warehousing and storage	11.6
• 771 : Renting and leasing of motor vehicles	9.4
• 222 : Manufacture of plastics products	6.1
• 494 : Freight transport by road and removal services	4.8
• 390 : Remediation activities and other waste management services	4.2
• 453 : Sale of motor vehicle parts and accessories	3.8
• 701 : Activities of head offices	3.7
• 522 : Support activities for transportation	3.4
• 261 : Manufacture of electronic components and boards	3.3
• 582 : Software publishing	3.3
• 479 : Retail trade not in stores, stalls or markets	3.0
• 642 : Activities of holding companies	2.9
• 467 : Other specialised wholesale	2.8
• 551 : Hotels and similar accommodation	2.5
• 412 : Construction of residential and non-residential buildings	2.2
• 256 : Treatment and coating of metals; machining	2.1
• 464 : Wholesale of household goods	2.1
• 282 : Manufacture of other general-purpose machinery	2.0
• 284 : Manufacture of metal forming machinery and machine tools	1.9
• 236 : Manufacture of articles of concrete, cement and plaster	1.8
• 782 : Temporary employment agency activities	1.8
• 465 : Wholesale of information and communication equipment	1.8
• 881 : Social work activities without accommodation for elderly/ disabled	1.6
• 257 : Manufacture of cutlery, tools and general hardware	1.5
• 813 : Landscape service activities	1.5
• 259 : Manufacture of other fabricated metal products	1.5

Note: n/a - the data is disclosive and therefore not available in this table

Source: Office for National Statistics

The Geography of Industries

Three digit SIC code	LQ
• 284 : Manufacture of metal forming machinery and machine tools	17.7
• 532 : Other postal and courier activities	10.7
• 293 : Manufacture of parts and accessories for motor vehicles	7.1
• 281 : Manufacture of general purpose machinery	6.2
• 256 : Treatment and coating of metals; machining	6.1
• 429 : Construction of other civil engineering projects	3.7
• 879 : Other residential care activities	2.9
• 812 : Cleaning activities	2.7
• 494 : Freight transport by road and removal services	2.3
• 467 : Other specialised wholesale	2.3
• 872 : Residential care activities for learning disabilities, mental health and substance abuse	2.2
• 952 : Repair of personal and household goods	2.2
• 772 : Renting and leasing of personal and household goods	2.1
• 469 : Non-specialised wholesale trade	2.1
• 479 : Retail trade not in stores, stalls or markets	1.9
• 303 : Manufacture of air and spacecraft and related machinery	1.9
• 282 : Manufacture of other general-purpose machinery	1.8
• 452 : Maintenance and repair of motor vehicles	1.8
• 852 : Primary education	1.7
• 259 : Manufacture of other fabricated metal products	1.7
• 853 : Secondary education	1.6
• 869 : Other human health activities	1.5
• 432 : Electrical, plumbing and other construction installation activities	1.5

The three digit SIC industries for which Nuneaton & Bedworth has a location quotient of above 1.5 are listed below. It shows that the borough has a strong specialism in particular areas of manufacturing.

The data for Rugby shows that its main specialisation relative to Great Britain overall occurs in section F: Construction. By contrast, it has a relatively low share of its employee jobs, relative to the shares in Great Britain overall, in the industry section A: Agriculture, forestry and fishing.

Location Quotients by Industrial Sector, 2011

Rugby

Industrial Sector	LQ
F : Construction	2.6
H : Transportation and storage	1.6
M : Professional, scientific and technical activities	1.2
P : Education	1.2
I : Accommodation and food service activities	1.1
C : Manufacturing	1.1
N : Administrative and support service activities	1.1
S : Other service activities	1.0
R : Arts, entertainment and recreation	0.9
E : Water supply; sewerage, waste management and remediation activities	0.9
G : Wholesale and retail trade; repair of motor vehicles and motorcycles	0.9
J : Information and communication	0.8
Q : Human health and social work activities	0.7
O : Public administration and defence; compulsory social security	0.6
L : Real estate activities	0.5
K : Financial and insurance activities	0.3
A : Agriculture, forestry and fishing	0.0
B : Mining and quarrying	n/a
D : Electricity, gas, steam and air conditioning supply	n/a

Note: n/a - the data is disclosive and therefore not available in this table

Source: Office for National Statistics

The three digit SIC industries for which Rugby has a location quotient of above 1.5 are listed below. It shows that the borough has a strong specialism in the construction of civil engineering projects and areas of manufacturing.

The Geography of Industries

Three digit SIC code	LQ
• 429 : Construction of other civil engineering projects	14.2
• 284 : Manufacture of metal forming machinery and machine tools	8.7
• 281 : Manufacture of general purpose machinery	4.7
• 521 : Warehousing and storage	4.6
• 711 : Architectural/engineering activities & related technical consultancy	2.9
• 439 : Other specialised construction activities n.e.c.	2.8
• 289 : Manufacture of other special-purpose machinery	2.5
• 259 : Manufacture of other fabricated metal products	2.2
• 783 : Other human resources provision	2.2
• 642 : Activities of holding companies	2.1
• 256 : Treatment and coating of metals; machining	1.9
• 813 : Landscape service activities	1.9
• 432 : Electrical, plumbing and other construction installation activities	1.9
• 494 : Freight transport by road and removal services	1.9
• 782 : Temporary employment agency activities	1.8
• 619 : Other telecommunications activities	1.7
• 551 : Hotels and similar accommodation	1.7
• 701 : Activities of head offices	1.7
• 466 : Wholesale of other machinery, equipment and supplies	1.7
• 265 : Manufacture of instruments and appliances for measuring, testing and navigation; watches and clocks	1.7
• 853 : Secondary education	1.6
• 452 : Maintenance and repair of motor vehicles	1.6
• 293 : Manufacture of parts and accessories for motor vehicles	1.6
• 712 : Technical testing and analysis	1.5

The data for Stratford-on-Avon shows that its main specialisation relative to Great Britain overall occurs in section M: Professional, scientific and technical activities. By contrast, it has a relatively low share of its employee jobs, relative to the shares in Great Britain overall, in the industry section A: Agriculture, forestry and fishing.

Location Quotients by Industrial Sector, 2011

Stratford-on-Avon

Industrial Sector	LQ
M : Professional, scientific and technical activities	1.6
L : Real estate activities	1.5
S : Other service activities	1.4
I : Accommodation and food service activities	1.4
R : Arts, entertainment and recreation	1.2
C : Manufacturing	1.1
K : Financial and insurance activities	1.1
F : Construction	1.0
G : Wholesale and retail trade; repair of motor vehicles and motorcycles	1.0
N : Administrative and support service activities	0.9
P : Education	0.9
J : Information and communication	0.8
Q : Human health and social work activities	0.8
H : Transportation and storage	0.6
E : Water supply; sewerage, waste management and remediation activities	0.6
O : Public administration and defence; compulsory social security	0.4
A : Agriculture, forestry and fishing	0.1
B : Mining and quarrying	n/a
D : Electricity, gas, steam and air conditioning supply	n/a

Note: n/a - the data is disclosive and therefore not available in this table

Source: Office for National Statistics

The Geography of Industries

The three digit SIC industries for which Stratford has a location quotient of above 1.5 are listed below. The volume of industries listed below show the variety of different specialisation in the district. It shows that the district has a strong specialism in the manufacture of agricultural and forestry machinery.

Three digit SIC code	LQ
• 283 : Manufacture of agricultural and forestry machinery	20.1
• 651 : Insurance	6.1
• 255 : Forging, pressing, stamping, roll-forming metal; powder metallurgy	6.0
• 951 : Repair of computers and communication equipment	4.4
• 711 : Architectural/engineering activities & related technical consultancy	3.8
• 772 : Renting and leasing of personal and household goods	3.6
• 712 : Technical testing and analysis	3.1
• 881 : Social work activities without accommodation for elderly/disabled	3.1
• 323 : Manufacture of sports goods	3.0
• 292 : Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semitrailers	2.7
• 813 : Landscape service activities	2.7
• 257 : Manufacture of cutlery, tools and general hardware	2.6
• 262 : Manufacture of computers and peripheral equipment	2.5
• 741 : Specialised design activities	2.3
• 551 : Hotels and similar accommodation	2.2
• 900 : Creative, arts and entertainment activities	2.2
• 682 : Renting and operating of own or leased real estate	2.2
• 289 : Manufacture of other special-purpose machinery	2.1
• 642 : Activities of holding companies	2.0
• 783 : Other human resources provision	1.9
• 773 : Renting/leasing of other machinery, equipment & tangible goods	1.9
• 553 : Camping grounds, recreational vehicle parks and trailer parks	1.9
• 461 : Wholesale on a fee or contract basis	1.8
• 453 : Sale of motor vehicle parts and accessories	1.8
• 329 : Other manufacturing	1.8
• 829 : Business support service activities n.e.c.	1.8
• 234 : Manufacture of other porcelain and ceramic products	1.8

Three digit SIC code	LQ
• 325 : Manufacture of medical and dental instruments and supplies	1.8
• 582 : Software publishing	1.7
• 702 : Management consultancy activities	1.7
• 301 : Building of ships and boats	1.7
• 960 : Other personal service activities	1.7
• 452 : Maintenance and repair of motor vehicles	1.6
• 750 : Veterinary activities	1.6
• 563 : Beverage serving activities	1.6
• 251 : Manufacture of structural metal products	1.6
• 462 : Wholesale of agricultural raw materials and live animals	1.6
• 791 : Travel agency and tour operator activities	1.6
• 259 : Manufacture of other fabricated metal products	1.6
• 931 : Sports activities	1.5
• 451 : Sale of motor vehicles	1.5
• 871 : Residential nursing care activities	1.5

The data for Warwick shows that its main specialisation relative to Great Britain overall occurs in sections D: Electricity, gas, steam and air conditioning supply, and S: Other service activities. By contrast, it has a relatively low share of its employee jobs, relative to the shares in Great Britain overall, in the industry section A: Agriculture, forestry and fishing and B: Mining and Quarrying.

The three digit SIC industries for which Warwick has a location quotient of above 1.5 are listed below. It shows that the district has a strong specialism in market research and specialised areas of manufacturing, education and courier activities.

Location Quotients by Industrial Sector, 2011

Warwick

Industrial Sector	LQ
D : Electricity, gas, steam and air conditioning supply	2.6
S : Other service activities	2.4
M : Professional, scientific and technical activities	1.4
J : Information and communication	1.4
O : Public administration and defence; compulsory social security	1.3
E : Water supply; sewerage, waste management and remediation activities	1.1
P : Education	1.1
G : Wholesale and retail trade; repair of motor vehicles and motorcycles	1.0
H : Transportation and storage	1.0
I : Accommodation and food service activities	1.0
R : Arts, entertainment and recreation	1.0
N : Administrative and support service activities	0.9
C : Manufacturing	0.9
Q : Human health and social work activities	0.8
L : Real estate activities	0.8
F : Construction	0.5
K : Financial and insurance activities	0.4
B : Mining and quarrying	0.2
A : Agriculture, forestry and fishing	0.0

Note: n/a - the data is disclosive and therefore not available in this table

Source: Office for National Statistics

Three digit SIC code	LQ
• 732 : Market research and public opinion polling	8.6
• 532 : Other postal and courier activities	4.8
• 855 : Other education	4.0
• 293 : Manufacture of parts and accessories for motor vehicles	3.6
• 284 : Manufacture of metal forming machinery and machine tools	3.6
• 941 : Activities of business, employers and professional membership organisations	2.9
• 262 : Manufacture of computers and peripheral equipment	2.7
• 466 : Wholesale of other machinery, equipment and supplies	2.7
• 281 : Manufacture of general purpose machinery	2.6
• 801 : Private security activities	2.6
• 453 : Sale of motor vehicle parts and accessories	2.5
• 257 : Manufacture of cutlery, tools and general hardware	2.4
• 467 : Other specialised wholesale	2.4
• 960 : Other personal service activities	2.3
• 531 : Postal activities under universal service obligation	2.3
• 952 : Repair of personal and household goods	2.3
• 620 : Computer programming, consultancy and related activities	2.1
• 381 : Waste collection	2.1
• 910 : Libraries, archives, museums and other cultural activities	1.9
• 582 : Software publishing	1.8
• 773 : Renting/leasing of other machinery, equipment and tangible goods	1.8
• 932 : Amusement and recreation activities	1.7
• 742 : Photographic activities	1.6
• 474 : Retail sale of information/communication equipment in specialised stores	1.6
• 841 : Administration of the State and the economic and social policy of the community	1.6
• 701 : Activities of head offices	1.6
• 731 : Advertising	1.6

Glossary

Employee job is used to help stress that all the data referred to in this note is focused on the workplace of an employee. This contrasts to some data sources that focus on the residential status of an employee. However, it should be noted that strictly speaking the BRES data being used in this article is not a count of the number of *jobs* filled by employees in an area, but rather a count of the number of employees who work in an area.

The **Standard Industrial Classification (SIC)** provides a framework for the collection, tabulation, presentation and analysis of data, and its use promotes uniformity. There are 21 sections, 88 divisions, 272 groups, 615 classes and 191 subclasses. The full SIC breakdown can be found in the UK SIC structure and explanatory notes document.

The **Krugman index** compares the industrial structures of two geographical areas and is regarded as the standard index among relative specialisation measures.

Location quotients are a simple and very common measure used to assess both geographical concentration of industries and industrial specialisation of regions. Used in the analysis of industrial specialisation, the location quotients compare for each industry, the industry's share of local area employee jobs with its share of total employee jobs.

Websites

Visit the ONS website (www.ons.gov.uk) for further information on industrial specialisation.

The articles (with the data tools embedded) can be found here:

<http://www.ons.gov.uk/ons/rel/regional-trends/regional-economic-analysis/the-spatial-distribution-of-industries/index.html>

<http://www.ons.gov.uk/ons/rel/regional-trends/regional-economic-analysis/industrial-specialisation-in-local-areas/index.html>

Or go straight to the maps here:

<http://neighbourhood.statistics.gov.uk/HTMLDocs/LQ/Locationquotients.html>