Office for National Statistics

Regional accounts methodology guide: June 2019

What comprises the UK regional accounts, how various regional estimates are compiled, the different data used in compilation and concepts underpinning the process.

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1 . Introduction

The UK Regional Accounts are produced annually. The methods and data used are consistent with the guidance set out in the European System of Accounts.

This guide is intended to give the user an understanding of what comprises regional accounts in the UK, how regional estimates of gross value added (GVA), gross disposable household income (GDHI) and gross fixed capital formation (GFCF) are compiled, the different data that are used in the compilation of the estimates, and the concepts that underpin the whole process.

Section 2 is an introduction to the UK Regional Accounts and provides an outline of their constituent parts. The following sections cover the main economic indicators that make up the UK Regional Accounts. They explain the methodology applied in their production, including an overview of the main data sources and concepts, how the individual components are estimated and the publication and legal requirements of the aggregates.

Annex A and Annex B provide details of the geographical and industrial framework underpinning regional accounts estimates.

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2 . Introduction to the UK Regional Accounts

What are regional accounts?

Regional accounts are economic accounts for regions, sub-regions and local areas produced according to the same concepts and definitions used in the UK National Accounts.

In the economic accounts, the economy is split into institutional sectors, that is, units broadly grouped according to their role in the economy. The main sectors are non-financial corporations, financial corporations, general government, households and non-profit institutions serving households (NPISH). The rest of the world is also treated as a sector for many purposes within the accounts.

There are considerable practical and conceptual difficulties in compiling a full set of national accounts by region. For example, much of government spending (for example, defence expenditure) cannot be realistically allocated to the regions of the UK, so producing regional government sector accounts of any quality is not feasible.

In practice, the UK and member states of the European Union (EU) have concentrated on producing a more limited system of regional accounts covering main economic indicators by industry (gross value added (GVA)) and gross fixed capital formation (GFCF)), as well as a simplified set of accounts for households (gross disposable household income (GDHI)). Main economic series can be shown as gross (that is, before deduction of the consumption of fixed capital) or net (that is, after deduction). Gross has this meaning throughout this publication unless otherwise stated.

Consumption of fixed capital is the estimated amount of capital resources used up in the process of production during the period under consideration (that is, depreciation).

Regional geographies

Regional accounts are produced by each EU member state in accordance with the Nomenclature of Units for Territorial Statistics (NUTS) regulation. This was created by the European Office for Statistics (Eurostat) and is a hierarchical classification of geographical units within European Union territory. This enables the production of regional statistics that are comparable across the EU.

The NUTS classification was established in the early 1970s as a single, coherent system for dividing up EU territory in order to produce regional statistics for the EU. Since 2003, any changes to a member state's NUTS boundaries (for example, local authority boundaries) have needed to go through a formal process of application to the EU. Changes ratified by the EU are implemented at the end of pre-set periods of enforced stability (a minimum three years).

There are currently three hierarchical NUTS classification structures used within the UK Regional Accounts: NUTS1, NUTS2 and NUTS3.

NUTS1: Wales, Scotland, Northern Ireland and the nine English regions.

NUTS2: 41 sub-regions – mainly groups of counties and unitary authorities.

NUTS3: 179 local areas – principally individual counties and unitary authorities.

Some areas appear at more than one level, for example, Northern Ireland appears at NUTS1 and NUTS2 level. Full details of the NUTS structure in the UK are shown in Annex A.

Regional accounts data published by the Office for National Statistics (ONS) from 1 January 2018 onwards comply with the most recent NUTS changes, which came into effect on 1 January 2018.

EU member states generally comprise two main administrative levels of geography. An additional third level is created by aggregating administrative units. The NUTS regulation recommends broad minimum and maximum population thresholds for the size of the NUTS regions:

- NUTS1 population between 3 million and 7 million
- NUTS2 population between 800,000 and 3 million
- NUTS3 population between 150,000 and 800,000

The term Extra-Regio is applied to economic activity that cannot be assigned to any specific region within a country. The contribution to GVA of UK embassies abroad and UK forces stationed overseas is included in Extra-Regio, along with the elements relating to activities taking place on the continental shelf (that is, North Sea oil and gas extraction). As these cannot be assigned to specific regions they are assigned as Extra-Regio GVA (see Sections 3, 4, 5 and 7).

Regional accounts in the UK

The regional accounts allow comparison between the countries and regions of the UK and provide information about regional economic diversity and, in the case of regional GVA, the relative importance of different industries to regional economies. They are produced as follows.

Regional gross value added (GVA)

Regional GVA can be measured using an income approach or by a production approach. In December 2017 balanced estimates of regional GVA were published by using estimates from both the income and production approaches (see Section 5 for further details).

Balanced estimates of gross value added (GVA(B))

These are described in Section 5. These estimates were first published in December 2017 as Experimental Statistics and are available at various geographical levels within the UK. Estimates are measured at current basic prices and in “real” terms (chained volume measures). Following an assessment of the statistics by the Office for Statistics Regulation (OSR) in November 2018, the GVA(B) estimates are now National Statistics. The ONS currently provides GVA(B) estimates to Eurostat in accordance with the European Commission (EC) legislation.

Income approach estimates of gross value added (GVA(I))

These estimates are described in Section 3. They are published at geographical, industrial and component breakdown and are compiled in current basic prices. Estimates are published annually and are a legal requirement under EC legislation. The methods and data used are consistent with the guidance set out in the European System of Accounts (2010).

Production approach estimates of gross value added (GVA(P))

GVA at constant prices accounts for price changes that may occur over a period of time due to inflation. On conceptual grounds, this can only be achieved by calculating regional GVA on a production basis, as described in Section 4. Experimental estimates of constant price regional GVA(P) were produced for the first time in December 2013 at NUTS1 and NUTS2 levels.

Regional gross disposable household income (GDHI)

Regional GDHI estimates at current basic prices are published annually and are a legal requirement under EC legislation. The methods and data used are consistent with the guidance set out in the European System of Accounts (2010) as described in Section 6.

Regional gross fixed capital formation (GFCF)

Regional GFCF at current basic prices is produced only at the NUTS1 and NUTS2 levels with an industry breakdown. Domestic publication of regional GFCF has been suspended since 2003 due to concerns regarding the regional apportionment of the main indicator data source, the Annual Business Survey (ABS). However, annual estimates are a legal requirement under EC legislation and are submitted to Eurostat (further details described in Section 7).

Data sources

National controls

National (UK) totals required for the compilation of regional GVA, GDHI and GFCF estimates are consistent with those published in the UK National Accounts: The Blue Book. This is the main UK annual publication for national accounts and provides detailed estimates of national output, income and expenditure. It covers value added by industry, full accounts by sector (including financial and non-financial corporations, central and local government, and households) and capital formation.

Regional Accounts branch refers to these UK totals as “national controls”, as these are the control totals to which the regional data must sum. Data at component level are gathered from national supply and use tables (SUTs) and from various sector accounts compiler areas within the ONS.

Regional indicators

A “top down” approach is used to calculate regional figures, whereby the national control aggregate for a component of GVA, GDHI and GFCF is allocated to regions using the most appropriate measure of regional activity (known as the regional indicator) available.

The term “indicator” is used to mean a variable measurable at the relevant regional level (consistent with the NUTS classification) that is used to assign proportions of the national component to the regional level. The regional or industrial estimates must sum to the national total.

Regional indicators are obtained from a number of data providers including survey and administrative sources, in line with Eurostat guidelines. Their selection is dependent on availability, quality and timeliness. Each dataset is validated prior to its use in the compilation of the regional accounts estimates.

Quality

Published regional accounts are National Statistics and as such comply with the Code of Practice for Statistics. They are compiled following extensive quality assurance of the underlying raw data, in line with the practices in place for national accounts estimates.

Quality and methodology information reports detailing methods used to compile regional GVA and GDHI estimates are published on the ONS website.

The UK Regional Accounts team work closely with Eurostat, a body of the European Commission that promotes the harmonisation of statistical methods across member states. During 2011 and 2012, the UK participated in a Eurostat task force set up to develop a methodology guide for the compilation of regional GVA, GDHI and GFCF estimates.

Industrial estimates published by regional accounts are consistent with the Standard Industrial Classification of Economic Activities (UK SIC 2007) (see Annex B).

Revisions

Most revisions reflect either the adoption of new statistical techniques or the incorporation of new information, which allows the statistical error of previous estimates to be reduced.

The main reasons for revisions are:

- revised national accounts Blue Book data; such changes lead to revisions in the regional data, which are constrained to sum to the national figures
- final estimates becoming available from various data providers to replace provisional estimates
- methodological changes introduced to improve the quality of the regional estimates

3 . Regional gross value added (income approach)

Definition

Gross value added (GVA) is a measure of the increase in the value of the economy due to the production of goods and services. It is measured at current basic prices, which includes the effect of inflation, excluding taxes (less subsidies) on products. GVA plus taxes (less subsidies) on products is equivalent to gross domestic product (GDP).

GVA can be measured using either the production (GVA(P)) or the income approach (GVA(I)) and GVA balanced estimates are compiled using the strengths from GVA(P) and GVA(I) (see Section 5).

The income approach involves adding up all the income earned by resident individuals or corporations in the production of goods and services. This excludes transfer payments, such as state benefits, which represent a redistribution of incomes previously earned and therefore do not add anything to current economic activity.

Current price figures measure the value of transactions in prices relating to the period being measured. They combine the effects of changes in both prices and quantities and do not allow for different regional price levels or changes in prices over time and therefore include the effects of inflation. The income approach to calculating GVA produces only current price estimates because some income components (for example, profits) cannot easily be converted into prices and volume, so the effects of price inflation and regional price variation cannot easily be removed.

Regional GVA using the income approach (GVA(I)) is measured at current basic prices. Basic prices are the preferred method of valuing output and value added. They reflect the amount received by the producer for a unit of goods or services excluding any taxes (less subsidies) on products. These are taxes that are payable per unit of a good or service produced or transacted (for example, Value Added Tax (VAT) and excise duties). Basic prices include taxes (less subsidies) on production.

GDP is measured at market prices, which reflect the price paid by the purchaser and therefore include the effect of taxes and subsidies on products. Regional estimates of GDP cannot be produced due to a lack of regional data on the various taxes on products.

Background

The Nomenclature of Units for Territorial Statistics: NUTS1, NUTS2 and NUTS3 regional GVA(I) series in their current format start in 1997. Although earlier estimates exist, they are based on different accounting concepts and different geographical and industrial classifications, so that it is not possible to directly compare the earlier estimates with those from 1997 to date.

Data sources and concepts

Methodology

Numerous data sources are used in the calculation of regional GVA(I) and its components. These comprise both survey and administrative data which conform as far as possible to those recommended in the Manual on Regional Accounts Methods produced by Eurostat, which sets out the most appropriate methods for compiling regional accounts.

Regional GVA(I) in the UK is compiled exclusively using a “top-down” approach, whereby the national aggregate for each component is allocated to regions using the most appropriate regional indicator available. The national total is allocated to NUTS1 regions, then to NUTS2 regions and finally to NUTS3 regions.

National controls

National (UK) totals required for the compilation of regional GVA(I) are consistent with those published in the UK National Accounts, The Blue Book. Totals for each component, which are used to constrain the regional GVA(I) estimates, are broken down by component of income and industry.

National controls data by component of income and by 112 industries are gathered from the supply and use tables (SUTs) for the years 1997 to t minus 2 years (where t is the current year). These are the years for which the SUTs have been balanced. Regional GVA(I) is open to any revisions implemented nationally in the SUTs.

Regional GVA(I) totals are published at t minus 1 year but published as “provisional” due to the national data being unbalanced for this year. The provisional national data used for the t minus 1 year estimates are taken from the GVA(I) by industry section estimates in Table 2.2 of the UK National Accounts, The Blue Book. Component totals at t minus 1 year are supplied by national accounts compiler branches.

The data are fed into a forecast model, which produces component (by SUT 112 industry) estimates, which can be regionalised and then summed to produce a total GVA(I) estimate for each region. As these data have not been through the supply and use balancing process they are subject to the income statistical discrepancy and are therefore marked as provisional.

Industrial coverage

Industry totals are supplied for the UK for 112 industries. These are collapsed to 20 sections, plus 13 manufacturing sub-sections (using the Standard Industrial Classification 2007 (SIC 2007)) for regionalisation and publication.

NUTS1 and NUTS2 regional data are published at this level of industrial breakdown. NUTS3 regional data are published at an 11 group industrial breakdown which includes manufacturing as a separate section, in addition to total production. For details of the industrial breakdown see Annex B.

Population data

Mid-year estimates provided by the Office for National Statistics (ONS) Population Estimates Unit are used in the production of the regional GVA(I) per head estimates and GVA(I) per head indices.

There is a wide variation in the size and population of the regions of the UK, which makes it difficult to compare regional economic performance using cash totals. Estimates on a per head basis allow for the comparison of regions significantly different in absolute size. The GVA per head variable is not an indication of regional productivity as the population data used in the compilation of per head estimates include the economically inactive.

The ONS produces estimates of regional and sub-regional productivity based on the regional GVA data.

Components of income-based GVA

The main components of income based GVA(I) are:

- compensation of employees (CoE)
- gross operating surplus (GOS), includes gross trading profit and surplus, mixed income, non-market capital consumption, rental income, less holding gains
- taxes (less subsidies) on production

Table 1: Income components as percentage of UK gross value added, 2017

	Percentage of gross value added (income)
Gross value added (income)	
Compensation of employees	55.4
Gross trading profit	22.5
Gross trading surplus	0.2
Mixed income	5.2
Rental income	13.6
Non-market capital consumption	2.1
Less holding gains	0.3
Taxes (less subsidies) on production	1.4

Source: Regional gross value added (income approach), December 2018

Notes

1. Gross value added (income) total for UK excludes Statistical Discrepancy. Back to table
2. Figures may not sum due to rounding. Back to table

Since December 2015, each of these components is published with a regional and industry breakdown.

Compensation of employees

Compensation of employees (CoE) is the largest component of income-based GVA(I) and represents the total remuneration payable to employees in cash or in kind, including the value of social contributions payable by the employer. GVA(I) estimates are produced at all three NUTS levels on a workplace basis (allocated to the location where the economic activity takes place).

Regional estimates of CoE are produced for the majority of industries using a regional indicator obtained by multiplying numbers of employees by average earnings, on an industry by industry basis. Employment data are taken from the Business Register Employment Survey (BRES) and average earnings data are taken from the Annual Survey of Hours and Earnings (ASHE).

For the industries where this indicator is not used, the following methods are used.

Manufacturing CoE is allocated to regions for Industry C using Annual Business Survey (ABS) CoE data.

The CoE for industry A01 (agriculture) is allocated to regions using CoE data from the Department for the Environment, Food and Rural Affairs (Defra).

The Labour Force Survey (LFS) provides employment data used to regionalise CoE for section T (households).

Employment data from the Defence Analytical Services Agency (DASA) are used to allocate the CoE of armed forces personnel stationed in the UK and overseas. The annual Civil Service Employment Survey and national accounts total of “Locally-employed staff overseas compensation of employees” data are used to allocate the CoE of overseas embassy workers. Supply and use table data are used to allocate the CoE of offshore oil and gas workers.

A further adjustment is made to take account of unpaid days resulting from strikes.

Table 2: Main regional indicators for compensation of employees

Industry	Regional indicator source
Industry A01 (Agriculture)	Compensation of employees, Department for the Environment, Food and Rural Affairs
Industry C (Manufacturing)	Compensation of employees, Annual Business Survey
Industry T (Households)	Employment, Labour Force Survey
All other industries	Annual Survey of Hours and Earnings multiplied by Business Register Employment Survey
Extra-Regio	Number of forces employed, Defence Analytical Services Agency, Annual Civil Service Employment Survey, Office for National Statistics, Compensation of employees, Supply and Use Tables

Taxes (less subsidies) on production

Taxes on production are compulsory taxes levied by the government or by institutions of the European Union, relating to the production and import of goods and services, the employment of labour, or the ownership or use of land, buildings or other assets in production. They are payable whether or not a profit is made.

Various types of taxes on production are included, the largest of which are Motor Vehicle Duty (MVD) and National Non-Domestic Rates (NNDR). A variety of regionalising datasets are used to apportion the different taxes on production to regions. In the case of MVD, data from the Driver and Vehicle Licensing Agency (DVLA) are used, and for NNDR, administrative data on National Non-Domestic Rates from the Ministry of Housing, Communities and Local Government (MHCLG) and business rates data from the Northern Ireland Statistics and Research Agency (NISRA) are used.

Table 3: Main regional indicators for taxes

Main taxes on production	Regional indicator source
Motor Vehicle Duty	Number of vehicles multiplied by rates, Driver and Vehicle Licensing Agency
National Non-Domestic Rates (Great Britain)	National Non-Domestic Rates (Great Britain), Ministry of Housing, Communities and Local Government
Business rates (Northern Ireland)	Business rates (Northern Ireland), Northern Ireland Statistics and Research Agency
Other taxes	Various

Subsidies on production

These are unrequited payments made by central government or the European Union to enterprises as a consequence of engaging in production (for example subsidies to reduce pollution).

Within national accounts, various subsidies on production data are included, for example agriculture subsidies (AGR) and housing revenue accounts (HRA). A variety of regionalising datasets are used to apportion the different subsidies on production to regions.

Mixed income

Mixed income represents income generated by sole traders (self-employed people not registered as partners). In national accounts, their income is considered a mixture of profits and self-paid wages (hence “mixed” income) returned to the business. The majority of this is allocated to regions using self-employment data (profits of sole traders) from Her Majesty’s Revenue and Customs, and regional data from Defra are used for the agriculture industry.

In keeping with the UK National Accounts commitment to meeting the European Commission definition of gross national income, estimates of the value added to the economy of illegal activity relating to drugs and prostitution are included in mixed income.

Some regional data sources are available that provide information on seizures of illegal drugs by police forces and on crimes related to prostitution. However, the inconsistencies in these data sources, over time and between regions of the UK, have meant that reliable estimates of the regional variation in these activities have not been possible.

The UK total figure for drugs is therefore assigned to regions according to the adult population in each area, while the UK total for prostitution is assigned to regions according to the adult male population in each area. Therefore, it is not possible to draw any conclusions about areas of the UK that have higher or lower than average use of illegal drugs or prostitution services from these regional GVA estimates.

Table 4: Main regional indicators for mixed income

Industry	Regional indicator source
Industry A01 (Agriculture)	Operating surplus and mixed income, Department for the Environment, Food and Rural Affairs
Industry C (Manufacturing)	Gross operating surplus and mixed income, Annual Business Survey
Illegal activities (Industries CF, G and S)	ONS mid-year population estimates
All other industries	Sole-traders' profits, Her Majesty's Revenue and Customs self-assessment

Source: Office for National Statistics

Gross trading profit and surplus

Gross trading profit is the operating profit of private market entities other than sole traders. It is gross (that is, with no deduction) of capital consumption. Gross trading surplus refers to the same concept for public market entities, as in principle they do not make a profit.

The sub-categories of gross trading profits and surplus recognised in regional accounts are based on institutional sectors for which separate regional data are available.

Gross trading surplus

This is the trading surplus earned by public bodies (local authorities (LA), central government (CG), public corporations (PC) and non-profit institutions serving households (NPISH)). In this context, the term “surplus” is used instead of “profit” and can relate to market and non-market public bodies.

Non-market bodies in local and central government do not generate a profit or surplus but do consume capital, and this needs to be reflected in the accounts. Gross trading surplus (GTS) for non-market providers (CG and LA) is equal to non-market capital consumption, so net operating surplus for CG and LA are, by definition, zero.

GTS of public corporations that are market providers (for example Post Office Ltd, which is a state-owned limited company) is allocated to regions using public sector employment data, finance employment data and data from the Business Register and Employment Survey.

Table 5: Main regional indicators for gross trading surplus

Industry	Regional indicator source
Industry K (Finance)	Employment, Business Register and Employment Survey
All other industries	Public Sector Employment, Business Register and Employment Survey

Source: Office for National Statistics

Gross trading profit of partnerships

This is the profit of registered partnerships. They are known as "quasi-corporations" because, although their partners are self-employed, they are legally considered corporations.

In the context of the national accounts, gross trading profit of partnerships (GTPP) is part of the corporate sector, not the households sector. GTPP is allocated to the regions using self-assessment data from HMRC (profits of partnerships), GOS and MI from Defra and the Labour Force Survey.

Table 6: Main regional indicators for gross trading profit of partnerships

Industry	Regional indicator source
Industry A01 (Agriculture)	Gross operating surplus and mixed income, Department for Environment, Food and Rural Affairs
Industry T (Activities of households)	Labour Force Survey
All other industries	Partnerships profit, Her Majesty's Revenue and Customs self-assessment

Source: Office for National Statistics

Gross trading profit of other corporations

These are registered corporations which are not partnerships.

The national total for corporate profits is allocated to regions using ABS GOS and MI data. The ABS data are used to apportion corporate profits for all industries except agriculture, finance and insurance, public administration, education, health and activities of households. For these industries, the ABS lacks sufficient coverage to provide useful data, so the proportions of CoE are used in the regional apportionment, with the exception of agriculture where GOS and MI data from Defra are used and activities of households where the Labour Force Survey is used.

Gross trading profit of other corporations (GTPOC) from the extraction of offshore oil and gas is calculated as a residual by deducting onshore oil profit, obtained from the Scottish Government’s oil and gas statistics, from the total profit of the oil and gas extraction industry. This is then allocated to Extra-Regio.

Research and development (R&D) activities carried out by businesses, government and educational institutions for their own use (as distinct from such activities carried out by enterprises classified to the R&D industry itself) also appear in GTPOC. For the regional allocation of R&D data the Business Expenditure on Research and Development (BERD) survey is used.

Table 7: Main regional indicators for gross trading profit of other corporations

Industry	Regional indicator source
Industries K (Finance), O (Public admin), P (Education), Q (Health)	Compensation of employees
Industry A01 (Agriculture)	Gross operating surplus and mixed income, Department for Environment, Food and Rural Affairs
Industry T (Activities of households)	Labour Force Survey
All other industries	Gross operating surplus and mixed income, Annual Business Survey
Extra Regio	Offshore oil and gas extraction profit, Oil and Gas Authority
Research and development	Research and development, Business Enterprise Research and Development

Source: Office for National Statistics

Rental income

Rental income of financial corporations

The rental income of financial corporations is regionalised using national non-domestic rates data provided by MHCLG.

Rental income of non-financial corporations

ABS data are used to regionalise manufacturing (section C). Industry sections B and D to T are allocated to regions using the regional allocation of National Non-Domestic Rates for England, Scotland, Wales and Northern Ireland. Estimates for the agriculture industry (section A) are calculated from rent data supplied by Defra.

Cross-border property income relating to the ownership of second homes in the UK owned by foreign nationals is taken account of in this component. For the regional allocation of second homes, data from Council Tax records and the 2001 and 2011 Censuses are used, with gaps in coverage filled by modelling using overall housing stock. Differences in regional house prices are also accounted for in the regional indicator for foreign-owned second homes in the UK.

Rental income of households and non-profit institutions serving households (NPISH)

This includes estimates of household income resulting from the private renting of dwellings. It also includes an imputed value for rental incomes of owner-occupiers to cover the rental value of their properties.

In line with a new method introduced in Blue Book 2016, regional estimates at the NUTS1 level are now calculated using estimates of median property prices by region from the Valuation Office Agency (VOA) and the devolved administrations, the Welsh Government, the Scottish Government and the Department of Finance and Personnel Northern Ireland.

Below the NUTS1 level we continue to use our previous methodology of housing stock multiplied by median house prices to allocate owner-occupied imputed rental to sub-regions, local areas and local authorities.

Rental income of public corporations

The UK National Accounts, The Blue Book: 2018 supplies figures for public corporations rent for certain regions and a total for the rest of the UK. For the latter element, population data are used as an alternative regional indicator.

Table 8: Main regional indicators for rental income

Sector	Regional indicator source
Public corporations	Office for National Statistics The Blue Book (region-specific data) and population data
Financial corporations (FinCos)	National Non-Domestic Rates (Great Britain), Ministry of Housing, Communities and Local Government
Non-financial corporations	Manufacturing sub-sections: Compensation of employees, Annual Business Survey; Industries B and D to T: National Non-Domestic Rates (Great Britain), Ministry of Housing, Communities and Local Government; Agriculture: Rent paid, Department for Environment, Food and Rural Affairs
Households and NPISH	Industry L: Median house prices, Valuation Office Agency and Devolved Administrations and dwelling stock, Ministry of Housing, Communities and Local Government; All other industries: Rent non-financial corporations and financial corporations

Source: Office for National Statistics

Non-market capital consumption

Consumption of fixed capital, or depreciation, is included in the profits of market bodies, in order to generate gross profits (that is, gross of deductions for capital consumption) for inclusion in the final GVA(I) estimates. However, there are a number of non-market bodies in local and central government, as well as in the NPISH sector, which do not generate a profit or surplus but do consume capital, and this needs to be added back into the accounts.

Various industry-specific regional indicators are used to apportion national non-market capital consumption (NMCC), namely:

- forces compensation of employees
- capital expenditure on universities
- hospital beds data
- expenditure on roads by region
- employment numbers
- numbers of civil servants

Government expenditure on weapon systems appears as NMCC.

The regional allocation is done separately for three product categories:

- weapons and ammunition
- ships and boats
- aircraft

All three are allocated according to the regional distribution of armed forces personnel, with ships and aircraft being restricted to only the bases with such equipment.

Research and development (R&D) also appears in this component. Data from the Business Expenditure on Research and Development (BERD) survey are used as the regional indicator.

Table 9: Main regional indicators for non-market capital consumption

Industry	Regional indicator source
Industry O (Public admin)	Expenditure on roads, Ministry of Housing, Communities and Local Government;
	Civil service employment, Office for National Statistics;
	Forces compensation of employees, Office for National Statistics;
	Armed forces weapons, ships and aircraft, Ministry of Defence
Industry P (Education)	Local authority employment in education, Ministry of Housing, Communities and Local Government;
	Expenditure on university premises, Higher Education Statistics Agency
Industry Q (Health)	Number of hospital beds, National Health Service
Industries E (water supply), J (communications), R (arts and recreation), S (other services)	Mid-year population estimates
Research and Development	Research and development, Business Enterprise Research and Development
All other industries	Employment

Source: Office for National Statistics

Holding gains

Holding gains and losses result from changes in the price of assets and liabilities and occur on all kinds of financial and non-financial assets. Holding gains and losses accrue to the owner of assets and liabilities purely as a result of holding the assets or liabilities over the accounting period, without transforming them in any way.

Holding gains are not a part of operating surplus. They are subtracted from profits because revaluations are not considered to be part of productive economic activity, as defined for national accounts purposes.

Holding gains made in the household and NPISH are regionalised using the mixed income proportions. Holding gains for the corporations sector are regionalised using ABS GOS and MI (approximate ABS GVA less compensation of employees). Regional holding gains for the agriculture industry are calculated using data on holding gains supplied by Defra. Industries K, O, P and Q are regionalised using gross trading profits and gross trading surplus proportions.

Table 10: Main regional indicators for holding gains

Industry	Regional indicator source
Industry A01 (Agriculture)	Holding gains, Department for Environment, Food and Rural Affairs
Industry K (Finance)	Gross trading profits, Regional gross value added
Industry O (Public admin), P (Education), Q (Health)	Gross trading surplus, Regional gross value added
All other industries	Annual Business Survey gross operating surplus and mixed income

Source: Office for National Statistics

Other processes used in compilation of regional gross value added (I) estimates

Gross value added (income) Extra-Regio

Extra-Regio relates to the regional GVA(I) from the activities of offshore oil and gas extraction and the activities of UK embassies and forces overseas.

UK Extra-Regio is split between two industries: mining and quarrying (section B) (includes extraction of oil and gas) and public administration and defence (section O) (includes UK military bases and embassies overseas).

Public administration and defence

Compensation of employees for embassies is provided by the annual Civil Service Employment Survey and national accounts total of “Locally-employed staff overseas compensation of employees”.

Total national forces pay is provided by national accounts and the overseas element for Extra-Regio is estimated using the ratio of military employees based overseas to total armed forces personnel. The number of military employees is acquired from the Defence Analytical Services Agency (DASA).

Mining and quarrying – offshore oil and gas extraction

Oil and gas extraction accounts for approximately 90% of the gross value added allocated to Extra-Regio and can be split into CoE and profits (entirely of gross trading profits of corporations). The CoE element is provided by Blue Book tables.

Profits are allocated by subtracting onshore oil profits from the Scottish Government’s oil and gas statistics from supply and use data for total oil and gas extraction.

Commuting effect

Prior to 2014, GVA(I) was published on both a workplace (allocated to where people work) and a residence (allocated to where people live) basis. The difference between the two datasets would constitute a commuting effect. HMRC Pay As You Earn (PAYE) was the main regional indicator dataset for residence-based GVA(I).

In 2014, this data was unavailable therefore the publication of residence-based data was suspended. In the 2014 publication we asked users to provide feedback on the omission of the residence-based data, as conceptually, GVA(I) is a workplace-based economic measure. Only limited feedback was received, so the decision was made to stop the production of residence-based GVA(I).

Annual Survey of Hours and Earnings imputation

Each indicator dataset used in the compilation of regional GVA(I) is subject to a degree of validation prior to being put into the GVA(I) processing system. However, the Annual Survey of Hours and Earnings (ASHE) dataset is unique in that it is subject to a bespoke process to identify data of poor quality based on information such as sample size and coefficient of variation (CV). This information is then applied to generate an imputed alternative value for the data points where the sample and/or CV fail pre-defined quality parameters.

Peer review

A peer review arrangement is undertaken to enhance the quality of the regional GVA(I) estimates. The regional indicator datasets that have the most impact on these estimates are circulated to a network of peer reviewers prior to being used in the compilation process. This can result in some refinement of the datasets via quality adjustments.

The peer reviewers include representatives from the devolved administrations, the ONS London regional statistician, ONS economists, representatives from other government departments and combined authorities. Near-final GVA(B) aggregates are also circulated prior to publication for peer review comment.

There are three main indicator datasets sent for peer review.

Annual Survey of Hours and Earnings (ASHE)

ASHE supplies mean average weekly earnings along with sample size and coefficient of variation (CV) variables. Data are supplied on a SIC 2007 Standard Industrial Classification basis. At NUTS1, datasets are supplied for both male and female on a full-time and part-time employment basis. At NUTS2 and NUTS3 two datasets are supplied; full-time and part-time.

Business Register Employment Survey (BRES)

At NUTS1, NUTS2 and NUTS3, employment datasets are supplied on both a full-time and part-time employment basis.

Annual Business Survey (ABS)

ABS approximate GVA (aGVA) and ABS CoE totals are supplied at NUTS1, NUTS2 and NUTS3 levels. Gross operating surplus and mixed income is then calculated (ABS aGVA minus ABS CoE). The aGVA, CoE and GOS and MI data are subject to peer review.

Publication

Domestic publication

Regional GVA(I) is published on an annual basis in December. Following the launch of regional GVA-balanced estimates in December 2017, the statistical bulletin for GVA(I) is no longer produced but the full datasets continue to be published. Estimates are produced up to year t minus 1 year (where t is the date of publication) at NUTS1, NUTS2 and NUTS3 levels of geography.

The following breakdown of variables is published.

Table 11: List of publication tables in regional gross value added (income).

Publication table	Contents
Table 1	Gross value added (income) at current basic prices (£ million)
Table 2	Gross value added (income) per head of population at current basic prices (£ per head)
Table 3	Gross value added (income) per head indices (UK = 100)
Table 4	Annual growth in total gross value added (income) (%)
Table 5	Annual growth in gross value added (income) per head of population (%)
Table 6	Gross value added (income) by SIC 2007 industry at current basic prices (£ million)
Table 7	Compensation of employees by SIC 2007 industry at current basic prices (£ million)
Table 8	Mixed income by SIC 2007 industry at current basic prices (£ million)
Table 9	Rental income by SIC 2007 industry at current basic prices (£ million)
Table 10	Non-market capital consumption by SIC 2007 industry at current basic prices (£ million)
Table 11	Holding gains by SIC 2007 industry at current basic prices (£ million)
Table 12	Gross trading profits by SIC 2007 industry at current basic prices (£ million)
Table 13	Gross trading surplus by SIC 2007 industry at current basic prices (£ million)
Table 14	Taxes on production by SIC 2007 industry at current basic prices (£ million)
Table 15	Subsidies on production by SIC 2007 industry at current basic prices (£ million)

Source: Office for National Statistics

4 . Regional gross value added (production approach)

Definition

Gross value added (GVA) compiled using the production approach (GVA(P)), is the sum of all output less costs of intermediate inputs, or in national accounts terms, intermediate consumption. GVA(P) is calculated as the total of all goods and services that are produced during the reference period (output), less goods and services used up or transformed in the production process (intermediate consumption).

GVA(P) is valued at basic prices, which reflects the amount received by the producer for a unit of goods or services excluding any taxes on products (for example, Value Added Tax (VAT)) and including any subsidies on products (for example, import subsidies). The price includes only taxes on production (for example, business rates) and excludes any subsidies on production (for example, agricultural land set-aside).

Output

There are two main types of output:

- output produced for the market (mainly by corporations)
- services that are not for market sale (mainly by government and non-profit institutions serving households (NPISH))

Market output is simply the total sales plus changes in inventories (as the amount produced, rather than sold, is what is required for GVA). Non-market output is difficult to value as there is often no meaningful selling price. By convention, it is therefore valued as the sum of the costs of production.

Intermediate consumption

This is defined as all goods and services used up or transformed in a process of production. This includes raw materials, power and fuel, rental on buildings and business services such as advertising, recruitment consultancy and cleaning. It specifically excludes staff costs and capital investment.

Real gross value added

When looking at the economy over time the main focus is often whether more goods and services are actually being produced now than at some time in the past. How far are the changes over time “real” (in national accounts terms, in chained volume measures) and how far are they the result of inflation?

Current prices combine the effects of changes in both prices and quantities and do not allow for different regional price levels or changes in prices over time; they therefore include the effects of inflation. The income approach to calculating GVA (see Section 3) produces only current price estimates, so the effects of price inflation and regional price variation are not removed.

The production approach is conceptually equal to the income approach, but allows deflation of current price estimates, since the production components can be broken down into price and volume indices. The resulting constant price GVA(P) series removes the effects of inflation by deflating the current price values with price indices and can be used to show the “real” change in the quantity or volume of goods.

The balanced estimates (GVA(B)), are produced in current prices and in chained volume measures (“real terms”) showing estimates with and without the effect of price changes.

Regional GVA(P) estimates are calculated at Nomenclature of Units for Territorial Statistics: NUTS1 and NUTS2 levels of geography.

Background

Allsopp review

The project to develop a measure of regional GVA using the production approach was initiated in response to the Review of Economic Statistics for Policymaking by Christopher Allsopp in 2003. One of the recommendations of the review was for the development and publication of regional GVA at constant prices, which involves deflating annual data that are produced at current prices.

Gross value added (production) development project

Early work on the project concerned the development of appropriate methodology and the identification of suitable data sources for GVA(P). This stage of the project culminated in the publication of an article in 2007. The article discussed possible methods (PDF, 237KB) and concluded that the best option would be a hybrid approach involving several data sources and deflation methods, based upon their availability and suitability as measures for each industrial sector of the economy.

The first experimental results were compiled in 2008, but initial results raised some issues of data quality. Subsequent improvements in the Annual Business Survey (ABS) have led to improved data quality in GVA(P).

European System of Accounts

More recently there has been renewed interest in the GVA(P) project due to the development of the new European System of Accounts 2010 (ESA 2010), which came into force in 2014. This includes the legal requirement for European Union member states to provide real measures of annual regional GVA growth to Eurostat by 2017. Such measures are provided by the use of current price (CP) and constant price (KP) GVA(P) and their subsequent processing into a chained volume measure.

Data sources and concepts

Methodology

Numerous data sources are used in the calculation of regional GVA(P). These comprise both survey and administrative data, which conform as far as possible to those recommended in the Manual on regional accounts methods produced by Eurostat, which sets out the most appropriate methods for compiling regional accounts.

National controls

GVA(P) is compiled using a “top-down” approach whereby the national aggregate for each component is allocated to regions using the most appropriate regional indicator available. The national total is allocated to the NUTS1 regions and then to the NUTS2 sub-regions.

National accounts supply and use tables (SUT) provide national totals of output and intermediate consumption for each of the 112 industry components, corresponding to the industry groups used in the national accounts SUTs. The SUTs also provide national totals for sole traders and for the public sector components of specific industries.

The UK totals are consistent with the most recent UK National Accounts, The Blue Book Compendiums. A consequence of this methodology is that CP regional industry GVA(P) totals will always match the latest national totals for each industry. At regional level GVA(P) and gross value added compiled using the income approach (GVA(I)) estimates may differ, due to the different methods and data used to compile them.

Regional indicators

Regional output and intermediate consumption data from the ABS are used to calculate regional proportions for output and intermediate consumption (at 112 industry) and to allocate the output and intermediate consumption UK totals for the majority of industries.

The resulting regionalised output and intermediate consumption by industry is used to derive current price regional GVA(P) estimates for each industry (as regional output less regional intermediate consumption). For other industries, we use a variety of sources as described in Table 12.

Deflators

National deflators

KP GVA(P) estimates are derived by deflating the CP estimates for each of the 112 industries (except industry 68.2IMP imputed rent, see the following imputed rent sub-section) using national deflators (obtained from the UK gross domestic product (GDP) (output) system). These are the same deflators that are used to produce national accounts chained volume measure price estimates of quarterly GDP.

National deflators are used because no regional price indices are currently available, with the exception of imputed rent. The Eurostat Manual on regional accounts methods (PDF, 1.26MB) recommends that in the absence of regional prices, the use of national deflators is acceptable provided that deflation occurs at a minimum level of 32 industries. The availability of a greater level of industrial detail for the UK Regional Accounts allows the deflation to take account of regional variation in industrial composition and hence the composition of products and services produced in each region.

Imputed rent

In autumn 2017, following a review of the method for deflating regional estimates of imputed rent, we implemented a new set of experimental prices indices called the Index of Private Housing Rental Prices (IPHRP), which are currently available for the countries and regions of the UK.

However, there were some obstacles that we needed to overcome.

The published price indices do not go back as far as the time series we wish to deflate (2005 as opposed to 1998), so some additional work was needed to provide a longer time series of prices. These issues have been addressed by using private rental data collected for the Consumer Prices Index (CPI) and Retail Prices Index (RPI) in the past. Although the quality of these early data is lower than for more recent years, this has allowed us to complete our coverage of all regions in all years. We now have what we judge to be sufficiently good-quality regional deflators for imputed rental or rent.

Double deflation

Ideally output and intermediate consumption should be deflated separately, using prices relating to outputs and inputs respectively (known as “double deflation”). However, there are currently no suitable input price indices available for use in deflating intermediate consumption. For this reason, the regional accounts GVA(P) process applies single deflation of current price GVA. However, the production system has been designed to accommodate double deflation should suitable deflators become available in the future.

Industrial coverage

Processing at 112 industries

The regional GVA(P) estimates are produced in both current price (CP) and constant price (KP) for 112 industries (see Table 12). CP GVA(P) estimates are initially produced, taking national totals for output and intermediate consumption and apportioning them to regions using the best available regional indicators. Regional current price GVA (output less intermediate consumption) is then calculated for each of the 112 industries.

The resulting CP GVA(P) for each industry is then deflated using the national industry output deflator, with the exception of imputed rent, to derive KP estimates for each of the 112 industries.

The KP estimates are then constrained to sum to the national total in KP for each industry, to account for the differences between national output and GVA growth. Constraining in this way ensures that the regional real GVA (P) measures at the all-industry level show growth consistent with the corresponding national data. These estimates are suitable for comparison between regions and within the UK as a whole.

Published chained volume measures

Chained volume measures (CVM) are the standard national accounts method of measuring gross domestic product (GDP) and GVA in real terms (excluding price effects). They are more responsive to major structural changes in the economy, which is important when industry and product mixes are changing more rapidly than in the past. CVMs are updated to a new base year annually, providing a more accurate picture of change in the economy than previous constant price time series, which are rebased every five years.

The CP regional GVA(P) series (produced at 112 industries) and the corresponding constant price time series need to be aggregated to the level of industrial breakdown required for publication. However, the use of different national deflators for each industry puts each industry on a different footing, so a direct aggregation from 112 industries to the 20 industries (plus 13 sub-sections) breakdown currently published would be inappropriate. Chain-linking allows aggregation to the required industrial breakdown to be carried out as part of the “unchain” stage of the process to derive CVM.

Unchain

Unchaining derives two time series based on the CP and KP estimates. The first is the current year prices (CYP) series, which is equivalent to the current price series. The second is the previous year prices (PYP) series.

For years prior to a selected chain-linking base year, the PYP for year “t” (the year being processed) is derived by dividing the constant price value for year “t” by the constant price value for the preceding year (t minus 1 year) and multiplying the result by the current price value for year “t”.

For years later than the base year, the PYP (t) is derived by dividing the constant price value for year (t) by the constant price value for the base year and multiplying the result by the current price value for the base year. Both the CYP and PYP are, for each year, on the same footing and can be aggregated to the desired industrial groupings of 20 industries (plus 13 manufacturing sub-sections).

Chain

The resulting 20 industries (plus 13 manufacturing sub-sections) CYP and PYP series can then be chained, using scaling factors calculated for each year, to derive a regional GVA(P) time series of CVM.

The annual scaling factor (SF) is an annual weighting based on two adjacent year prices (CYP and PYP) to produce a smooth time series. The SF is derived by initialising the value for the selected base year to one. The SF for later years is also set to one. For earlier years, working back from the base year, the SF value for each year is derived by dividing the CYP value for the following year by the PYP for the following year and multiplying the result by the SF value for the following year:

that is, for years before base year: $SF_{(t-1)} = SF_{(t)} * (CYP_{(t)} / PYP_{(t)})$

The CVM series is then calculated. Up to the base year the CVM for each year is derived as the CYP value multiplied by the SF value for that year.

For the base year and later years, the CVM is calculated in the same way but as the SF for these years is set to one, the result is the same as the CYP values.

This is then indexed to a selected base year (base year equals 100). The indexing base year should not be confused with the chaining base year, although in practice they are usually the same year.

Regionalising output and intermediate consumption

Industries covered by the Annual Business Survey

The principal data source for regionalising GVA(P) is the ONS Annual Business Survey (ABS). The ABS estimates represent approximately two-thirds of the UK economy, covering:

- agriculture (part)
- forestry and fishing
- production
- construction
- motor trades
- wholesale
- retail
- catering and accommodation
- property
- service trades

The ABS coverage of the economy excludes:

- the public sector
- financial sector activity (banking, finance and insurance auxiliaries, pension funding)
- households with employees

The ABS provides data for approximate GVA (aGVA) and total purchases (intermediate consumption) at both NUTS1 and NUTS2 levels. These data are then used to derive regional output (calculated as aGVA plus intermediate consumption). The reason for this approach is to facilitate a future change to accommodate the separate deflation of output and intermediate consumption should suitable input price indices become available.

The resulting output and intermediate consumption (at NUTS1 and NUTS2), derived from the ABS data, are then used to apportion the national totals for output and intermediate consumption to the regions and sub-regions. Regional GVA(P) is then calculated as regionalised output minus regionalised intermediate consumption.

Regionalising data for industries not fully covered by the Annual Business Survey sample

Agriculture

Regional data for agricultural activity (Standard Industrial Classification: SIC 01) are provided by the Department for Environment, Food and Rural Affairs (Defra). These are used instead of data from the ABS due to the higher quality of the Defra data.

Banking, finance, insurance auxiliaries and pension funding

This covers three SIC 2007 divisions: 64 (financial intermediation), 65 (insurance and pension funding) and 66 (activities auxiliary to finance and insurance).

Regional estimates of financial intermediation services indirectly measured (FISIM) and bank and building society fees and commission income are used to regionalise 64.1 (monetary intermediation) at NUTS1 level from the Bank of England (BoE).

For the other financial industries, divisions 64.1 (monetary intermediation) for NUTS2 only and 64.2 to 9 (other financial institutions (OFI)), 65 (insurance and pension funding) and 66 (activities auxiliary to finance and insurance) are using ASHE data multiplied by Business Register and Employment Survey (BRES) data to regionalise at NUTS1 and NUTS2 levels.

A project to develop administrative Value Added Tax (VAT) turnover data from HM Revenue and Customs (HMRC) for use in national and regional output measures is in progress and should provide good quality estimates for the auxiliary activities.

A review of the measurement of the finance and insurance industries investigated better methods for the regionalisation of the financial and insurance services industry. Further improvements to the measurement of the finance industries have been introduced in December 2018 as detailed previously.

Public sector

For industries with a significant public sector element the regional number of public sector employees is multiplied by the regional average earnings for public sector workers in that industry, to provide a measure of non-market output. This is used to allocate public sector GVA to regions.

The earnings data are obtained from the Annual Survey of Hours and Earnings (ASHE), while the public sector employee numbers are obtained from BRES, except for Northern Ireland, where Census of Employment data provided by the Northern Ireland Statistics and Research Agency (NISRA) are used.

GVA(I) estimates of public administration and defence (SIC 84), which encompass embassy staff and armed forces, are subtracted from the GVA(P) public sector totals. This element is then added to the GVA(P) for Extra-Regio.

Sole traders

The ABS sample does not provide very good coverage of sole traders and other very small companies, particularly those operating below the VAT registration threshold. For industries with a significant number of sole traders, regional profits data provided by HMRC are used instead.

These data provide an alternative measure, used to allocate the national total of gross operating surplus for sole traders. In order to avoid double counting, this replaces ABS data for sole traders that are removed from the national output total prior to allocation to regions.

Extra-Regio

SUT national data for output and intermediate consumption are used to calculate GVA for SIC 06 (extraction of oil and gas). We use onshore and offshore output and intermediate consumption data from the Scottish Government' s oil and gas statistics to remove the onshore element for SIC 06 with the residual offshore element allocated to Extra-Regio.

The national controls are adjusted to avoid double-counting. The activities of embassies in foreign countries, and UK armed forces and support personnel posted overseas within the public administration and defence industry are also allocated to Extra-Regio.

The onshore element is regionalised using onshore production volume data from the Department for Business, Energy and Industrial Strategy (BEIS).

Activities of households as employers of domestic personnel

As with GVA(I), SIC 97 (activities of household as employers of domestic personnel) is difficult to regionalise as it is not captured by the Inter-Departmental Business Register (IDBR) and therefore is not available from the ONS business surveys. As such, it is regionalised using estimates of the workforce in this industry from the Labour Force Survey (LFS).

Owner-occupied imputed rental

Owner-occupied imputed rental (OOIR) is a national accounts concept that represents the value added to the economy by people living in their own houses, instead of renting accommodation. In effect, owner-occupiers are assumed to be paying rent to themselves.

In line with a new method introduced in Blue Book 2016, regional estimates at the NUTS1 level are now calculated using estimates of median property prices by region from the ONS and the devolved administrations: the Welsh Government, the Scottish Government and the Department of Finance and Personnel Northern Ireland.

Below the NUTS1 level we continue to use our previous methodology of housing stock multiplied by median house prices to allocate owner-occupied imputed rental to sub-regions, local areas and local authorities.

Tobacco

ABS regional turnover data are preferred as a proxy to regionalise tobacco industry activity (SIC 12) as the ABS regional GVA and intermediate consumption data for this industry are considered less reliable.

Cross-border property income

Cross-border property income relating to second homes owned by UK residents but located in other countries, is also taken account of in GVA(P), affecting industry 68.2IMP (imputed rent).

For the regional allocation of second homes, data from Council Tax records and the 2001 and 2011 Censuses are used, with gaps in coverage filled by modelling using overall housing stock. Differences in regional house prices are also accounted for in the regional indicator for foreign-owned second homes in the UK.

Research and development

Research and development (R&D) relates to those activities carried out by businesses, government and educational institutions for their own use (as distinct from such activities carried out by enterprises classified to the R&D industry itself). The activity, formerly counted as part of intermediate consumption, is now counted as capital formation as a result of the move to the European System of Accounts (2010).

For the regional allocation of R&D we use data from the Business Expenditure on Research and Development (BERD) Survey and its subsidiary surveys for government and higher education R&D (GovERD and HERD).

Illegal activities

Illegal activities relating to drugs and prostitution are accounted for in the national estimates of GVA(P). The UK total figure for drugs is assigned to regions according to the adult population in each area, while the UK total for prostitution is assigned to regions according to the adult male population in each area.

It is not possible to draw any conclusions about areas of the UK that have higher or lower than average use of illegal drugs or prostitution services from these regional GVA estimates.

Activities of membership organisations

Activities of membership organisations for NPISH are regionalised using BRES.

Table 12: Gross value added (production) – regional indicator datasets

SIC 2007 section or subsection	Industry title	SUT[1] groups	Regional indicator source(s)
A	Agriculture, forestry and fishing	1 - 3	Output and intermediate consumption from Annual Business Survey; Agriculture data from Department for Environment, Food and Rural Affairs; Research and development from Business Expenditure on Research and Development
B	Mining and quarrying	5 - 9	Output and intermediate consumption from Annual Business Survey; Research and development from Business Expenditure on Research and Development
C	Manufacturing	10.1 - 33 other	Output and intermediate consumption from Annual Business Survey; Annual Business Survey turnover for the tobacco industry; Research and development from Business Expenditure on Research and Development
CA	Manufacture of food products, beverages and products	10.1 - 12	Output and intermediate consumption from Annual Business Survey; Annual Business Survey turnover for the tobacco industry; Research and development from Business Expenditure on Research and Development
CB	Manufacture of textiles, wearing apparel and leather	13 - 15	Output and intermediate consumption from Annual Business Survey; Research and development from Business Expenditure on Research and Development
CC	Manufacture of wood and paper products, and printing	16 - 18	Output and intermediate consumption from Annual Business Survey; Research and development from Business Expenditure on Research and Development
CD	Manufacture of coke and refined petroleum products	19	Output and intermediate consumption from Annual Business Survey; Research and development from Business Expenditure on Research and Development
CE	Manufacture of chemicals and chemical products	20.3 - 20C	Output and intermediate consumption from Annual Business Survey; Research and development from Business Expenditure on Research and Development
CF	Manufacture of basic pharmaceuticals products and pharmaceutical preparations	21	Output and intermediate consumption from Annual Business Survey; Research and development from Business Expenditure on Research and Development Adult population from Office for National Statistics
CG			Output and intermediate consumption from Annual Business Survey;

	Manufacture of rubber and plastic products, and other non-metallic mineral products	22 - 23 other	Research and development from Business Expenditure on Research and Development
CH	Manufacture of basic metals and fabricated metal products except machinery and equipment	24.1-3 - 25 other	Output and intermediate consumption from Annual Business Survey; Research and development from Business Expenditure on Research and Development
CI	Manufacture of computer, electronic and optical products	26	Output and intermediate consumption from Annual Business Survey; Research and development from Business Expenditure on Research and Development
CJ	Manufacture of electrical equipment	27	Output and intermediate consumption from Annual Business Survey; Research and development from Business Expenditure on Research and Development
CK	Manufacture of machinery and equipment not elsewhere classified	28	Output and intermediate consumption from Annual Business Survey; Research and development from Business Expenditure on Research and Development
CL	Manufacture of transport equipment	29 – 30 other	Output and intermediate consumption from Annual Business Survey; Research and development from Business Expenditure on Research and Development
CM	Manufacture of furniture; other manufacturing; repair and installation of machinery and equipment	31 – 33 other	Output and intermediate consumption from Annual Business Survey; Research and development from Business Expenditure on Research and Development
D	Electricity, gas, steam and air conditioning supply	35.1 – 35.2-3	Output and intermediate consumption from Annual Business Survey; Research and development from Business Expenditure on Research and Development
E	Water supply; sewerage, waste management and remediation	36 - 39	Output and intermediate consumption from Annual Business Survey; Public sector employment from Business Register and Employment Survey; Public sector earnings from Annual Survey of Hours and Earnings; Research and development from Business Expenditure on Research and Development
F	Construction	41 - 43	Output and intermediate consumption from Annual Business Survey; Sole-traders data from Her Majesty’s Revenue and Customs; Research and development from Business Expenditure on Research and Development
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	45 - 47	Output and intermediate consumption from Annual Business Survey; Research and development from Business Expenditure on Research and Development

			Adult population from Office for National Statistics
H	Transportation and storage	49.1-2 - 53	Output and intermediate consumption from Annual Business Survey; Sole-traders data from Her Majesty's Revenue and Customs; Research and development from Business Expenditure on Research and Development
I	Accommodation and food service activities	55 - 56	Output and intermediate consumption from Annual Business Survey; Public sector employment from Business Register and Employment Survey; Public sector earnings from Annual Survey of Hours and Earnings; Sole-traders data from Her Majesty's Revenue and Customs; Research and development from Business Expenditure on Research and Development
J	Information and communication	58 - 63	Output and intermediate consumption from Annual Business Survey; Public sector employment from Business Register and Employment Survey; Public sector earnings from Annual Survey of Hours and Earnings; Sole-traders data from Her Majesty's Revenue and Customs; Research and development from Business Expenditure on Research and Development
K	Financial and insurance activities	64 - 66	Bank and building society fees and commission income, and financial intermediation services indirectly measured (FISIM) from the Bank of England; Finance and insurance employee figures from Business Register and Employment Survey; Earnings data from Annual Survey of Hours and Earnings; Research and development from Business Expenditure on Research and Development
L	Real estate activities	68.1-2 – 68.3	Output and intermediate consumption from Annual Business Survey; Dwelling stock from the Devolved Administrations; Median house prices from Office for National Statistics and the Devolved Administrations; Research and development from Business Expenditure on Research and Development
M	Professional, scientific and technical activities	69.1 - 75	Output and intermediate consumption from Annual Business Survey; Public sector employment from Business Register and Employment Survey;

			Public sector earnings from Annual Survey of Hours and Earnings; Sole-traders data from Her Majesty's Revenue and Customs; Research and development from Business Expenditure on Research and Development
N	Administrative and support service activities	77 - 82	Output and intermediate consumption from Annual Business Survey; Public sector employment from Business Register and Employment Survey; Public sector earnings from Annual Survey of Hours and Earnings; Research and development from Business Expenditure on Research and Development
O	Public administration and defence; compulsory social security	84	Public sector earnings from Annual Survey of Hours and Earnings; Public sector employment from Business Register and Employment Survey; Research and development from Business Expenditure on Research and Development for government; Public administration data from gross value added (income)
P	Education	85	Output and intermediate consumption from Annual Business Survey; Public sector employment from Business Register and Employment Survey; Public sector earnings from Annual Survey of Hours and Earnings; Research and development from Business Expenditure on Research and Development for higher education;
Q	Health and social work	86 - 88	Output and intermediate consumption from Annual Business Survey; Public sector employment from Business Register and Employment Survey; Public sector earnings from Annual Survey of Hours and Earnings; Research and development from Business Expenditure on Research and Development
R	Arts, entertainment and recreation	90 - 93	Output and intermediate consumption from Annual Business Survey; Public sector employment from Business Register and Employment Survey; Public sector earnings from Annual Survey of Hours and Earnings; Research and development from Business Expenditure on Research and Development

S	Other service activities	94 - 96	Output and intermediate consumption from Annual Business Survey; Research and development from Business Expenditure on Research and Development Adult male population from Office for National Statisitcs
T	Activities of households as employers and for own use	97	Employment data from Labour Force Survey;

Source: Office for National Statistics

Notes

1. Supply-Use Table (SUT) groups: the 112 industry grouping of Standard Industrial Classification 2007 codes as used in both SUT and gross value added (production). Back to table

Domestic publication

At a domestic level, regional accounts began publishing experimental estimates of CVM and CP GVA(P) in December 2013.

Regional GVA(P) is published on an annual basis in December. Following the launch of regional GVA balanced estimates in December 2017, the statistical bulletin for GVA(I) is no longer produced but the full datasets continue to be published. Estimates are produced up to year t minus 1 year (where t is the date of publication) at NUTS1, NUTS2 and NUTS3 levels of geography. In December 2018, the GVA(P) estimates gained National Statistics accreditation.

The breakdown of variables is published in Table 13.

Table 13: List of publication tables in regional gross value added (production)

Publication table	Contents
Table 1	Constrained index of real gross value added (production approach) by SIC 2007 industry (chained volume measure)
Table 2	Gross value added (production approach) by SIC 2007 industry in current basic prices
Table 3	Regional GVA(P) implied deflators

Source: Office for National Statistics

5 . Regional gross value added (balanced)

Definition

Gross value added (GVA) balanced takes the strengths from both the income and production approaches (Sections 3 and 4) and uses them to produce a new balanced measure of regional GVA, GVA(B). This gives users a single measure of economic activity within a region, therefore avoiding any confusion from having two different estimates of the same thing.

Methodology

Gross value added balanced (GVA(B)) uses gross value added income (GVA(I)) and gross value added production (GVA(P)) as inputs, along with quality information that supports the choice of which approach is stronger in GVA(B).

Data are balanced at the lowest (that is, the most detailed) level where both the income and production approaches have the same structure: at Nomenclature of Units for Territorial Statistics: NUTS2 level with a 33 industry breakdown. Once balanced, data are then produced to align to the publication structures of the original sources (see publication section following).

The process of balancing is carried out in six stages:

1. assign weights to each component of the income and production measures
2. assign quality metrics to each component in each region
3. multiply quality by weight and aggregate to a single quality metric for each measure
4. use these two quality metrics to derive a single weighted estimate for each region
5. apply any necessary manual intervention to address anomalous results
6. feed the balanced estimates back into the detailed industry and component breakdown

Assign weights to components

To calculate the income approach to gross value added (GVA), we sum the following components of income (see Section 3):

- compensation of employees
- mixed income
- rent
- gross trading profits and surplus
- non-market capital consumption
- holding gains
- taxes less subsidies on production

In the production approach (see Section 4), GVA is calculated as total output of goods and services less intermediate consumption.

In addition, in both approaches there are industries and sectors where data are isolated and treated differently. All these components need to be weighted to determine their relevant contribution to the balanced measure.

We calculate the weights of each of these components at a UK level, from data published each year in the Blue Book dataset. Table 14 shows the high-level weights by data source taken from Blue Book 2016.

Table 14: High-level weights by data source from Blue Book 2016

Component	Annual Business Survey	Annual Survey of Hours and Earnings	Business Register and Employment Survey	Other
GVA (income approach)				
Compensation of employees	6.6	23.4	23.4	1.5
Gross trading profits	14.5	0	0	8.4
Rental income	0	0	0	12.3
Mixed income	0.2	0	0	4.7
Non-market capital consumption	0	0	0	2.2
Taxes on production	0	0	0	1.8
Holding gains	0.3	0	0	0.1
Gross trading surplus	0.1	0	0.2	0.01
Subsidies on production	0	0	0	0.3
Total (all income components)	21.7	23.4	23.6	31.3
GVA (production approach)				
Output - intermediate consumption	70.8	0	12.7	16.5

Source: Office for National Statistics

Assign quality metrics to components and regions

Having worked out how important a component is, we now need to know how good it is. This is determined by the data used to allocate the UK totals to the regions.

The majority of these components use data from three main Office for National Statistics (ONS) datasets:

- the Annual Business Survey (ABS)
- the Annual Survey of Hours and Earnings (ASHE)
- the Business Register and Employment Survey (BRES)

For each of these surveys, we can calculate the coefficient of variation (cv). The cv is defined as the ratio of the standard deviation to the mean, that is, how much the results are likely to vary depending on which companies happen to have been included in the sample, and it provides a measure of the general reliability of the survey results. The smaller the cv, the more stable and reliable the estimate.

We then convert these cvs to a quality scale that is presented as a proportion with values from 0 to 1, where 1 is the highest quality possible and 0 is effectively worthless. The conversion is based on the view that any result with a cv of 50 or higher is too volatile to be trustworthy. We have used the following conversion:

Quality metric equals (100 minus (cv multiplied by 2)) divided by 100 with a minimum value of 0

For those components that use regional data other than survey data, we are unable to calculate cvs and must use a different method to allocate a quality measure. Guidance provided in the European manual on regional accounts methods (2013) describes an ABC rating system to judge the conceptual quality of dataset, where A represents the ideal dataset, B is an acceptable alternative and C is a generally inferior or poor quality dataset.

To align these ABC ratings to our quality scale, we allocate each the mid-point of the cv range where a cv of less than 10 indicates good quality, a cv between 10 and 20 represents medium quality and a cv between 20 and 50 represents low quality. Therefore:

A = band from 1 to 0.8 = 0.9

B = band from 0.8 to 0.6 = 0.7

C = band from 0.6 to 0 = 0.3

Aggregate quality weights

Now that we have a weight for each component showing how much they contribute to the overall GVA estimate and a quality metric for each component showing how reliable they are, we can combine these into a single weighted quality metric for each of the two approaches:

GVA income quality = sum for all income components (weight multiplied by quality metric)

GVA production quality = sum for all production components (weight multiplied by quality metric)

This process of deriving twinned quality measures is carried out for each region, by industry and by year, resulting in a matrix of paired quality metrics.

Balancing

The twinned quality measures provide a simple way to show the relative quality of the two GVA measures and are used to calculate a weighted arithmetic mean of the income and production approach GVA estimates.

Quality assurance

As described in Sections 3 and 4, the resulting estimates then undergo a rigorous quality assurance process using our network of internal and external peer reviewers. Manual adjustments can be made where the automated process produces results that conflict with perceived economic reality.

Produce additional detail

Once estimates of GVA are balanced at NUTS2 and 33 industries, we then produce balanced data to align to the publication structures of the original two approaches.

Data are produced for each of the components of the income approach at NUTS1 and NUTS2 levels with a 33 industry breakdown. Estimates from the production approach allow us to produce balanced GVA with an 81 industry breakdown at NUTS1 and a 72 industry breakdown at NUTS2, which are then deflated to produce chained volume measures as described in Section 4 of this guide.

Domestic publication

Regional gross value added (GVA(B)) is published on an annual basis in December. Estimates are produced up to the year t minus 1 year (where t is the date of publication) at NUTS1, NUTS2 and NUTS3 levels of geography and for local authorities, combined authorities and other economic regions.

The following breakdown of variables are published as shown in Tables 15 and 16.

Table 15: List of publication tables in the nominal and real gross value added (balanced) by industry dataset

Publication table	Contents
Table 1a	NUTS1 and UK chained volume measures
Table 1b	NUTS1 and UK chained volume measures pounds millions
Table 1c	NUTS1 and UK current price estimates
Table 1d	NUTS1 and UK implied deflators
Table 2a	NUTS2 chained volume measures
Table 2b	NUTS2 chained volume measures pounds millions
Table 2c	NUTS2 current price measures
Table 2d	NUTS2 implied deflators
Table 3a	NUTS3 chained volume measures
Table 3b	NUTS3 chained volume measures pounds millions
Table 3c	NUTS3 current price measures
Table 3d	NUTS3 implied deflators

Source: Office for National Statistics

Table 16: List of publication tables in the regional gross value added (balanced) per head and income components dataset
Nominal regional gross value added (balanced) per head and income component

Publication table	Contents
Table 1	Gross value added (B) at current basic prices (£ million)
Table 2	Gross value added (B) per head of population at current basic prices (£ per head)
Table 3	Gross value added (B) per head indices (UK = 100)
Table 4	Growth in total gross value added (B)
Table 5	Growth in gross value added (B) per head of population
Table 6	Gross value added (B) by SIC 2007 industry at current basic prices (£ million)
Table 7	Compensation of employees by SIC 2007 industry at current basic prices (£ million)
Table 8	Mixed income by SIC 2007 industry at current basic prices (£ million)
Table 9	Rental income by SIC 2007 industry at current basic prices (£ million)
Table 10	Non-market capital consumption by SIC 2007 industry at current basic prices (£ million)
Table 11	Holding gains by SIC 2007 industry at current basic prices (£ million)
Table 12	Gross trading profits by SIC 2007 industry at current basic prices (£ million)
Table 13	Gross trading surplus by SIC 2007 industry at current basic prices (£ million)
Table 14	Taxes on production by SIC 2007 industry at current basic prices (£ million)
Table 15	Subsidies on production by SIC 2007 industry at current basic prices (£ million)
Table 16	Statistical discrepancy between income components and balanced GVA totals
Table 17	Population

Source: Office for National Statistics

In addition to these tables, there are further disaggregates of data published at the local authority, combined authority and local enterprise partnership levels.

European Union requirements for the regional gross value added (GVA(B)) estimates

The production of regional gross value added (GVA) is a legal requirement under European Commission (EC) legislation. The methods and data used are consistent with the guidance set out in the European System of Accounts (ESA). The sub-regional (NUTS2) estimates are used to inform European Union structural funding decisions.

The 28 EU member states (EU-28) provide regional GVA and population estimates to Eurostat in an annual data transmission. Eurostat converts these GVA estimates into gross domestic product (GDP) per inhabitant using UK national estimates of taxes on products. These estimates are then converted initially into euros and then into an artificial common currency called the purchasing power standard (PPS), to facilitate comparison of member states with different national currencies and costs of living.

The resulting GDP per inhabitant estimates (expressed in terms of PPS) provide a measure of the total economic activity in a region and may be used to monitor and compare the economic development of regions over time.

The purpose of EU structural funding is to redress regional imbalances. The EU cohesion policy for 2014 to 2020 makes available up to 325 billion euros to invest in Europe's regions, cities and the real economy. It is the EU's principal investment tool for delivering the Europe 2020 goals: creating growth and jobs, tackling climate change and energy dependence, and reducing poverty and social exclusion.

Under this arrangement, regions at NUTS2 level are defined in order to allocate EU funding as follows:

- less developed regions – GDP less than 75% of EU-28 average GDP (expressed in PPS per inhabitant)
- transition regions – GDP 75% to 90% of EU-28 average GDP (expressed in PPS per inhabitant)
- more developed regions – GDP greater than 90% of EU-28 average GDP (expressed in PPS per inhabitant)

The funding is based on a three-year average and for the 2014 to 2020 funding round this was calculated on the basis of the data for 2007 to 2009. However, for the first time there was a mid-term review in spring 2016. More detail can be found in the 2014 to 2020 Cohesion Policy.

In previous years, the UK has transmitted regional GVA(I) estimates to fulfil this legal requirement, however, since the development of the GVA(B) estimates the UK has provided these from December 2017. The UK is committed to the annual transmission of regional GVA(B) estimates:

- on a workplace basis
- at current basic prices for t minus 1 year (t being the current year)
- by A20 industry group at the NUTS2 level and by A10 industry (plus manufacturing separately) for NUTS3 regions
- compensation of employees by A20 industry

The provision of real measures (that is, making allowance for the effect of inflation) of annual regional GVA growth is a legal requirement under EC legislation. The methods and data used are consistent with the guidance set out in the European System of Accounts.

We have supplied estimates of UK regional CVM GVA(P) estimates to Eurostat in accordance with EC legislation since December 2013, ahead of the December 2017 deadline. Since the publication of regional GVA balanced (GVA(B)) estimates in December 2017, we only supply the GVA(B) estimates to Eurostat.

Regional GVA(B) estimates inform funding decisions taken by the European Union.

6 . Regional gross disposable household income

Definition

Gross disposable household income (GDHI) is the amount of money that individuals in the households sector have available for spending or saving. This is money left over after expenditure associated with income, for example, taxes and social contributions, property ownership and provision for future pension income. It is calculated gross of any deductions for capital consumption, which is the decline in value of fixed assets due to normal physical deterioration and obsolescence. In the households sector, this relates to normal “wear and tear” on houses and other buildings.

The households sector comprises all individuals in an economy, that is, people living in traditional households as well as those living in institutions such as retirement homes and prisons. It should be noted that regional GDHI relates to all individuals within the households sector for a region and not to an actual average household or family unit. GDHI per head estimates give values for each person, not each household. The whole population is used in the per head estimates to allow comparisons at an international level.

The households sector also includes sole trader enterprises (the self-employed). In line with UK National Accounts: The Blue Book: 2017, the households and non-profit institutions serving households (NPISH) have split into separate sectors where previously they were combined into one. Due to this split, the GDHI data no longer includes NPISH. Examples of the NPISH include charities and universities supplying products and services to the households sector. NPISH institutions receive their principal resources from voluntary contributions from households as well as payments made by the government.

Regional GDHI estimates are produced in current prices (which include the effects of inflation). Constant price estimates of regional GDHI cannot be produced due to the lack of appropriate regional deflators.

Background

The Nomenclature of Units for Territorial Statistics: NUTS1, NUTS2 and NUTS3 regional GDHI series in their current format start in 1997.

The production of regional disposable household income is a legal requirement under European Commission legislation and the methods and data used are consistent with the guidance set out in the European System of Accounts 2010 (ESA 2010). Estimates and components are supplied annually to Eurostat (the statistical body of the European Commission) at the NUTS2 level. These data are not directly used to inform funding decisions but may support arguments in the debate about the relative welfare of regions across the UK and the EU area.

Data sources and concepts

Methodology

The concepts used in the calculation of regional GDHI are consistent with those used in the UK National Accounts. In national accounts terms, there is a set of household accounts. GDHI is the resulting balance from two of the household accounts: the distribution of primary income account and the secondary distribution of income account. The components of these two accounts can be referred to as resources (incomings) and uses (outgoings) of the households sector. Regional GDHI estimates are compiled from the national incoming and outgoing components of these two accounts.

A “top-down” approach is used for the production of regional GDHI estimates, whereby the national aggregate, consistent with the UK National Accounts, The Blue Book, is allocated to regions using a regional indicator dataset.

Regional estimates are produced mainly at NUTS3 level and aggregated up to obtain NUTS2- and NUTS1-level estimates. These estimates are compiled on a residence basis, that is, incomes of individuals are allocated to the region in which they live.

Numerous regional indicator datasets are used in the production of regional GDHI to estimate the distribution of income across the UK. These comprise both survey and administrative data, which conform as far as possible to those recommended in the Manual on regional accounts methods produced by Eurostat, which sets out the most appropriate methods for compiling regional accounts.

Financial intermediation services indirectly measured

Financial intermediation services indirectly measured (FISIM) reflect the value of financial intermediation services provided, but for which financial institutions do not charge explicitly. Instead these services are paid for as part of the margin between rates applied to savers and borrowers.

FISIM is relevant to the households sector and has a bearing on the regional GDHI estimates. FISIM adjustments are applied in the UK National Accounts, The Blue Book, to calculate the value of national property income (resource and use), which is a component of the allocation of primary income account.

Households sector income

The resources (incomings) of the households sector are classified as either primary or secondary.

Primary resources are received as the result of individuals' participation in the production process, for example, as employees providing labour, self-employment, through the ownership of assets and from the housing services "produced" by "homeowner-occupiers" who rent or own accommodation.

Secondary resources are received as the result of redistribution of income, for example, pensions and benefits. The national accounts concept of household income does not include holding gains or losses due to changes in prices (for example, value of shares or real estate).

The uses (or outgoings) of the households sector are also classified as either primary or secondary. Primary uses consist of property income paid, that is, interest paid on mortgages and other borrowing and rent on land. Secondary uses are mainly non-discretionary payments and include Income Tax and social contributions, for example, National Insurance.

Household disposable income is defined as the sum of the balances of primary and secondary incomes (resources less uses) and represents the amount available to the households sector for spending on consumption or saving.

Allocation of primary income account – components

In the UK National Accounts, the allocation of primary income account for the households sector reflects incomes and outgoings arising as part of the production process or through the ownership of assets required for production. This account comprises primary resources (incomings) and uses (outgoings) and shows the income received by households. Property income (for example, interest and rent on land) appears as both a resource and a use in this account.

The balance of primary income is equal to total primary resources less total primary uses.

Table 17: UK primary income components

Primary resources	Primary uses
Operating surplus and mixed income	Property income paid
Compensation of employees	
Property income received	

Primary resources

Gross operating surplus and mixed income (19.9% of UK primary resources in 2016)

This is the balancing item from the generation of income account, which precedes the allocation of primary income account in the households sector accounts.

Gross operating surplus (11.3% of UK primary resources in 2016) in the households sector accounts relates to the households sector's rental income from buildings, including the imputed rental of owner-occupier dwellings.

Imputed rental values the amount owner-occupiers would have to pay for the service of living in their homes if someone else owned them. In effect, it assumes that owner-occupiers are the producers of housing services, which they consume themselves. It is not related to mortgage repayments.

In line with a new method introduced in Blue Book 2016, the national operating surplus total is regionalised using estimates of rental prices by region from the Valuation Office Agency (VOA) and the devolved administrations: the Welsh Government, the Scottish Government and the Department for Finance and Personnel Northern Ireland. Below the NUTS1 level we continue to use our previous methodology of housing stock multiplied by median house prices to allocate owner-occupied imputed rental to sub-regions, local areas and local authorities.

Mixed income (8.6% of UK primary resources in 2016) mainly comprises income from self-employment and is allocated to regions using data on self-employment income from HM Revenue and Customs (HMRC). These data are consistent with those used to produce mixed income estimates within the regional gross value added income approach (GVA(I)). The remainder of mixed income comprises rental income from private dwellings.

Compensation of employees (CoE) (65.1% of UK primary resources in 2016) comprises the remuneration payable by an employer to an employee, in return for the services of labour. It includes wages and salaries in cash or income in kind (for example, free board and lodging) and the social contributions (actual or imputed) paid by employers for the benefit of their employees (for example, social security). This differs from the CoE component of GVA(I) since it includes wages and salaries paid to UK residents abroad but excludes wages and salaries paid to non-residents in the UK.

Wages and salaries in cash (54.2% of UK primary resources in 2016) include remuneration for regular activity, together with payments for overtime and bonuses, and also various allowances for housing, cost of living and transport to and from work, but exclude "expense payments". They are gross of statutory deductions for Income Tax and employees' social contributions, which are withheld by the employer and paid to the appropriate authorities on behalf of the employee. Annual data from a 1% sample of the Pay As You Earn (PAYE) administered by HMRC are used as the main indicator in the compilation of regional wages and salaries, and employers' social contributions estimates received by UK mainland employees.

Employers' social contributions (11.0% of UK primary resources in 2016) are regarded as a part of employees' remuneration, although not paid to the employee directly. They may be actual or imputed and secure entitlements for the employee to social benefits.

"Actual" refers to situations whereby employers and employees are obliged to make regular contributions to a social security plan that reimburses employees for medical costs, pays out unemployment benefit and provides retirement pensions (for example, National Insurance).

"Imputed" refers to situations whereby certain employers pay social security benefits directly to their employees without going through a social security fund (for example, contributions to unfunded central and local government pension schemes). An estimate is made of the amount the employee would have to pay to receive the social benefits paid to them. As this is so difficult to measure, there is a starting principle that imputed social contributions are equivalent to the benefits actually received.

The contributions provide employees with entitlement to social benefits, for example, for sickness, accident, redundancy and retirement. Although the contributions are paid (actually or notionally), directly to a fund, they are part of compensation of employees. Subsequently, in the secondary distribution account, these amounts are treated as payments by the households sector into the funds, which are in the financial corporations and general government sectors.

Employers' contributions to National Insurance are closely linked to wages and salaries. Estimates are derived using regional PAYE data on the contributions made by employers, from HMRC. Employers' contributions to funds other than National Insurance are compiled mainly using employment data from the Labour Force Survey.

Employers' imputed social contributions represent payments to unfunded schemes. These correspond to benefits paid to employees from employers' own current resources, rather than from a fund to which they would have made contributions. The main examples of such schemes are those operating within central government for civil servants, National Health Service (NHS) employees and the armed forces. The amounts to be imputed should be equal to what would be needed to meet the entitlement were a funded scheme to be used. The national figure is allocated to regions using public sector employment figures.

Property income received (15.0% of UK primary resources in 2016)

Property income received relates to income from the ownership of financial assets and tangible non-produced assets (land and sub-soil assets). It is split into four main components:

- interest
- distributed income of corporations
- property income attributed to insurance policyholders
- rent on land

With the exception of rent on land, the regional indicator data are obtained from HMRC's Survey of Personal Incomes, which produces data on partnership and investment income.

For the Gross disposable household income (GDHI) bulletin published in May 2018, in line with the change in the UK National Accounts, The Blue Book: 2017 to separate the households and non-profit institutions serving households (NPISH) sectors, the opportunity was taken at the national level to make improvements to the collection of the households data, in particular, for dividends. A new data source and method was incorporated to produce an overall dividends estimate for the households sector, which has the impact of much larger estimates than previously published for the property income received component.

Further details are explained in the national accounts article Improving the household, private non-financial corporations and non-profits institutions serving households sectors' non-financial account.

Interest (1.6% of UK primary resources in 2016) comprises interest on financial investments. It covers receipts related to, for example, holdings of British government securities and national savings, as well as bank and building society deposits. National estimates, generally, are based on the levels of interest-bearing assets held by the households sector, and relevant rates of interest.

Distributed income of corporations (6.7% of UK primary resources in 2016) comprises two sub-components, namely share dividends and withdrawals of income from quasi-corporations. The latter reflects income withdrawn from the profits of partnerships for the personal use of the entrepreneur. Quasi-corporations are not corporations in the legal sense (and therefore pay no dividends in the legal sense), but which have similarities with corporations. This item is normally very small because quasi-corporations are fairly rare.

Cross-border property income relating to the ownership of second homes by UK residents that are located in other countries features in this component. For the regional allocation of second homes abroad owned by UK residents, data from Council Tax records and the 2001 and 2011 Censuses are used, with gaps in coverage filled by modelling using overall housing stock.

Property income attributed to insurance policyholders (6.7% of UK primary resources in 2016) treats insurance technical reserves as belonging to the policyholders in the various institutional sectors. The income from investment gains made on insurance and pension funds is not directly accessible by individuals in the households sector, but it does technically “belong” to them (as owners of insurance and pension policies) and is therefore an imputed element of property income.

Compilation of regional estimates for this element of property income takes the difference between life assurance and pensions into account. Income data provided by HMRC are used as the regional indicator for life assurance. However, for pensions only the earnings in the private sector are used to derive regional estimates. This is based on the assumption that public sector employees generally invest in government sector pension schemes (unfunded or notionally funded) rather than funded schemes.

Funded pensions are those whose benefits are met from a fund built up from contributions and investment income and are found mainly in the private sector. Unfunded schemes (mainly public sector employee schemes) are financed by employee contributions and taxation.

Rent on land (0.002% of UK primary resources in 2016) relates to returns from the ownership of land (not buildings) and sub-soil assets and mainly represents receipts of rent from farming land. Agricultural rent data from Defra are used to apportion rent to regions.

Primary uses

Property income paid

Property income paid comprises interest (paid on consumer or housing loans) and rent on land.

Interest (99.9% of UK primary uses in 2016) is paid by households principally in respect of loans for housing mortgages and other lending by banks and other financial intermediaries. As with interest received, estimates of payments are based on the levels of interest-bearing liabilities held by the households sector and the relevant rates of interest. This component is regionalised using owner-occupiers’ imputed rental estimates.

Note that in the context of mortgages and loans, property income (paid) relates only to the interest element. The capital element of a loan or mortgage is covered in the financial account and is not relevant to the calculation of GDHI.

Rent on land (0.1% of UK primary uses in 2016) paid by households relates largely to agricultural land and is regionalised using agricultural rent data from Defra.

Secondary distribution of income account – components

In the UK National Accounts, the secondary distribution of income account reflects money transferred to, or from, households unrelated to a productive activity.

This account includes government redistribution of primary income and traces the various transfers that occur subsequent to the allocation of primary income. These government transfers are mainly aimed at correcting social inequalities. The transfers appearing in this account can also include private initiatives, notably gifts to charities and repatriation of funds by immigrant workers from poorer countries to their families. Other current transfers (for example, non-life insurance claims and premiums) appear as a resource and a use in this account.

The balance of secondary income is equal to total secondary resources less total secondary uses.

Table 18: UK Secondary income components

Secondary resources	Secondary uses
Imputed social contributions	Current taxes on income and wealth
Social benefits other than social transfers in kind	Social contributions to social benefits paid
Other current transfers received	Other current transfers paid

Source: Office for National Statistics

Secondary resources

Imputed social contributions (0.05% of UK secondary resources in 2016) are those paid directly by employers to their current employees and/or former employees, as well as other eligible persons. Payments are made directly to the entitled individuals without involving a social security fund, insurance enterprise, autonomous pension fund or the like. Residence-based employment figures from the Labour Force Survey (LFS) are used as the indicator to apportion the UK total across regions.

Social benefits other than social transfers in kind (90.6% of UK secondary resources in 2016) are divided into four sub-components:

- social security benefits in cash
- privately-funded benefits
- unfunded employee social benefits
- social assistance in cash

Social transfers in kind are not included as they relate to the scenario where households are reimbursed by government or non-profit institutions serving households (NPISH) for approved expenditure on specified goods and services to relieve social risks or needs (for example, reimbursement of medical services).

Social security benefits in cash (25.7% of UK secondary resources in 2016) comprise cash benefits received by households from social security funds. These include:

- National Insurance benefits (state retirement pensions, widows' allowances and incapacity benefit)
- maternity benefits (maternity pay and maternity allowance)
- redundancy fund benefit and social fund benefit (winter fuel payments, community care grants, crisis loans and so on)

Administrative data obtained from the Department for Work and Pensions (DWP), the Northern Ireland Statistics and Research Agency (NISRA) and other government departments are used to apportion UK totals to regions.

Privately-funded benefits (33.6% of UK secondary resources in 2016) are receipts by the households sector from privately-funded and related social insurance schemes. They comprise private pension funds, privately-funded social benefits and employee benefits from employers' liability insurance. The national figure is calculated using data from insurance companies and pension funds. Regional indicator data are provided by private pension income obtained from HMRC's Survey of Personal Incomes (SPI).

Social assistance benefits in cash (31.4% of UK secondary resources in 2016) are provided by government and the NPISH sector to households. They are not made under specific social security schemes and are therefore "non-contributory" benefits.

These include:

- receipts from central government (for example, Child Benefit, war pensions, Tax Credits, Attendance Allowance, Employment Support Allowance, Jobseekers' Allowance, Disability Living Allowance, Personal Independence Payments and Universal Credit)
- local government (for example, rent rebates, rent allowances, student grants)
- receipts from NPISH

Regional indicator data are obtained from the government bodies that administer these benefits, namely DWP, HMRC and the Department of Finance and Personnel in Northern Ireland (DFPNI). For example, DWP data are used to regionalise rent allowances and rebates, Income Support and other benefits. Tax Credits and Child Benefit are administered for the whole of the UK by HMRC, which provides the regional breakdown of these figures. For benefits where no regional breakdown is available, regional population data are used.

Other current transfers (9.3% of UK secondary resources in 2016) are unrequited payments, with nothing received in exchange. In the households sector, this comprises non-life insurance claims and miscellaneous current transfers.

Non-life insurance claims (7.3% of UK secondary resources in 2016) correspond with net non-life insurance premiums on the "uses" side of the allocation of secondary income account. These represent the amounts that insurance companies are obliged to pay in settlement of injuries or damages suffered by persons or goods (for example, property, motor vehicle and medical insurance). Regional estimates are derived using insurance premiums data.

Miscellaneous current transfers (2.1% of UK secondary resources in 2016) consist of a variety of transfers to the households sector from the rest of the world (for example, gifts), NPISH (for example, grants) and central government. ONS mid-year population estimates are used as an indicator to regionalise the national total.

Secondary uses

Current taxes on income and wealth (38.1% of UK secondary uses in 2016) are compulsory, unrequited payments made by the households sector to the government sector and are sub-divided into taxes on income and other current taxes. Inheritance taxes are excluded from these accounts, being regarded as exceptional payments.

Taxes on income (31.4% of UK secondary uses in 2016) include income taxes, as well as taxes on profits and capital gains. In respect of the households sector, the main components are personal income taxes, taxes on unincorporated enterprises, taxes on capital gains and taxes on winnings from gambling and lotteries. Pay As You Earn (PAYE) data from HMRC on income taxes paid are used as an indicator to assign the national total to regions.

Other current taxes (6.7% of UK secondary uses in 2016) include various taxes such as Vehicle Excise Duty, Council Tax and payments by households to obtain certain licences (for example, TV licence). Council Tax makes up the bulk of this category of taxation. National totals are regionalised using data including Ministry of Housing, Communities and Local Government (MHCLG) data on council taxes, numbers of cars per region from the Department for Transport (DfT) and ONS mid-year population data.

Social contributions and social benefits paid (50.9% of UK secondary uses in 2016) made by the households sector are grouped together in the regional GDHI publication. Social benefits paid accounts for approximately 0.03% of the combined total value and relate to benefits paid by some unfunded private schemes.

Social contributions are made by individuals to social insurance schemes to make provision for social benefits (for example, State Pension). The payments (which can be actual or imputed), may be made by employers on behalf of their employees, or by employees, the self-employed and the non-employed, on their own behalf. They may also be compulsory or voluntary.

Employers' actual social contributions (25.3% of UK secondary uses in 2016) are regarded as part of compensation of employees in the allocation of primary income account, where they are a resource of the households sector and consequently these regional figures are the same in both accounts. Employers' actual social contributions are separated into pension and non-pension contributions.

Employers' actual pension contributions (24.5% of UK secondary uses in 2016) are payments made by employers (on behalf of employees) to pension funds including funded pension schemes and notionally funded pension schemes. Notionally funded schemes are subject to periodic valuations as though there was a fund, and contributions are set on the basis of these valuations.

As investment in these schemes can be estimated, notionally funded pension schemes are classed as "actual". The national totals are assigned to regions using employment data from the ONS Labour Force Survey (LFS) and HMRC employers' National Insurance contributions.

Employers' actual non-pension contributions (0.8% of UK secondary uses in 2016) are payments made by employers (on behalf of employees) to social insurance schemes, which in reality comprises only contributions towards National Insurance. HMRC employers' National Insurance contributions are used to assign the national totals to regions.

Employers' imputed social contributions (3.4% of UK secondary uses in 2016) represent a secondary use, as well as a primary resource (compensation of employees) and are treated as being equal to imputed social contributions in primary resources. Employers' imputed social contributions are separated into pension and non-pension contributions.

Employers' imputed pension contributions (2.5% of UK secondary uses in 2016) are imputed payments by employers on behalf of employees to unfunded social benefits schemes such as government unfunded pensions schemes and local government unfunded pension schemes.

Employers' imputed non-pension contributions (0.9% of UK secondary uses in 2016) are imputed contributions by employers on behalf of employees to other unfunded schemes. National totals are assigned to regions using ONS LFS public sector and private sector employees.

Households' actual social contributions (12.8% of UK secondary uses in 2016) are separated into pension and non-pension contributions.

Households' actual pension contributions (12.3% of UK secondary uses in 2016) are those paid by employees, self- and non-employed persons into various pension funds. They include contributions towards unfunded central government pension schemes, unfunded local government pension schemes and funded pension schemes. National totals are regionalised using HMRC data relating to sole traders and employment data from the ONS LFS.

Households' actual non-pension contributions (0.6% of UK secondary uses in 2016) are those paid by employees, self- and non-employed persons to social security or social insurance schemes, for example, contributions towards National Insurance. National totals are assigned to regions using HMRC PAYE data relating to employees' National Insurance contributions and HMRC data on sole traders.

Households' social contribution supplements (12.9% of UK secondary resources in 2016). Under European System of Accounts 95 (ESA 95), households' social contribution supplements were included within households' actual social contributions, however, under European System of Accounts 2010 (ESA 2010) these must be recorded separately. Employment data from the ONS LFS is used to allocate national totals to regions.

Social insurance scheme service charge (negative 3.6% of UK secondary resources in 2016) is a new transaction required under ESA 2010. This has been imputed by national accounts and is equal to the costs associated with running the pension scheme and is paid by households to pension funds. The national totals are allocated to regions using employment data from the ONS LFS.

Other current transfers (11.0% of UK secondary uses in 2016) on the uses side of the allocation of secondary income account are sub-divided into non-life insurance premiums and miscellaneous current transfers.

Non-life insurance premiums (4.9% of UK secondary uses in 2016) are calculated net of service charges for administering the scheme. They relate to policies taken out by households on their own initiative, for their own benefit, independently of their employers or government social insurance schemes. Estimates correspond with net non-life insurance claims on the resources side of the secondary income account.

Non-life insurance premiums are transfers paid mainly to cover property, motor vehicle and health insurance policies. Property insurance premiums are disaggregated into contents and buildings, and regional indicators are obtained using income and dwellings data. These are prorated to household expenditure data on each insurance type from the Living Costs and Food Survey (LCF) before being used to assign the national total of property insurance premiums.

Regional indicators for motor vehicle insurance premiums are derived using vehicle registration data and ONS mid-year population estimates are used for health insurance premiums.

Miscellaneous current transfers (6.1% of UK secondary uses in 2016) consist of a variety of current transfers including payments of court fines (for example, parking fines), certain government fees and transfers to and from the rest of the world (for example, by migrant workers to their home countries). ONS mid-year population estimates are used to assign the national total.

Other processes used in the compilation of regional GDHI estimates

Forecast of HMRC Pay As You Earn data

When HMRC supply PAYE data, it is subject to a one-year lag in timeliness. During the 2015 production round, a methodological change was introduced to create a forecast for the latest year. We make use of ONS survey data from the LFS and ASHE surveys to calculate annual growth in earnings for each local area. These growth rates are applied to the latest available PAYE data to improve the timeliness of this source.

Peer review

The peer reviewers include representatives from the devolved administrations, the ONS London regional statistician, ONS economists, representatives from other government departments and combined authorities. Near-final GDHI aggregates are circulated prior to publication for peer review quality assurance and comment.

Publication and EU requirements

Domestic publication

Regional GDHI estimates are published annually for the period 1997 to t minus 2 years (t being the year of publication) and are consistent with the previous year's UK National Accounts, The Blue Book. GDHI in pounds million, pounds per head and per head index are published at all three NUTS levels. Component level detail is also published for these three variables, and the following breakdown of components is published:

- operating surplus
- mixed income
- compensation of employees
- property income, received
    - primary resources total
- property income, paid
    - primary uses total
        - balance of primary incomes
- imputed social contributions and social benefits, received
- other current transfers, received
    - secondary resources total
- current taxes on income, wealth and so on
- social contributions and social benefits, paid
- other current transfers, paid
    - secondary uses total
        - balance of secondary income
            - gross disposable income

From May 2017, for the first time, the GDHI release included estimates of GDHI for local authorities and council areas within the UK. The methodology used to calculate these local authority estimates is a simplified process, in which the components of GDHI at NUTS3 are broken down to local authorities according to proportions calculated from several different sources.

It is important to note that local authority-level data are only available for the latest years in some of these datasets. The proportions calculated from these available years are used to apportion the back series. Calculated this way, the time series assumes a lack of change in the regional distribution of local authorities within a NUTS3 region. Going forward, each subsequent year will be apportioned using the latest available local authority-level data.

In addition, in May 2018, estimates of GDHI for combined authorities were included for the first time. The methodology used to calculate these combined authority estimates is a simplified process where local authority estimates are aggregated to create the individual combined authorities.

Net disposable household income for Eurostat

The production of regional GDHI is a legal requirement under European Commission legislation. The methods and data used are consistent with the guidance set out in the European System of Accounts 2010 (ESA 2010).

Whereas GDHI is compiled for UK domestic use, the estimates provided to Eurostat (the statistical department of the European Commission) are net of consumption of fixed capital (CFC). CFC is included in the gross operating surplus and mixed income (GOS/MI) components of the primary income account. In order to derive the net disposable household income (NDHI), the CFC element of GDHI is estimated and removed from the regional GOS/MI components of GDHI. The total NDHI is then aggregated.

European Union (EU) member states provide estimates of NDHI in their national currencies. Eurostat converts these using specific purchasing power standards for final consumption expenditure (Purchasing Power Consumption Standards). This process enables meaningful comparisons to be made between the member states and the EU uses these NDHI estimates to inform regional policy-making decisions.

7 . Regional gross fixed capital formation

Definition

Within the national accounts, the capital account deals with flows of non-financial assets and grants to fund them. Beginning with gross saving, the main deductions are the three components of gross capital formation:

- gross fixed capital formation (GFCF)
- changes in inventories
- acquisitions less disposals of valuables

GFCF is the largest element of gross capital formation (investment).

GFCF is the acquisition less disposal of fixed assets and the improvement of land. It is calculated gross of any deduction for depreciation or consumption of fixed capital.

GFCF reflects investment in tangible assets that contribute to a productive process for more than a year and are not used up in the process of production, such as buildings, plant and machinery, and vehicles. It also includes investment in intangibles (for example, intellectual property and brand names), costs of transfer of ownership (for example, estate agency fees) and valuables (for example, precious stones and metals).

In line with UK National Accounts, The Blue Book 2017, transfer costs associated with the buying and selling of players in the sports industries are now measured in the UK National Accounts and within regional GFCF. This includes club and agents' fees and any taxes associated with the buying and selling of players from one sports club to another. It is important to distinguish this from the transfer fee itself (that is, the monies paid from one sports club (the seller) to another sports club (the buyer).

Background

Regional GFCF is currently produced on a consistent basis with the European System of Accounts (ESA 2010) covering the years 2000 to 2017. It was published for the first time in 2003 and covered the years 1995 to 2000 on an ESA 95 basis.

Previously the Office for National Statistics (ONS) published estimates of gross domestic fixed capital formation (GDFCF), consistent with ESA 79, for a number of industries but not the whole economy. This was produced for the standard statistical regions (SSR), which are similar to, but do not equate to, the Nomenclature of Units for Territorial Statistics: NUTS1 regions.

Regional GFCF at current basic prices is produced at the NUTS2 level with an industry breakdown based on the UK Standard Industrial Classification of Economic Activities 2007 (SIC 2007).

Domestic publication was discontinued following the 2003 publication, due to concerns regarding quality and the lack of suitable data sources. The ONS is reviewing how best to resolve this issue. ESA legislation requires the UK to provide annual estimates of regional GFCF. Eurostat has acknowledged the specific quality issues that the UK faces in compiling regional GFCF estimates, that is, unlike many member states, the UK uses a "top-down" approach.

Data sources and concepts

Methodology

Data sources used in the calculation of regional GFCF comprise both survey and administrative data, which conform as far as possible to those suggested in the Manual on Regional Accounts Methods (a guideline document published by Eurostat) and represent the most appropriate data sources available. A "top-down" approach is used to calculate regional GFCF whereby UK GFCF data are allocated at an industry level to regions using regional indicators. Regional GFCF is compiled at the NUTS2 level and then aggregated to the NUTS1 level.

Industrial coverage

Regional GFCF is compiled on an industry by industry basis. National (UK) GFCF data are acquired at a 20-industry (SIC 2007 sections) breakdown, then aggregated to 10 industries plus the manufacturing element of production. The main regional indicator used is regional Annual Business Survey (ABS) net capital expenditure data (CAPEX). Regional indicators are detailed in this section.

Gross fixed capital formation (GFCF) that cannot be allocated to industries

Dwellings, transfer costs and valuables are combined in a residual referred to as “not allocated to industries” in the UK National Accounts, The Blue Book (Blue Book Table 2.1). This residual accounted for approximately 29% of UK GFCF in 2016. Eurostat makes no provision for this residual as it is not a common concept in other member states. The regionalised dwellings, transfer costs and valuables elements of GFCF are allocated to industry L (real estate activities) in order to satisfy the Eurostat requirement that all of GFCF must be allocated to industries.

Dwellings

This represents expenditure on new dwellings and improvements to existing dwellings and land. The separation of land and buildings is not considered feasible for the UK National Accounts so the value of land underlying building structures is included with the total value of the asset going into GFCF.

Transfer costs

This represents costs incurred in connection with the transfer of ownership of land and buildings, for example, stamp duties, dealers’ fees and agents’ commission.

Valuables

This represents the acquisition and disposal of valuables.

Regionalising GFCF by industry

Regional GFCF is calculated and presented on an industry basis. The following paragraphs describe the methods used to compile regional GFCF for each industry, as well as the dwellings, valuables and transfer cost elements.

Section A – Agriculture, forestry and fishing

Regional GFCF data for agriculture, forestry and fishing are calculated and then aggregated for publication, using regional indicator data from the Department for Environment, Food and Rural Affairs (Defra). The regional GFCF of livestock and non-livestock is used to apportion GFCF to regions.

Sections B, C, D and E – Production

Sections B, C, D and E are aggregated to form the total production component of regional GFCF output.

Section B – Mining and quarrying (oil and gas extraction)

Regional GFCF of the onshore and offshore oil and gas extraction industry is calculated using regional capital costs data from the Scottish Government’s oil and gas statistics, with the offshore GFCF allocated to Extra-Regio.

Section C – Manufacturing

ABS data are used to calculate regional GFCF for all manufacturing industries. This is compiled at the section level of SIC 2007 (industry C). This section is included in total production and is also supplied as a separate output, because of Eurostat requirements.

Sections D and E – Electricity, gas, steam and air conditioning supply; and water supply, sewerage, waste management and remediation activities

Regional GFCF is calculated separately for each of these two sections using regional indicator data from the ABS. They are then aggregated with sections B and C to form total production.

Section F – Construction

GFCF is regionalised using CAPEX data from the ABS.

Sections G, H and I – Wholesale and retail; transport activities; and accommodation and food service activities

The national GFCF totals for these sections are aggregated together and then regionalised using CAPEX data from the ABS.

Section J – Information and communication activities

GFCF is regionalised using CAPEX data from the ABS.

Section K – Financial and insurance activities

GFCF is regionalised using employment figures from the Business Register and Employment Survey (BRES).

Section L – Real estate activities

GFCF is regionalised using CAPEX data from the ABS.

Sections M and N – Professional, scientific and technical activities; and administrative and support service activities

The national GFCF totals for these sections are aggregated and then regionalised using CAPEX data from the ABS.

Sections O, P and Q – Public administration and defence; education; and health and social work

The national GFCF totals for these three sections are aggregated together before regionalisation. Central government GFCF and local government GFCF totals are then subtracted from this aggregate. The remaining data are regionalised using CAPEX data from the ABS.

Central government GFCF is regionalised using HM Treasury public expenditure statistical analyses (PESA) data. Due to PESA data only being available at NUTS1, it is regionalised to NUTS2 level using BRES employment data.

Local government GFCF is regionalised using local government net capital expenditure, which has been supplied by the Ministry of Housing, Communities and Local Government (MHCLG), Scottish Government, Welsh Government and PESA.

Government expenditure on weapon systems is also treated separately. The regional allocation is carried out separately for three product categories: weapons and ammunition; ships and boats; and aircraft. All three are allocated according to the regional distribution of armed forces personnel from the Ministry of Defence, with ships and aircraft being restricted to only the bases with such equipment.

The regionalised local government, central government GFCF and remaining industry GFCF are then aggregated together to produce regionalised public sector industry GFCF.

Sections R, S and T – Arts, entertainment and recreation; other service activities; and activities of households as employers

The national GFCF totals for these sections are aggregated together then regionalised using ABS data for section R and section S. There are no national or ABS regional data for section T.

Dwellings

GFCF for dwellings is regionalised using a two-tier approach. First it is regionalised to a country level (England, Wales, Scotland and Northern Ireland) using data on completed buildings provided by MHCLG. The data are then regionalised using local authority data provided by MHCLG (buildings completed), the Welsh Government (changes in dwelling stock) and the Scottish Government (new build data). The resulting regionalised dwellings data at local authority level is then aggregated up to NUTS2 level. It should be noted that Northern Ireland is classified as both a NUTS1 and NUTS2 region.

To satisfy the Eurostat requirement that all of GFCF must be allocated to industries, regionalised dwellings GFCF is allocated to industry L (real estate activities).

Transfer costs and valuables

The national control for the sum of valuables and transfer costs is allocated to NUTS2 regions using the GFCF of the regions (defined as the sum of all the industries plus dwellings). To satisfy the Eurostat requirement that all of GFCF must be allocated to industries, regionalised transfer costs and valuables GFCF are allocated to industry L (real estate activities).

Research and development

Research and development (R&D) relates to those activities carried out by businesses, government and educational institutions for their own use (as distinct from such activities carried out by enterprises classified to the R&D industry itself).

The activity, formerly counted as part of intermediate consumption, is now counted as capital formation as a result of the move to ESA 2010. For the regional allocation of R&D we use data from the Business Expenditure on Research and Development (BERD) Survey.

Publication and EU requirements

The production of regional GFCF is a legal requirement under European Commission (EC) legislation. The methods and data used are consistent with the guidance set out in the European System of Accounts. The ONS has a legal obligation to provide Eurostat with current basic price regional GFCF:

- at NUTS2 level
- annually, for t minus 2 years (t being the current year)
- by A10 industry breakdown plus manufacturing split

8 . Glossary

Annual Business Survey (ABS)

An ONS business survey. The ABS, formerly the Annual Business Inquiry part 2 (ABI/2) is the main resource for understanding the detailed structure, conduct and performance of businesses across the UK.

Actual rent

Actual rentals for housing paid by households are an estimate of the housing services consumed by households who are actually renting their residence.

Annual Survey of Hours and Earnings (ASHE)

An ONS business survey that provides regional information about the levels, distribution and make-up of earnings and hours worked for employees in all industries and occupations.

Basic prices

These prices are the preferred method of valuing gross value added and output. Basic prices reflect the amount receivable by the producer for a unit of goods or services, excluding any taxes (less subsidies) on products (for example, Value Added Tax). As a result, the only taxes included in the basic price are taxes (less subsidies) on the production process (for example, business rates), which are not specifically levied on the production of a unit of output.

Business, Energy and Industrial Strategy (BEIS)

The UK ministerial department responsible for business, industrial strategy, science and innovation, energy supplies and mitigating climate change.

Business Expenditure on Research and Development (BERD) Survey

An ONS business survey that provides estimates of expenditure and employment relating to research and development (R&D) performed in UK businesses.

Blue Book

The Blue Book is ONS's main annual publication for national accounts and provides detailed estimates of national product, income and expenditure for the UK. It covers value added by industry, full accounts by sector – including financial and non-financial corporations, central and local government and households – and capital formation.

Business Register and Employment Survey (BRES)

An ONS business survey of employment and employee estimates by geography and industry, used to update the Inter-Departmental Business Register (IDBR). The survey collects data for local units (actual physical sites) rather than for the enterprise as a whole, providing better quality regional information.

Consumption of fixed capital (CFC)

The estimated amount of capital resources used up during the period under consideration, as a result of normal wear and tear and foreseeable obsolescence, including provision for losses of fixed assets due to accidental damage, which can be insured against. It is not an identifiable set of transactions but an imputed transaction, which can only be measured by a system of conventions.

Chained volume measures (CVMs)

Chained volume measures are time series that measure an indicator of economic growth (for example, gross value added (GVA)) in real terms (that is excluding the effect of inflation on prices).

Series are calculated in the prices of the previous year and in current prices, and all of these two-year series are then “chain-linked” together. The advantage of the chain-linking method is that the previous period's price structure is more relevant than the price structure of a fixed period from further in the past.

Compensation of employees (CoE)

Total remuneration payable to employees (in cash or in kind). Gross disposable household income (GDHI) includes wages and salaries paid to UK residents working abroad and excludes wages paid to non-residents operating in the UK, whereas gross value added income (GVA(I)) includes CoE paid by domestic employers.

Constant price (KP)

Constant price figures express value using the average prices of a selected year, known as the base year. Constant price series remove the effects of inflation and can be used to show how the quantity or volume of goods has changed. They are often referred to as volume measures.

Current price (CP)

Current price figures measure value of transactions in the prices relating to the period being measured. They do not allow for different regional price levels or changes in prices over time and so include the effects of inflation.

Defence Analytical Services Agency (DASA)

Statistical department of the Ministry of Defence.

Department for the Environment, Food and Rural Affairs (Defra)

The UK ministerial department responsible for environmental protection, food production and standards, agriculture and fisheries.

Department for Transport (DfT)

The UK ministerial department supporting the transport network in the UK.

Department of Finance and Personnel Northern Ireland (DFPNI)

Part of the Northern Ireland Executive.

EU-28

The 28 member states of the European Union.

European Commission (EC)

The European Commission is the executive body of the European Union, responsible for proposing legislation, implementing decisions, upholding the Union’s treaties and day-to-day running of the EU.

European Regional Development Fund (ERDF)

EU funding set up to promote regional economic convergence and development throughout the EU.

European System of Accounts (ESA)

Internationally recognised guidance and rules for the compilation of national accounts, developed from and based on the System of National Accounts (SNA).

European Social Fund (ESF)

EU financial funding aimed at encouraging employment initiatives throughout the EU member states and supporting economic development and cohesion.

European Union

An economic and political union of 28 member states.

Eurostat

European Office for Statistics.

Extra-Regio

This accounts for economic activity that cannot be assigned to any specific region for the UK workplace estimates of regional gross value added (GVA). This consists of offshore oil and gas extraction and the activities of UK embassies and forces overseas.

Financial corporations

All bodies recognised as independent legal entities whose principal activity is financial intermediation and/or the production of auxiliary financial services.

Financial intermediation services indirectly measured (FISIM)

The value of financial intermediation services for which financial institutions do not charge explicitly. Principally the difference between the rates charged or paid for loans and deposits, and a standard base or reference rate of interest.

Foreign and Commonwealth Office (FCO)

The UK ministerial department promoting the UK’s interests overseas.

Gross disposable household income (GDHI)

The amount of money that individuals in the households sector have available for spending or saving. This is money left over after expenditure associated with income and other taxes and benefits have been taken into account.

Gross domestic product (GDP)

The sum of all economic activity taking place in a defined economic territory. It is the primary measure of economic activity and it can be measured based on production activity, final expenditures or the sum of income generated in an economy.

Gross fixed capital formation (GFCF)

The acquisition less disposal of fixed assets and the improvement of land.

Gross operating surplus (GOS)

The operating profits of private market entities other than sole traders.

Gross trading profits of other corporations (GTPOC)

The profits of registered corporations that are not partnerships.

Gross trading profits of partnerships (GTPP)

The profits of registered partnerships. They are known as “quasi-corporations” because, although their partners are self-employed, they are legally considered corporations.

Gross trading surplus (GTS)

The trading surplus earned by local authorities, central government, public corporations and non-profit institutions serving households (NPISH).

Gross value added (GVA)

This is a measure of the contribution to gross domestic product (GDP) made by an individual producer industry or sector. The gross value added generated by any unit engaged in production activity can be calculated as the residual of the unit’s total output less intermediate consumption, or as the sum of the factor incomes generated by the production process. Net value added is shown after deducting capital consumption.

GVA(B)

The production of gross value added (GVA) using estimates from gross value added income (GVA(I)) and gross value added production (GVA(P)) to produce a balanced measure of regional GVA, known as GVA(B). This gives users a single measure of economic activity within a region. The balanced measure of regional GVA has been granted National Statistics status following a review by the Office for Statistics Regulation during 2018.

GVA(I)

Gross value added (GVA) calculated using the income approach. The GVA income estimates retained National Statistics status in 2018.

GVA(P)

Gross value added (GVA) calculated using the production approach. The GVA production estimates also gained National Statistics status in 2018.

Her Majesty’s Revenue and Customs (HMRC)

A non-ministerial department of the UK Government responsible for the collection of taxes.

Holding gains

Holding gains and losses result from changes in the value of assets and liabilities and occur on all kinds of financial and non-financial assets.

Imputation

The process of inventing a transaction where, although no money has changed hands, there has been a flow of goods or services. It is confined to a very small number of cases where a reasonably satisfactory basis for the assumed valuation is available.

Imputed rent

An imputed value for rental incomes of owner-occupiers to cover the approximate rental value of their properties. In national accounts it is assumed that homeowners are adding value to the economy by providing themselves with housing service rather than renting accommodation.

Income approach

Gross domestic product (GDP) and gross value added (GVA) can be compiled using the income approach. This sums all income generated by production activity (factor incomes) and includes employment income (see compensation of employees), self-employed income (see mixed income) and profits (see gross operating surplus).

Inflation

In economics, inflation is a persistent increase in the general price level of goods and services in an economy over a period of time. When the general price level rises, each unit of currency buys fewer goods and services. Consequently, inflation reflects a reduction in the purchasing power per unit of money – a loss of real value within the economy.

Intangible asset

An asset that has no physical properties, for example, computer software and literary or artistic originals.

Inter-Departmental Business Register (IDBR)

The comprehensive list of UK businesses that is used by government for statistical purposes. It provides the main sampling frame for surveys of businesses carried out by the ONS and by other government departments. It is also an important data source for analyses of business activity.

Intermediate consumption

The consumption of goods and services in the production process. It may be contrasted with final consumption and capital formation. This represents purchases of goods and services to be used up in the production process (excluding any goods purchased for resale without any further processing) adjusted for changes in inventories of materials and fuels.

Labour Force Survey (LFS)

A quarterly social survey of UK households, which collects information on respondents' personal circumstances and labour market availability.

Market output

Output of goods and services sold at economically significant prices.

Market prices

Prices paid by the purchaser that include transport costs, trade margins and taxes (less subsidies) on products and taxes (less subsidies) on production.

Ministry of Housing, Communities and Local Government (MHCLG)

The UK ministerial department for housing, communities and local government in England.

Mixed income (MI)

Income generated by sole traders (self-employed people not registered as partners). In national accounts their income is considered a mixture of profits and self-paid wages (hence "mixed" income).

NACE

Nomenclature statistique des activités économiques dans la Communauté européenne. The statistical classification of economic activities for the EU. The current version is NACE revision 2.

Net disposable household income (NDHI)

The production of regional disposable income of households is an European System of Accounts (ESA) legal requirement.

Whereas gross disposable household income is compiled for UK domestic use, the estimates provided to Eurostat are net of consumption of fixed capital (CFC), which is included in the operating surplus/mixed income (OS/MI) components of the allocation of primary income account. The CFC element is estimated and removed from the regional OS/MI, to derive the net disposable household income (NDHI) estimates.

Non-market capital consumption (NMCC)

Consumption of fixed capital, or depreciation, is included in the profits of market bodies, in order to generate gross profits (that is, gross of deductions for capital consumption) for inclusion in the final gross value added (GVA) estimates. However, there are a number of non-market bodies in local and central government, as well as in the non-profit institutions serving households (NPISH) sector, which do not generate a profit or surplus but do consume capital, and this needs to be added back into the accounts.

Non-market output

Output of own account production of goods and services provided free or at prices that are not economically significant. Non-market output is produced mainly by the general government and non-profit institutions serving households (NPISH) sectors.

Non-profit institutions serving households (NPISH)

Includes organisations such as charities, universities, churches and so on. NPISH institutions provide goods and services free or below market price. They receive their principal resources from voluntary contributions from households as well as payments made by the government.

Nomenclature of Units for Territorial Statistics (NUTS)

This was created by the European Office for Statistics (Eurostat) as a single hierarchical classification of spatial units used for statistical production across the European Union.

Northern Ireland Statistics and Research Agency (NISRA)

The principal source of official statistics and social research on Northern Ireland.

Operating surplus

The balance on the generation of income account. Households also have a mixed income balance. It may be seen as the surplus arising from the production of goods and services before taking into account flows of property income.

Office for National Statistics (ONS)

The executive office of the UK Statistics Authority, a non-ministerial department, which reports directly to the UK Parliament.

Other current transfers on income and wealth

This component appears in the resources and uses of the secondary distribution of income account. As a resource, it relates mainly to non-life insurance claims (property, vehicle and health insurance) and transfers to the households sector from the rest of the world and non-profit institutions serving households (NPISH) (for example, grants). As a use, it relates mainly to non-life insurance premiums and miscellaneous transfers such as court fines.

Output

This is the value of goods and services together with work-in-progress produced. It is equal to the value of sales plus any increase, less any decrease, in the value of inventories of finished products and work in progress. Output is thus measured after deducting holding gains. The outputs of the distribution and service trades industries are calculated net of the value of goods bought for resale without further processing.

Pay As You Earn (PAYE)

HM Revenue and Customs (HMRC) provide Income Tax data for Income Tax withheld from employees' wages and paid directly to the government by the employer.

Primary income

The households sector allocation of primary income account consists of compensation of employees, operating surplus (rental income from buildings in the households sector, mixed income) and property income received (income from ownership of financial assets) as resources. The uses in this account consist of property income paid (interest paid on loans and mortgages).

Production approach

Gross domestic product (GDP) and gross value added (GVA) can be compiled using the production approach. This is the sum of all output less costs of intermediate inputs, or in national accounts terms, intermediate consumption.

Property income

This component appears as a resource (from ownership of financial assets) and a use (mainly interest paid on mortgages and loans) within the allocation of primary income account.

Public corporations (PC)

These are public trading bodies that have a substantial degree of financial independence from the public authority, central or local government that created them, for example, the Post Office, which is owned by the UK Government through Postal Services Holding Company plc.

Purchasing power standards (PPS)

An artificial common currency used by Eurostat to facilitate comparison of member states with different national currencies. This is used to compare the gross domestic product (GDP) per head of member states. UK regional gross value added (GVA) estimates feed into this process.

Regional indicator

The term regional indicator is used to mean a variable measurable at the relevant regional level (consistent with Nomenclature of Units for Territorial Statistics (NUTS) classification) that is used to assign proportions of the national component to the regional level.

Rental

The amount payable by the user of a fixed asset to its owner for the right to use that asset in production for a specified period of time. It is included in the output of the owner and the intermediate consumption of the user.

Rents

The property income derived from land and sub-soil assets. It should be distinguished in the current system from rental income derived from buildings and other fixed assets, which is included in output. Scottish Government The executive branch of the devolved government of Scotland. It is accountable to the Scottish Parliament.

Scottish Government

The executive branch of the devolved government of Scotland. It is accountable to the Scottish Parliament.

Secondary income

The households sector distribution of secondary income account includes government redistribution of primary income and traces the various transfers that occur subsequent to the allocation of primary income.

The resources include social benefits and other current transfers received (for example, income from non-life insurance claims).

The uses in this account include current taxes on income (for example, Income Tax, Council Tax), social contributions (for example, National Insurance contributions) and other current transfers paid (for example, non-life insurance premiums).

Sector

In the economic accounts, the economy is split into different institutional sectors, which are groupings of units according broadly to their role in the economy.

The main sectors are non-financial corporations, financial corporations, general government, households and non-profit institutions serving households (NPISH). The rest of the world is also treated as a sector for many purposes within the accounts.

Self assessment (SA)

HM Revenue and Customs (HMRC) provide self-assessment data for profits of partnerships and profits of sole traders. This is used to regionalise gross trading profits of partnerships (GTPP), mixed income (MI) and property income.

Social benefits

These are divided into three sub-components: social security benefits in cash (for example, State Pensions and Jobseeker's Allowance), privately-funded benefits, and social assistance in cash (for example, local government student loans).

Social contributions

Made by individuals to social insurance schemes to make provision for social benefits (for example, State Pension). May be made by employers on behalf of their employees, or by employees.

Social transfers in kind

Households are reimbursed by government or non-profit institutions serving households (NPISH) for approved expenditure on specified goods and services to relieve social risks or needs (for example, reimbursement of medical services).

Sole trader

A business owned and controlled by one person with no other employees.

Standard Industrial Classification (SIC)

Industrial classification for collection and publication of a wide range of economic and industrial statistics. The current version is SIC (2007), based on NACE revision 2, which is the statistical classification of economic activities for the EU.

Standard statistical region (SSR)

SSRs are similar to, but do not equate to Nomenclature of Units for Territorial Statistics: NUTS1 regions. The latter is used for the production of regional accounts in the UK.

Subsidies on production

These are subsidies based on the levels of productive activity (for example, agricultural land set-aside).

Subsidies on products

These are subsidies based on a quantity or value of goods or services sold (for example, import subsidies).

Supply and use tables (SUT)

Supply and use tables show the total availability (supply) of individual products (goods and services) by industry, for use in the economy from both domestic production and imports.

Survey of Personal Incomes (SPI)

Survey based on information held by HM Revenue and Customs (HMRC) tax offices on people who are liable to tax. It is carried out annually and covers all income liable for tax.

System of National Accounts (SNA)

The United Nations SNA is the internationally-agreed set of recommendations on how to compile measures of economic activity.

Tangible asset

An asset such as a building or piece of equipment that has physical properties.

Taxes on production

These are taxes paid by producers, for example, business rates, motor vehicle duties and regulatory fees, which are levied according to production and do not depend on the profitability or otherwise of a company.

Taxes on products

These taxes are defined as product-specific taxes, for example, Value Added Tax, excise duties, Air Passenger Tax, Insurance Premium Tax and import duties. They are taxes based on the volume or value sold.

Top-down approach

A “top-down” approach is used to calculate regional figures, whereby the national aggregate is allocated to regions using the most appropriate measure of regional activity, or regional indicator, available. The national total is allocated to regions using the Nomenclature of Units for Territorial Statistics: NUTS geographical classification.

UK Statistics Authority

An independent body accountable to the UK Parliament, with responsibility for oversight of the UK official statistics system and governance of the ONS.

Value Added Tax (VAT)

Tax levied on purchase price of goods and services.

Welsh Government

The devolved government for Wales.

Workplace basis

Regional gross value added income (GVA(I)) and gross value added production (GVA(P)) are produced on a workplace basis, meaning the gross value added (GVA) is allocated to the location of the activity generating it, that is, the place of work.