



TPI UK MCA Productivity Scorecards and Dashboard 2024 Edition

Sources and Methods

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The TPI productivity scorecards are produced to assess the UK's subregional productivity performance through a range of productivity indicators and drivers. The Mayoral Combined Authority (MCA) scorecards complement ITL1 and ITL3 Productivity Scorecards, published by the by the Productivity Lab in [November 2024](#). Examining ITL3 regions within MCAs allows for insight on a devolved regional level. This insight can be utilised by policymakers within an MCA to assess productivity and performance under their authority, both relative to the mean for the MCA region as well as the UK as a whole, including key indicators that influence this performance. This document describes the data as well as the sources and methods used to compile this data set. ²

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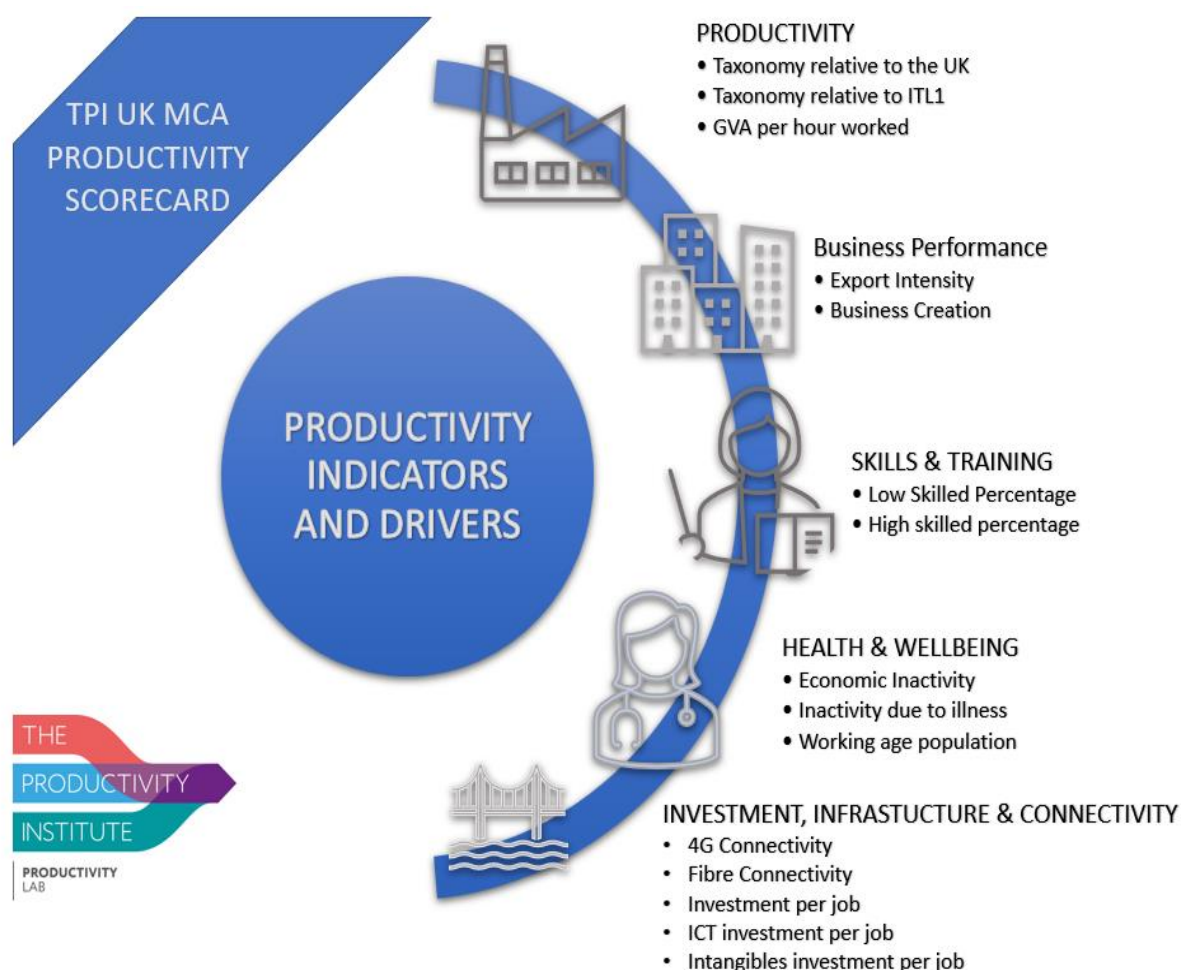
²Cite data set as: Garcia Elena, F.; Gouma, F.R.; Ortega-Argiles, R.; Sarsfield, W.; Watson, R. (2024), TPI UK ITL3-MCA Scorecards, TPI Productivity Lab, The Productivity Institute, University of Manchester.. Dataset. <https://doi.org/10.48420/27770583>

Productivity Indicators and Drivers

The MCA scorecards include data for 61 ITL3 regions and 12 MCA regions as defined by the International Territorial Levels (ITL) 3. Information on the ITL3 regions within each MCA can be found in the [appendix](#) of this document. Currently, MCA regions do not cover the entire United Kingdom, however, there are plans to increase English devolution and define new MCA regions within England. This release provides scorecards for the years 2020, 2021, and 2022. Motivation for this geographic disaggregation is to derive data at the official administrative level to align with the drivers of productivity. Therefore, due to the increased level of [geographical disaggregation](#), the scope and measurement of the productivity drivers and indicators deviate from the aggregate ITL1 scorecards.

This is similar to the ITL3 scorecards produced which also deviated from the aggregate ITL1 scorecards. Measurements of productivity drivers and indicators align with those used in the ITL3 scorecards. The *Productivity* category shows 3 indicators of each region's relative performance in labour productivity. The remaining categories include productivity drivers with data taken from several sources, which are provided in the Data Sources Overview table in the next section.

MCA Scorecard productivity indicators and drivers by category



Published Formats

The data for the TPI MCA scorecard indicators are published in two ways. Firstly, a bulk file in CSV format is provided, which can be used for statistical analysis of the indicators. Secondly, the scorecards are published in PDF files organised by MCA region, with annual tables for the productivity indicators and drivers by category for each of the ITL3 sub-regions within the MCA. These tables are colour-coded to show the performance of each indicator relative to the **aggregated average** of the MCA parent region in that year. This deviates from the ITL1 scorecards, which compare productivity drivers against the UK **median** of the ITL1 regions. In the ITL3 scorecards, comparisons were made against the ITL1 parent region. For some indicators, data is not available at the most detailed ITL3 level, while data for the higher geographical aggregate (ITL1) region are. We include all available information for calculating the aggregate MCA average to provide the best reference for comparisons of the underlying ITL3 regions. Blank cells indicate that the data is not available.

The colour codes indicate whether the ITL3 region is performing better (green), worse (red), or equal to the MCA value (orange). Green indicates performance higher than 105% of the MCA average. Orange shows a value of a productivity driver between 95% and 105% of the MCA average. Red indicates performance lower than 95% of the MCA average.

Data Sources

For the compilation of the MCA scorecards, data is taken from several sources and is harmonised into a consistent format. Unfortunately, for many of the data sources, there is little consistency in the published data formats, even when data is collected from the same source. This is a problem when the layout of spreadsheets changes between annual publications, particularly when indicators are denoted as numbers in one year but as text in the next or when regional codes have been redefined over time. Therefore, extensive efforts have been dedicated to data cleaning, harmonising data formats across time and space, creating uniform mapping tables for generating ITL3 and MCA aggregations, and thoroughly checking the results for consistency. Consequently, although the source data remains accessible from the original sources, we also provide the raw data aggregated to the ITL3 geographical level, which served as the foundation for deriving the indicators at the MCA level. This supplementary research data is available in CSV format for analytical use. When using these data, references should be made to the original data source providers. The Data Sources Overview table below presents the sources for each indicator, along with information on the specific release of the data set and the geographical level at which the data is available from the source. The following section describes, for each category, how the indicators are calculated from the source data. For the MCA scorecards, the data used is the same as for the [ITL3 2024 edition of the scorecards](#).

Data Sources Overview table

| Category | Indicator / Driver | Sources | Geographical level |
|---|--|--|--|
| Productivity | Taxonomy relative to the UK | ONS Subregional productivity ; June 2024 Release | National level, ITL 1, 2 and 3 |
| | Taxonomy relative to the MCA Average | | |
| | Gross Value Added (GVA) per hour worked. | | |
| Business Performance | Export Intensity | ONS Subnational Trade in Goods ; June 2023 Release ONS Subnational Trade in Services ; June 2023 Release ONS Regional gross domestic product: all ITL regions ; April 2024 Release | National level, ITL 1, 2 and 3 |
| | New Businesses | ONS Business demography, UK ; November 2024 Release | District, Counties And Unitary Authorities Within Region And Country |
| Skills & Training | Low Skilled | ONS Annual Population Survey ; October 2024 latest revision ONS Regional gross domestic product: all ITL regions ; April 2024 Release | APS data downloaded at NUTS 1 and 3 level |
| | High Skilled | | |
| Health & Well-being | Active population | | |
| | Inactive due to illness | | |
| | Working Age | | |
| Investment, Infrastructure & Connectivity | 4G connected | Ofcom Connected Nations ; September Releases for 2020 , 2021 and 2022 . Data downloaded on Mobile and Fixed coverage | Local and unitary authority |
| | Fiber connected | | |
| | GFCF per job | ONS Experimental regional gross fixed capital formation (GFCF) estimates by asset type ; May 2022 Release | National level, ITL 1, 2 and 3 |
| | ICT per job | | |
| | Intangibles per job | | |

Methodology

The productivity indicators and drivers at the MCA level were derived by the aggregation of the ITL3 region data from the data sources references in the overview table. This section explains in detail how the source data was used to calculate the indicators for each category.

Robustness checks

Since ITL3 data had to be mapped into MCA regions, a robustness check was conducted. Aggregated ITL3 data was compared to [ONS City Regions Data](#) and a percentage error was determined. Aside from the West of England, most the data has less than a 1% error when compared to ONS City and Regions data.

There is slightly inconsistent data with the West of England due to discrepancies when mapping the ITL3 regions into the MCA.

Productivity

This category shows 3 indicators which gauge the relative performance of labour productivity across the IT3 regions within an MCA, comparing it to other ITL3 regions, the MCA parent region, and the UK as a whole to follow methodology in previous scorecards. These indicators take into account both the level of labour productivity in the current year and productivity growth for the period from 2008 up to the current year. The data for this category stems from the ONS Subregional productivity data set, released in June 2024.

Taxonomy relative to the UK³:

This indicator of productivity reflects how well the ITL3 region is doing in terms of its productivity performance relative to the MCA aggregated mean. This is measured along two dimensions. First, labour productivity in the current scorecard year, measured as Gross Value Added (GVA) per hour worked, is compared to that of the MCA aggregated average. Second, the growth in productivity from 2008 up to the current year 2022 (corrected for price changes) is compared to that of the MCA aggregated average. By comparing the region's productivity along these two dimensions, a Taxonomy of relative productivity performance can be constructed as follows:

- **Falling behind:** Both the region's current year productivity and its productivity growth are below the MCA average.
- **Catching up:** The region's current year productivity is below the UK average, but its productivity growth is above the MCA average.
- **Losing ground:** The region's current year productivity is above the MCA average, but its productivity growth is below the MCA average.

³The Taxonomy is based on: Zymek and Jones, 2020; [TPI, 2021](#)

- **Steaming ahead:** Both the region's current year productivity and its productivity growth are above the MCA average.

Taxonomy relative to the MCA:

This productivity indicator measures the performance of ITL3 regions within the MCA in comparison to the overall average productivity of the MCA region they are part of. Each ITL3 region's productivity is assessed relative to this aggregated average. The taxonomy is developed using the same methodology described earlier.

Gross Value Added per hour worked:

This is the standard indicator of labour productivity, measured as output per unit of labour, where output is measured as Gross Value Added, and the unit of labour is an hour worked.

Business performance

This category illustrates Business performance as a driving force of regional productivity. The literature extensively considers business export activity and its dynamicity as the two most important determinants of business performance in a given location. Understanding the dynamics of export activities is essential, as they play a significant role in shaping not only the economic landscape but also the competitive edge of businesses operating in that area.

Export Intensity:

Regional export intensity is an important productivity driver since firms competing in international markets tend to increase their productivity through process efficiencies and cost reduction, and therefore, higher export performance by local firms leads to higher regional productivity. It is calculated by adding the nominal values of trade in goods and of trade in services and dividing by the ITL region's nominal value of GDP. Subnational trade and GDP data are taken from ONS and available at the ITL3 geographical level. These are then aggregated per MCA region to find the MCA total. Since this metric is constructed from separate estimates of exports in goods and services, confidentiality issues can arise at the detailed ITL3 regional level, resulting in missing values in the data set. This indicator uses the same data as the previous scorecard edition, as no new release has been published.

New Businesses:

The rate at which new enterprises are being created indicates the level of entrepreneurial activity in the local economy. Entrepreneurship, firm dynamicity and firm creation have been reported by many studies as important drivers for regional productivity and local economic prosperity. The ONS data set on Business demography in the UK presents annual data on total active firms and new firms in the UK by geographical areas, according to postal codes. These codes have been mapped to the ITL3 geographies, and the data has been aggregated according to this mapping. This driver of productivity is then calculated as the ratio of new firms over total active firms.

Skills & Training

This category presents the composition of the local labour force as another key driver of regional productivity. These data are taken from the ONS Annual Population Survey (APS) at the NUTS 3 level, which relate directly to the corresponding ITL geography. It is important to acknowledge that the APS is currently under revision and being [reweighted](#), however, this doesn't impact the drivers used in these scorecards. The NVQ skill level definitions are available from [Gov.uk](#). For 2022 data, NVQ levels have been replaced with RQF levels. These definitions are available [here](#).

Low Skilled

This driver of productivity presents the percentage of the working-age population (aged 16-64) with NVQ1(RQF1) or 'no qualifications'. From the ONS APS, data can be obtained on the number of workers with 'no qualifications', 'NVQ1(RQF1)' qualifications, and all working-age persons. The Low Skilled driver is calculated for each ITL3 region by adding the number of workers with 'no qualifications' and 'NVQ1(RQF1)' qualifications and dividing by the working age population. To find the MCA average, these values are then aggregated, mapping ITL3 regions into an MCA. For this driver, higher values inhibit rather than stimulate productivity. This is reflected in the scorecard tables by applying the colour scheme in reverse.

High Skilled

This driver presents the percentage of the working-age population (aged 16-64) with qualification at NVQ4+(RQF4+) level. We use the same sources and methodology as for the Low-Skilled indicator.

Health & Well-being

This category reflects the impact of health and general wellbeing of people in the workforce on productivity. It is measured by the activity rates, illness rates, and the age composition of the working-age population. As with the data on Skills & Training, these data are collected from the ONS Annual Population Survey (APS) at the NUTS 3 level. The data is aggregated, mapping NUTS 3 regions to MCA regions in order to find the MCA average.

Active Population

Represents the percentage of the working-age population (aged 16-64) in the current year that were active in employment. It is calculated by dividing the number of workers active in employment by the total working-age population.

Inactive due to illness

Represents the percentage of the *inactive* working age population (aged 16-64) that were inactive due to ill health. For this driver, higher values inhibit rather than stimulate

productivity. This is reflected in the scorecard tables by applying the colour scheme in reverse.

Working age

Represents the percentage of the total population of working age (aged 16-64) in the current year. Numbers for the population aged 16-64 are taken from the ONS APS. However, the ONS APS population data does not include residents under the age of 16. Therefore, total resident population numbers by MCA region were taken from the ONS data set on Regional Gross Domestic Product to calculate the working-age population percentages for the ITL3 regions. As before, the ITL3 data is aggregate and mapped to create the MCA data.

Investment, Infrastructure & Connectivity

This category reflects the importance of investments in infrastructure for connectivity as a driver of productivity. The data for the years 2020, 2021, and 2022 are collected from the Ofcom Connected Nations and infrastructure reports. In addition, investments in machinery and equipment for production are a key factor in facilitating and strengthening productivity. Investments in intangible assets are also included in this category, as this covers organisational capital, such as management skills and patents, that can help improve productive capacity and overall efficiency. Data on regional investments is taken from the Experimental ONS data set on regional gross fixed capital formation by asset type. Unfortunately, this data set does only has data available for 2020.

4G connectivity

Represents the percentage of indoor premises with 4G services from all mobile network operators within the region. Mobile coverage information at local and unitary authority levels are collected from the four mobile network operators and analysed by Ofcom. For each area, we have multiplied the total number of premises in the region, also reported in the Ofcom data, by the percentage of premises that are 4G connected. We then aggregate both the resulting number of 4G connected premises and total premises by mapping the postal codes from the local and unitary authority level to their ITL3 aggregate regions. From these aggregated numbers, we recalculate the percentage of indoor premises with 4G services for the ITL3 regions. The ITL3 regions are mapped to an MCA and these values are aggregated to find the MCA average.

Fibre connectivity

Represents the percentage of premises that have access to a full optic-fibre connection. It can be viewed as a measure of the availability of connectivity infrastructure. Similar to the 4G connected indicator, we aggregated the information on the total number of premises and the number of premises with a fibre connection to the ITL3 level and calculated the percentage for each ITL3 region. The ITL3 regions are mapped to an MCA and these values are aggregated to find the MCA average.

Gross fixed capital formation per job

Another type of business investment is the total amount of investment in tangible and intangible assets, such as buildings, structures, roads, transport equipment, machinery, ICT equipment, and intellectual property products per job basis. The 2022 ONS data set on Experimental regional gross fixed capital formation (GFCF) estimates by asset type provides data for all ITL levels of geography. The number of jobs for each ITL region is taken from the ONS Subregional Productivity, June 2024 release. Data is only available for 2020 for this indicator.

ICT investment per job

Using the same sources as for the Gross fixed capital formation per job indicator, the ICT investment per job indicator measures the total amount of investment in ICT equipment per- job basis for the current scorecard year. This indicator only has data available for 2020.

Intangibles investment per job

Using the same sources as for the Gross fixed capital formation per job indicator, the Intangibles investment per job indicator measures the total amount of investment in intangible capital on a per-job basis for 2020. This indicator only has data available for 2020.

Dashboards

As an addition to the scorecards, dashboards have also been created visually representing the drivers from the scorecards. These visualisations can be seen per driver of productivity. These are in the form of a bar chart, interactive map and scatter plots. The scatter plot shows the axis of the current UK value for the driver of productivity against GVA per hour worked. Data points can be seen plotted for each ITL3 region within the MCA at different years. Motivation behind the scatter plot is being able to compare how MCA drivers are performing against productivity. The dashboards can be used as an alternative visual representation of the information conveyed in the scorecards.

The United Kingdom average is produced by the aggregation of ITL1 data which is then used to calculate drivers. The MCA average is calculated using the aggregating of ITL3 regions which are mapped to an MCA. This is also then used to calculate drivers at the MCA level. It is important to note that the growth metric used in calculating taxonomy is calculated using the natural logarithm of the average growth. First the logarithms of growth are taken, using growth as the change in GVA per Hour worked (GVA/Hw volume) between consecutive years from 2008. The differences are then averaged to get the mean logarithmic growth. The formula for this can be seen below:

$$\overline{g_t} = \frac{1}{t - 2008} \sum_{i=2008}^t (\ln(P_i) - \ln(P_{i-1}))$$

Where:

- g is growth
- t is the year
- $\overline{g_t}$ is LN average growth for year t
- P_i is productivity for year i (GVA/H volume)

When calculating drivers, all the input data passes through the same function, a summary is given in the table below:

| Indicator | Calculation |
|-------------------------|--|
| GVA/Hours current | GVA / hours * 1e6 / 52 |
| Export Intensity | Exports/ GDP |
| New Businesses | New Business/ Active Business |
| Low Skilled | (No Qualification + Low Qualification)/ Working Age |
| Economically Active | Active/Working Age |
| Inactive Due To Illness | Sick/ (Working Age – Active) |
| Working Age | Working Age/ Population |
| 4G Connectivity | 4G Premises/ All Premises |
| Fibre Connectivity | Fibre Premises/ All Premises |
| GFCF per Job | GFCF/Jobs * 1e6 |
| ICT per Job | ICT /Jobs * 1e6 |
| Intangibles per Job | Intangibles/Jobs *1e6 |

Appendix

ITL3 to MCA Mapping

| | |
|---------------------------------|---|
| Combined Mayoral Authority | ITL3 |
| Greater Manchester | Manchester, Greater Manchester South West, Greater Manchester South East, Greater Manchester North West, Greater Manchester North East |
| South Yorkshire | Barnsley, Doncaster and Rotherham ; Sheffield |
| West Yorkshire | Bradford, Leeds, Calderdale and Kirklees, Wakefield |
| Liverpool City Region | East Merseyside, Liverpool, Sefton, Wirral |
| Tees Valley | Hartlepool and Stockton-on-Tees, South Teesside, Darlington |
| West Midlands | Birmingham, Solihull, Coventry, Dudley, Sandwell, Walsall, Wolverhampton |
| Cambridgeshire and Peterborough | Peterborough, Cambridgeshire CC |
| West of England | City of Bristol, Bath and North East Somerset, North Somerset and South Gloucestershire |
| York and North Yorkshire | York, North Yorkshire CC |
| East Midlands | Derby, East Derbyshire, South and West Derbyshire, Nottingham, North Nottinghamshire, South Nottinghamshire |
| North East | Durham CC, Northumberland, Tyneside, Sunderland |
| London | Camden and City of London, Westminster, Kensington & Chelsea and Hammersmith & Fulham, Wandsworth, Hackney and Newham, Tower Hamlets, Haringey and Islington, Lewisham and Southwark, Lambeth, Bexley and Greenwich, Barking & Dagenham and Havering, Redbridge and Waltham Forest, Enfield, Bromley, Croydon, Merton, Kingston upon Thames and Sutton, Barnet, Brent, Ealing, Harrow and Hillingdon, Hounslow and Richmond upon Thames |