Office for National Statistics

Article

Disaggregating UK subnational gross disposable household income to lower levels of geography: 2002 to 2021

Official statistics in development of gross disposable household income (GDHI) statistics at Lower-layer Super Output Area (LSOA) and equivalent geographies.

Contact:
Subnational Statistics Development team
subnational.development@ons.gov.uk
+44 1633 582512

Release date:
26 March 2024

Next release:
To be announced

Notice

12 December 2024

We have identified issues in the distribution of gross disposable household income transactions at LSOA, DZ and SOA levels in the Disaggregating UK subnational gross disposable household income (GDHI) to lower levels of geography: 2002 to 2021 release published on 26 March 2024. For more details please see Section 2: Issue with the distribution of gross disposable household income transactions (added 12 December 2024, updated 29 May 2025).

Table of contents

1. Overview of the development of these statistics

2. Issues with the distribution of gross disposable household income transactions (added 12 December 2024, updated 29 May 2025)

3. Method for deriving gross disposable household income for small areas

4. Preparing the apportioning dataset

5. Gross disposable household income components and subcomponents

6. Data quality and how to use the estimates

7. Gross disposable household income data

8. Future developments

9. Related links

10. Cite this article

1 . Overview of the development of these statistics

Gross disposable household income (GDHI) is the amount of money that individuals in households have available for spending or saving after they have paid taxes and received benefits. GDHI is a standard measure of the economic activity taking place in the households sector.

The UK National Accounts publish GDHI, which is then broken down to individual countries, regions, and local authority districts. For details on how to use the data, please see Section 6: Data quality and how to use the estimates.

We have developed a method to break down local authority level GDHI to Lower-layer Super Output Areas (LSOA) in England and Wales, Data Zones (DZ) in Scotland, and Super Output Areas (SOA) in Northern Ireland.

LSOA, DZ, and SOA are largely equivalent geographies formed as follows:

- LSOA have a population of 1,000 to 3,000 people (400 to 1,200 households)
- DZ have a population of 500 to 1,000 household residents
- SOA have a population of 300 to 6,000 people

Throughout this article, we refer to the LSOA, DZ, and SOA data as granular data or estimates.

We use a top-down approach to produce granular GDHI estimates, where we retain consistency with published UK National Accounts and Regional Accounts estimates. The granular geographical estimates can be used flexibly to build larger areas of interest across the UK.

The production of more granular statistics aligns with recommendations of the 2016 review of economic statistics and the Government Statistical Service's (GSS) 2021 subnational data strategy. This publication forms part of our wider subnational statistics workplan, aiming to improve the granularity of economic statistics. To work towards this goal, we recently published granular data in our Disaggregating UK annual subnational gross value added (GVA) to lower levels of geography article.

GVA gives insight into the business side of the economy. This granular GDHI publication analyses the households sector at the local level. Used together, the statistics allow comparison between what is produced in an area and how much of that value remains in the area in the form of income. However, we don't recommend comparing the granular estimates with each other but using these as building blocks to build larger areas to analyse and compare.

We publish granular GDHI for the four UK countries broken down by component to align with the local authority level data. The data are in current prices.

These are official statistics in development. We advise caution when using the data, as the method and apportioning datasets are currently being reviewed. We do not recommend comparing the small areas data (that is, Lower-layer Super Output Areas, Data Zones, and Super Output Areas). Read more in Section 6: Data quality and how to use the estimates.

2 . Issues with the distribution of gross disposable household income transactions (added 12 December 2024, updated 29 May 2025)

We have identified two potential issues likely to affect the distribution of gross disposable household income transactions at LSOA, DZ and SOA levels in the Disaggregating UK subnational gross disposable household income (GDHI) to lower levels of geography: 2002 to 2021 release published on 26 March 2024. Both issues relate to the methods used to combine several data tables from HM Revenue and Customs (HMRC) and the Department for Work and Pensions (DWP) to derive the apportioning variables.

The small geographic area transactions are derived by apportioning local authority level transactions. This means the small geographic area transactions are constrained to the local authority totals and issues are therefore mitigated at larger geographies.

We are in the process of implementing improvements that address these issues in the development of the production process. We are currently not able to state the full impact of the issues as there is no benchmark to compare with. For this reason, we have removed from the accompanying datasets all tables presenting estimates at LSOA, DZ and SOA levels, while the tables for other geographic areas are still available.

We aim to publish the improved estimates in autumn 2025. In the meantime, we advise to use estimates at larger geographies with caution. We apologise for any inconvenience. Please contact subnational.development@ons.gov.uk with any questions.

3 . Method for deriving gross disposable household income for small areas

We break down local authority level gross disposable household income (GDHI) components to small areas of geography. For each GDHI component, we select apportioning data with high correlation and a suitable coverage at granular level.

The main sources of the variables for apportioning GDHI are:

- HM Revenue and Customs' (HMRC) Pay As You Earn Real Time Information (PAYE RTI) data (for pay, social contributions, and income tax variables)
- the Department for Work and Pensions' (DWP) Customer Information System (CIS) and Benefits and Income Data (BID) (for social benefits)

Cumulatively, the two data sources have variables to apportion the biggest components of GDHI. We use population to apportion the smaller GDHI components.

We apportion each component of GDHI using the appropriate apportioning variable to get each component's granular estimates. The apportioned component estimates in a local authority must sum up to the initial local authority level component total.

4 . Preparing the apportioning dataset

Preparing the apportioning dataset involves checking and correcting for extreme values (outliers) and filling gaps in the series. The presence of outliers in some variables can skew the apportionment weights, if left untreated. Therefore, we examine and adjust each input variable for outlier points.

We have developed an algorithm that separates out data series that have suspiciously extreme values. The output of the algorithm is reviewed by human analysts and changes are implemented manually. Extreme values that exist for more than one year are not adjusted, because we assume these are true values.

Filling gaps in the data series

Our series starts from 2002, in line with the availability of granular population data. However, some of our apportioning datasets do not have data available for this period. For example, pay variables cover the period 2015 to 2021, and benefits variables cover the period 2010 to 2021.

We fill the gaps in the apportioning variables using different approaches. For dwelling stock and variables extracted from administrative data sources, we roll back the first existing data points, conditional on population weights of corresponding years. We impute self-assessment data for 2019 to 2021, conditional on population weight. For population, we use growth rates to fill in missing 2021 population data based on 2011 geography codes.

The final apportioning dataset consists of the variables that are used to apportion local authority level gross disposable household income (GDHI) components and subcomponents. An example of a component with subcomponents is compensation of employees, which includes:

- compensation of employees (wages and salaries)
- compensation of employees (employers' social contributions)

Components with subcomponents are apportioned at subcomponent level and later aggregated to the component level.

5 . Gross disposable household income components and subcomponents

Gross disposable household income (GDHI) is derived from the primary income account and the secondary distribution of income account of the households accounts of National Accounts. The households accounts present data on households' disposable income, expenditure, savings, and debts and financial assets.

GDHI has multiple components or subcomponents (also referred to as transactions) that feed into the primary and secondary accounts, and each component needs to be appropriately apportioned. We currently publish GDHI statistics at local authority level together with a Regional Accounts methodology guide. In this section, we describe how each component is apportioned.

The primary income resources and uses account

Primary income resources consist of income earned by households and non-profit institutions serving households (NPISH) through productive activities, like employment and ownership of productive assets (for instance, company shares). Primary income is also earned from property (for example, rent and interest). A primary income use is property income paid.

Operating surplus

Operating surplus consists of the households sector's rental income from buildings and imputed rent of owner-occupied dwellings. This constituted 13% of gross disposable income in 2021.

We apportion operating surplus using dwelling stock for Great Britain, and housing rates data for Northern Ireland. Ideally, operating surplus must be apportioned using the value of housing stock in each small geographical area. There are no consistent granular prices data to complete the valuation for Great Britain.

Mixed income

Mixed income comprises income from sole traders' self-employment and rental income from private dwellings (rental income received by landlords). The two components constituted 11% of gross disposable income in 2021. They are apportioned separately and then aggregated.

The value of mixed income from sole traders is apportioned using self-employment income that is extracted from HM Revenue and Customs' (HMRC) self-assessment data.

Working with self-employment data is challenging, because there is no clear indication of the residential address of self-employed people, which is required for processing household income. Instead, there is the registered business address. In this iteration, we developed a solution that uses the base address given in the tax return.

We apportion mixed income from actual rents using dwelling stock data for Great Britain, and housing rates data for Northern Ireland. Ideally, we should apportion using rent income, but we have not yet found a suitably large and granular rent income dataset to use. We are continuing to explore this.

Compensation of employees

Compensation of employees is the remuneration that is received by employees from employers as payments for the services of labour. It constituted 80% of gross disposable income in 2021.

Compensation of employees consists of pay (wages and salaries) before tax and employer national insurance contributions (NICs). Although employer NICs are a form of tax, they are part of compensation of employees because they are an employment cost and entitle the workers to future state support.

We apportion compensation of employees using HM Revenue and Customs' (HMRC's) Pay As You Earn Real Time Information (PAYE RTI) datasets. However, PAYE RTI datasets exclude workers' benefits like salary sacrifice arrangements and employers' pension contributions. We are exploring methods for capturing these components.

Property income received

Property income received consists of the return on the ownership of financial assets like dividends and repatriated profits and rent from ownership of land (not from buildings). Property income received also includes return to holders of life insurance policies. It constituted 15% of gross disposable income in 2021.

We apportion property income received using income tax paid. The income tax paid currently excludes self-employed workers' payments. We are investigating HMRC's self-assessment data to extract self-employed workers' income tax.

Property income paid

The smallest primary account component is property income paid, which is a use. This consists of payments made to other sectors of the economy in respect of their ownership of financial and tangible non-produced assets. It mainly consists of mortgage interest payments and constituted negative 1% of gross disposable income in 2021.

We apportion this component using adult population. We continue to search for datasets that contain mortgage interest payments at a granular level.

The secondary resources and uses account

The secondary account reflects the money transferred to and from households that is not related to a productive activity. Secondary resources are received because of the redistribution of income to households, like benefits and pensions. Secondary uses are primarily non-discretionary payments by households, like income tax and social contributions.

Imputed social contributions

Imputed social contributions are payments that employers make directly to current and former employees, and other eligible persons. The payments are received outside the social security arrangement (that is, outside social security, pension funds, or insurance arrangements). We apportion this component using adult population.

Social benefits received excluding in-kind social transfers

The benefits consist of three subcomponents, namely social security benefits in cash, privately-funded and unfunded employee social benefits, and social assistance in cash. Together with imputed social contributions, these benefits constituted 27% of gross disposable income in 2021.

Social security benefits in cash are cash benefits received by households from social security funds (for example, state retirement pensions, widows' allowances, and incapacity benefit, maternity pay and maternity allowance, and others).

Privately-funded benefits are households sector receipts from privately-funded and related social insurance schemes. Examples include:

- private pension funds
- privately-funded social benefits
- employee benefits from employers' liability insurance

Unfunded employee social benefits are receipts from social benefits schemes, like the government and local government pensions schemes.

Social assistance benefits in cash are non-contributory benefits provided to households by the government and the non-profit institutions serving households (NPISH) sector, like Universal Credit and employment support allowance.

We sum up social benefits received and apportion them using benefits data from HMRC and the Department for Work and Pensions (DWP) datasets. In future, we will split and apportion the subcomponents of social benefits separately, depending on the availability of good quality apportioning data and variables.

Other current transfers received

Other current transfers received consist of non-life insurance claims and miscellaneous current transfers. They are unrequited transfers with nothing paid in return. They constituted 2% of gross disposable income in 2021. We apportion this component using adult population.

Current taxes on income and wealth

This component consists of two subcomponents:

- current taxes on income and wealth
- "other current taxes paid"

Together, they constituted negative 19% of gross disposable income in 2021.

Current taxes on income and wealth are compulsory, unrequited payments made by the households sector to the government sector. They consist of taxes on income and other current taxes (excluding inheritance tax), taxes on profits of unincorporated enterprises, and taxes on capital gains. We apportion this sub-component using income tax data from HMRC's PAYE RTI datasets. Taxes from self-employment are not yet included.

"Other current taxes" consist of Council Tax (which constitutes the largest proportion), vehicle excise duty, and payments by households to obtain certain licences (for example, television licence). The largest constituent is Council Tax.

We apportion this subcomponent using income tax paid. We are exploring the possibility of using Council Tax receipts for future apportionment.

Social benefits paid

Social benefits paid are a small component consisting of households' contributions to unfunded private schemes. We add these to social contributions paid for apportionment.

Social contributions paid

Social contributions consist of employees' and employers' social contributions. They are payments made towards the future provision of social benefits, like the State Pension. The payments can be made by workers directly, like some classes of national insurance, or by employers on behalf of their employees. The sum of social benefits and social contributions paid amounted to negative 24% of gross disposable income in 2021.

We apportion the sum of social benefits and social contributions paid using employees' and employers' national insurance contributions. Future development will focus on bringing the contributions of self-employed workers into the calculations.

Other current transfers paid

Other current transfers paid consist of non-life insurance premiums paid by households for their own benefit, independently of their employers or government social insurance schemes. These include property, vehicle, and health insurance premiums, and constituted negative 3% of gross disposable income in 2021.

Other current transfers paid also include miscellaneous transfers. These are payments that households are liable for, like court fines and some government fees. This component is apportioned using adult population. We continue to explore for granular datasets with non-life insurance premiums data.

Gross disposable household income

Gross disposable household income is the balance of the primary and secondary income accounts. We publish the granular data for Lower-layer Super Output Areas (LSOA), Data Zones (DZ) and Super Output Areas (SOA), as well as for other geographical areas, including parliamentary constituencies and wards.

6 . Data quality and how to use the estimates

Using the gross disposable household income estimates

We recommend that the granular data must not be analysed individually or compared with one another. At granular levels, the data are more volatile than for larger geographies. We recommend that users treat the granular data as "building blocks" by combining the granular data to form larger geographical areas for analysis.

Although the granular geographical areas are broadly equivalent, they are not directly comparable across the different nations of the UK. We do not recommend mapping analytical geographical areas across national boundaries (except for England and Wales, that use Lower-layer Super Output Area (LSOA) geography).

How to use the small areas gross disposable household income estimates

The gross disposable household income (GDHI) estimates can be used to produce estimates for any bespoke geographical area using the published lookup tables. The first step is to map the area to be analysed. The geography portals for England and Wales, Scotland, and Northern Ireland provide useful information for mapping. Next, select and list the granular geographical areas that fall within the map boundary. Using the published data tables, extract the data for these areas and aggregate before analysing them.

We have used the West Midlands Metro region as an example of producing estimates for a non-traditional geography. The West Midlands Metro is a light-rail system operating between Wolverhampton St. George's and Birmingham Bull Street. The construction of the rail line started in 1995, and the first section was opened in 1999. Extensions of the line were opened in 2015 and 2019, respectively.

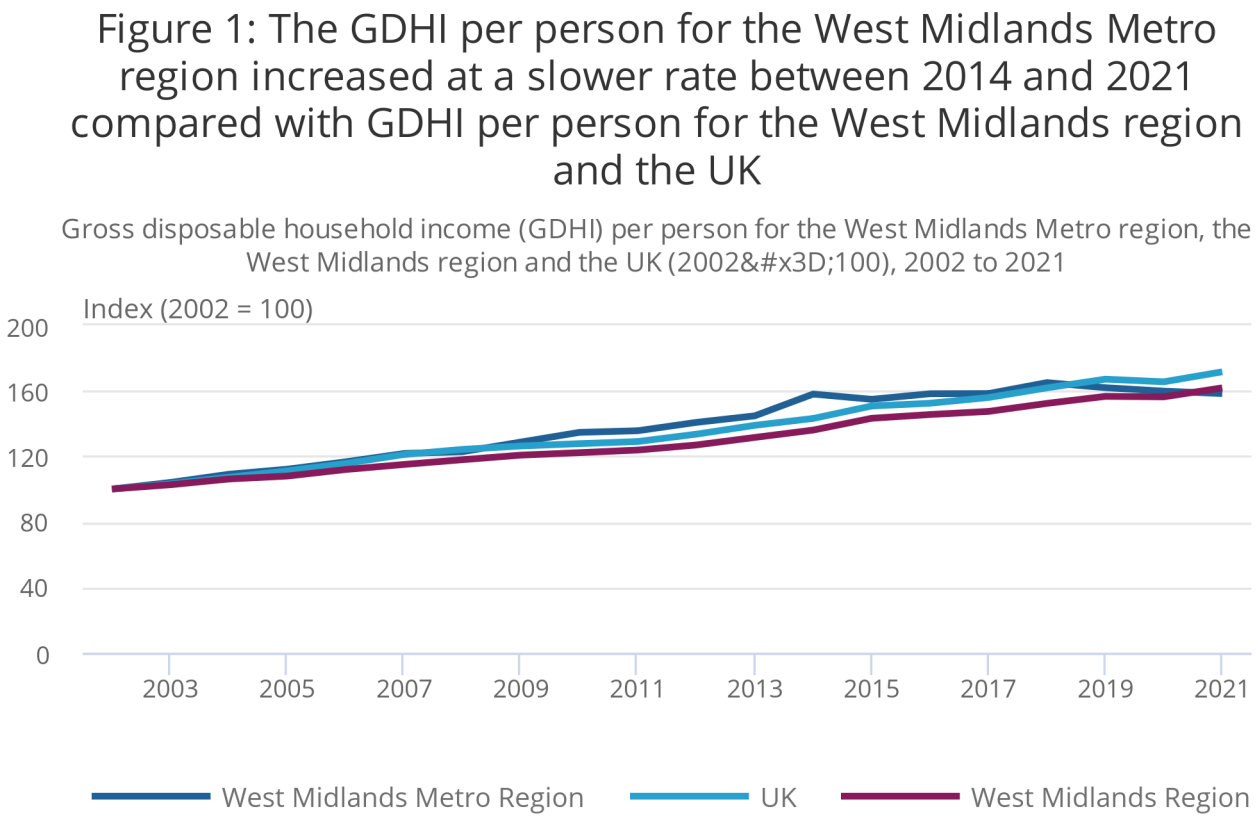
We can produce GDHI for this area by following the outlined steps and creating a list of LSOAs through which the metro line passes, or whose boundaries intersect the metro line. The line has a total of 28 stations, crossing or meeting with 44 LSOAs.

The West Midlands Metro region's GDHI increased from £627.5 million in 2002 to £1,436.2 million in 2021, an increase of 129%. GDHI for West Midlands region increased by 82%, from £60,818 million in 2002 to £110,549 million in 2021. GDHI for the UK increased by 105%, from £617,647 million to £1,263,676 million over the same period.

GDHI per person gives an indication of the distribution of the disposable income in the selected areas. Figure 1 shows the GDHI per capita for the West Midlands Metro region indexed to 2002.

Figure 1: The GDHI per person for the West Midlands Metro region increased at a slower rate between 2014 and 2021 compared with GDHI per person for the West Midlands region and the UK

Gross disposable household income (GDHI) per person for the West Midlands Metro region, the West Midlands region and the UK (2002=100), 2002 to 2021



Source: UK granular gross disposable household income from the Office for National Statistics

The trend of GDHI per person for the West Midlands Metro region flattened from 2014 onwards. Between 2014 and 2019, the GDHI per person for the West Midlands Metro region increased at a slower rate (2.5%) than that for West Midlands region (15%) and the UK (17%). In the West Midlands Metro region, population increased faster than income, resulting in lower per person growth than in the comparison areas.

7 . Gross disposable household income data

UK gross disposable household income for other geographic areas
Dataset | Released 26 March 2024
Estimated gross disposable household income (GDHI) for non-census geographical areas, 2002 to 2021. The geographical areas include parliamentary constituencies, wards, health boards and bespoke areas like Highlands and Islands Area offices and the West Midlands Metro region.

8 . Future developments

This is an initial attempt at producing granular gross disposable household income (GDHI) data within a National Accounts framework. The development of the method, data sources, and suitable variables is ongoing. We are continuing to develop the statistical methods and to improve the quality of some input datasets as we gain more knowledge of the source administrative data sources.

The apportioning datasets for some components are easy to conceptualise but difficult to measure. Some components of the apportioning dataset have not been captured in this first edition of the estimates. For example, total employee earnings must include employer pension contributions, but these are not captured separately in the Pay As You Earn (PAYE) data. In the second iteration, we will explore methods for capturing employer pension contributions to improve the accuracy of apportioning compensation of employees.

Future iterations will apportion the subcomponents of social benefits received separately where we manage to get suitable apportioning data.

9 . Related links

Regional gross disposable household income: local authorities
Dataset | Released 14 September 2023
Annual estimates of UK regional gross disposable household income (GDHI) for local authorities.

Disaggregating UK annual subnational gross value added to lower levels of geography: 1998 to 2021
Article | Released 31 January 2024
Breaking down local authority level annual gross value added (GVA) statistics to lower levels of geography. Official statistics in development.

Regional gross disposable household income, UK: 1997 to 2021
Bulletin | Released 14 September 2023
Annual estimates of regional gross disposable household income (GDHI) for the UK International Territorial Level (ITL) ITL1, ITL2, ITL3 regions, local and combined authorities, city regions, and other economic and enterprise regions.

Income estimates for small areas, England and Wales: financial year ending 2020
Dataset | Released 11 October 2023
Estimates of annual household income for the four income types for Middle layer Super Output Areas (MSOAs), or local areas, in England and Wales.

10 . Cite this article

Office for National Statistics (ONS), released 26 March 2024, ONS website, article, Disaggregating UK subnational gross disposable household income (GDHI) to lower levels of geography, 2002 to 2021.