

Article

# Measurement of the finance and insurance industries in estimates of regional gross value added

A review of the availability of new data sources and methodology to regionalise gross value added for the finance and insurance industries.

Contact:  
Sarah Harris  
regionalaccounts@ons.gsi.gov.  
uk  
+44 (0)1633 456878

Release date:  
9 April 2018

Next release:  
To be announced

## Table of contents

1. [Background](#)
2. [Regional gross value added \(GVA\)](#)
3. [Methods for regionalising the finance and insurance industries in gross value added \(GVA\)](#)
4. [Investigation into improving the regionalisation of the finance and insurance industries](#)
5. [Investigating new methods](#)
6. [Investigating potential new data sources](#)
7. [Plan of action](#)
8. [Conclusion](#)

# 1 . Background

In 2017 the Office for Statistics Regulation (OSR) undertook [phase one of the assessment of regional gross value added \(GVA\) statistics](#). One of the findings from this assessment was to review the availability of new data sources and methodology to regionalise GVA for the finance and insurance industries. A review of methods and sources for regionalising the finance and insurance industries commenced in September 2017, prior to the most recent [regional GVA publication \(December 2017\)](#). This article reports on the review conducted.

## 2 . Regional gross value added (GVA)

Regional gross value added (GVA) is measured in the UK Regional Accounts using two approaches, the income approach (GVA(I)) and the production approach (GVA(P)). These independent estimates are then put through a “balancing process” to produce a single “balanced” estimate for each region (GVA(B)) (see the [Development of a balanced measure of regional gross value added](#)).

Different methods and different data sources are used for the different approaches. The income approach sums the components of income (compensation of employees, mixed income, rental income, gross trading profit and surplus, non-market capital consumption, holding gains, taxes less subsidies on production) to give a measure of GVA. GVA(P) is calculated as total output of goods and services less the value of goods and services used up in the production process (intermediate consumption).

Each of the components used in the measurement of regional GVA starts with a value for the UK, taken from the latest [UK National Accounts Blue Book dataset](#). We then use the most appropriate available regional indicator to allocate the national total to parts of the UK. A wide range of sources are used to inform the distribution of the national total, including Office for National Statistics (ONS) business surveys, surveys carried out by other government departments and various administrative data.

The industry level at which we process data differs for GVA(I) and GVA(P) due to the availability of data. The many sources that are used for GVA(I) have less granular industry detail which restricts the level of industry data that can be produced. We, therefore, process data at the [Standard Industrial Classification 2007 \(SIC 2007\)](#) section level for GVA(I) (that is, K for the finance and insurance industries). GVA(P) is largely based on data from the Annual Business Survey (ABS) which is available at a much finer level of detail. Therefore, for GVA(P) we can process data on the supply use table (SUT) group basis, at 114 industries (see Table 2). Estimates for both GVA(I) and GVA(P) are then published on an industry section and subsection basis.

Our regional estimates are produced in accordance with the [Nomenclature of Units for Territorial Statistics \(NUTS\)](#) classification, a hierarchical classification of geographical units within European Union territory created by the European Office for Statistics (Eurostat). In the UK, as of January 2018, the NUTS areas are:

- NUTS1: Wales, Scotland, Northern Ireland and nine English regions
- NUTS2: 41 sub-regions – mainly groups of counties and unitary authorities
- NUTS3: 179 local areas – principally individual counties and unitary authorities.

We produce GVA(I) estimates at NUTS1, NUTS2 and NUTS3 level, and GVA(P) estimates for NUTS1 and NUTS2.

## 3 . Methods for regionalising the finance and insurance industries in gross value added (GVA)

## Gross value added income approach (GVA(I))

The regional indicators for the largest contributors to the finance and insurance industries in GVA(I) are shown in Table 1. All indicator datasets are at section level (K).

Compensation of employees (CoE), which makes up around 60% of GVA(I) in the finance and insurance industries, is allocated using employees from the Business Register and Employment Survey (BRES) multiplied by average weekly earnings from the Annual Survey of Hours and Earnings (ASHE) to give total earnings. Gross trading profits of corporations, which makes up around 30%, uses the same data as CoE. Rental income for the financial sector, 7%, uses national non-domestic rates (NNDR) to allocate to NUTS1, then total earnings to allocate to NUTS2 and below. NNDR is conceptually a better measure than earnings as it reflects the value of property held in each region.

**Table 1: Regional indicators used for the finance and insurance industries (GVA(I))**

| Standard industrial classification section | Description                        | Component of income                   | Regional indicator NUTS1 level | Regional indicator NUTS2 level |
|--|------------------------------------|---------------------------------------|--------------------------------|--------------------------------|
| K  | Financial and insurance activities | Compensation of employees             | Employees*earnings             | Employees*earnings             |
|  |                                    | Gross trading profits of corporations | Employees*earnings             | Employees*earnings             |
|  |                                    | Rental income                         | National non-domestic rates    | Employees*earnings             |

Notes:

1. Other components of income that feature in GVA(I) are insignificant in this industry.

## Gross value added production approach (GVA(P))

Prior to the GVA(P) publication in December 2017, employment was used to regionalise all finance and insurance industries at NUTS1 and NUTS2 level, with the exception of monetary financial institutions at NUTS1 level (see Table 2). There are issues with this approach, as within the finance and insurance industries it is possible that a small number of employees could be associated with a large turnover for the company. However, when using proportions based on employment, areas with higher employment figures would be allocated more GVA, which might not be accurate.

For regionalising monetary financial institutions, supply use table (SUT) group 64.1 (central banking, banks and building societies), we currently use FISIM (financial intermediation services indirectly measured) and fee data received from the regional short term indicators (RSTI) branch. The Bank of England (BoE) supply RSTI with a list of banks, which are used by RSTI in their annual review of regional banking weights. These weights are derived from employment figures for individual banks' local units held on the Inter-Departmental Business Register (IDBR). The weights are sent to the BoE who use the weights to apportion data. The BoE then send RSTI regional (NUTS1) data on fees, loans and deposits, and supply data on UK margin rates. Regional FISIM is calculated by RSTI using the loans, deposits and margin rates data. In brief, FISIM represents the difference between the interest rates on loans and deposits and a standardised bank reference rate. The margin rates quantify those differences for a range of customer sectors, which are weighted together to provide an aggregate margin rate used in regional estimates.

As regional FISIM and fees are calculated on a NUTS1 basis, we are only able to use FISIM and fees as the regional indicator for 64.1 at NUTS1 level. Once we receive the data from RSTI we sum the data to annual FISIM and fees data and calculate FISIM and fees proportions for each NUTS1 region. These proportions for each region are multiplied by GVA industry weights supplied by the UK gross domestic product (output) (GDP(O)) branch. This does assume equal weights across regions, but at present we lack any regional information on the relative weights of direct and indirect output since the two measures are not directly comparable in GVA terms.

**Table 2: Regional indicators used for the finance and insurance industries (GVA(P)) pre-December 2017 publication**

| <b>SUT group</b> | <b>Description</b>   | <b>Regional indicator NUTS1 level</b> | <b>Regional indicator NUTS2 level</b> |
|------------------|--|---------------------------------------|---------------------------------------|
| 64.1             | Monetary financial institutions  | Weighted proportion of FISIM and fees | Employment                            |
| 64.2-9           | Other financial institutions (OFI)   | Employment                            | Employment                            |
| 65               | Insurance, reinsurance and pension funding (except compulsory social security) | Employment                            | Employment                            |
| 66               | Activities auxiliary to financial services and insurance activities            | Employment                            | Employment                            |

Notes:

1. FISIM = financial intermediation services indirectly measured.
2. SUT = supply use table.

## **4 . Investigation into improving the regionalisation of the finance and insurance industries**

To investigate new methods and sources to improve the regionalisation of the finance and insurance industries, discussions were held with a range of data experts across the Office for National Statistics (ONS) including: regional short term indicators (RSTI); financial surveys; Value Added Tax (VAT); enhanced financial accounts (EFA); data as a service (DaaS); gross domestic product (GDP); and the economic statistics data source team. Outside of ONS discussions were also held with the Bank of England (BoE), Committee of Scottish Clearing Banks and Scottish Government. Additional information on why these people were consulted is provided in Table 3. The following sections detail the findings from the investigations.

**Table 3: Who was consulted and reasons for consultation**

| <b>Who was consulted</b>  | <b>Reason for consultation</b>  |
|---|---|
| Regional short term indicators (RSTI)                             | To discuss current methods for regionalising monetary financial institutions and any other potential leads for methods.   |
| Financial surveys   | To discuss current financial surveys and investigate whether data from the surveys can be used to regionalise the finance industry.   |
| Value added tax (VAT)   | To discuss the use of VAT administrative data in National Accounts and potential use for the finance industry.  |
| Enhanced financial accounts (EFA)                                 | The EFA initiative aims to improve the quality, coverage and granularity of financial statistics. Individuals in EFA were consulted on data sources used in EFA for other financial institutions, pensions and insurance. |
| Data as a service (DaaS)  | DaaS are involved in the acquisition, preparation and linkage of non-survey data. DaaS were contacted with regards to the catalogue of administrative data sources.   |
| Gross domestic product (GDP)                                      | To discuss methods used in UK GDP for the finance and insurance industries.   |
| Economic statistics data source team                              | To discuss their planned work on assessing the quality of administrative data in the financial industries.  |
| <b>External contacts</b>  |   |
| Bank of England (BoE)   | To discuss the ISO 20022 messaging standard.  |
| BoE, Committee of Scottish Clearing Banks and Scottish Government | To discuss the collection of regional data from banks.  |

## 5 . Investigating new methods

### Replacing total earnings with national non-domestic rates in gross value added income approach (GVA(I))

Currently in gross value added income approach (GVA(I)), we use national non-domestic rates (NNDR) to allocate rental income to NUTS1 level, then total earnings to allocate further to NUTS2. This is because at NUTS2 level we do not separate rental income into sectors. However, an improvement can be made to do so. Separating out the financial sector at NUTS2 will allow us to use NNDR at all levels of geography. This change will be implemented for the December 2018 publication.

### Replacing employment with compensation of employees in gross value added production approach (GVA(P))

As mentioned above, prior to December 2017 employment was used primarily as the regional indicator for the finance and insurance industries in gross value added production approach (GVA(P)). One option that was investigated to improve our methods was the use of compensation of employees (CoE) to replace employment as the regional indicator, as recommend by the [Eurostat Regional Accounts manual](#). Using CoE instead of employment is an improvement as it recognises the individual value of each person working in the finance industry, rather than assuming all employees are equal.

It was possible before the GVA publication in December 2017 to incorporate this improvement into our methods. We were able to access employee data for the supply use table (SUT) groups 64.1; 64.2-9; 65.1-2; 65.3; and 66, and to multiple these data by weekly gross pay for the finance industry (K). Due to the limited amount of time before publication it was not possible to obtain pay data at the lower breakdown for the finance industry that we were able to access for employee data. This is a further improvement to our methods that will be implemented before the December 2018 publication.

## **6 . Investigating potential new data sources**

### **Bank of England regional data**

To explore whether there are any viable ways to improve the range and quality of regional banking data available to us, we consulted with representatives of the Bank of England (BoE) and the Committee of Scottish Clearing Banks, in a meeting arranged by Scottish Government. This meeting brought together suppliers and compilers of banking statistics to discuss the current supply of data from the banks to the BoE and to Scottish Government; the onward provision of data to the Office for National Statistics (ONS) for use in National and Regional Accounts; and the potential to improve or streamline the method for deriving regional estimates of banking activity.

The banks noted that any additional requests for them to provide more information than they already provide would give additional burden to businesses. However, they provide the data needed by the BoE, so they prefer that we make maximum use of the same data to avoid unnecessary duplication. The recent passage of the Digital Economy Act 2017 paves the way for improved data sharing between government departments, and it was agreed to explore ways to make wider use of the data banks already provide to the BoE.

We discussed the variables covered by the BoE's Profit and Loss (PL) form, from which the current supply of modelled regional data on fees, loan and deposit stocks are sourced. The data collected on the PL form also include: income, expenditure, spread earnings, dividends, operating income and expenditure, and staff costs. They allow the BoE to derive estimates of output, intermediate consumption, FISIM (financial intermediation services indirectly measured), gross value added (GVA) and gross operating surplus (GOS) on an aggregate basis, which are provided to ONS for use in the UK National Accounts.

We discussed apportionment of data to estimate regional shares of various activities. It was recognised that there are conceptual difficulties in identifying the contribution each person working for a bank makes to the final transaction. Employment was acknowledged to be the easiest way to apportion the data, and might be the best available method for some variables, although for other variables there may be better options available (such as the distribution of customers). Compensation of employees (CoE) was noted as being conceptually preferable to employment numbers alone, as it better reflects the value of each employee to their employer, but it could be more difficult to identify regionally on an individual company basis.

We also touched on the alternative approach of the banks providing data specific to countries and regions, but this was generally seen as less preferable than modelling from existing supplied data because it would entail more work for the banks. The Scottish Clearing Banks were open to the idea of helping to agree a set of guidelines for ONS or BoE to use in modelling banking activity, drawing upon their expert knowledge of the business.

The group identified five next steps:

1. BoE to explore and pursue better data sharing arrangements under the Digital Economy Act 2017.
2. Scottish Clearing Banks to consider the extent to which they can provide regional data for any variables (either for direct measures or for use in modelling).
3. Collaboratively explore options for producing regional estimates.
4. Collaboratively explore options for regional apportionment by variable (based on PL form).
5. Explore whether similar methods can be applied to other BoE forms.

There is clearly more to be done before we will be able to implement changes to our regional data sources, but it does appear likely that this collaboration with the banks, BoE and Scottish Government will provide the basis for a wider range of variables to be modelled and used in the UK Regional Accounts.

The data we get from this could potentially be used in both regional GVA(P) [output and intermediate consumption] and regional GVA(I) [GOS and staff costs] and thereby improve both measures. As the data are provided on a quarterly basis they will also be available to use in the new regional short term indicators (RSTI) for the English regions, and for the corresponding quarterly measures compiled by the devolved administrations. It is too early to say with any confidence when such improvements might be introduced, but we will be looking to pursue this as our preferred method for the measurement of 64.1 (monetary financial institutions) as these data become available.

## Financial surveys

Work is ongoing within enhanced financial accounts (EFA) to assess alternative data sources. Where surveys are continuing, they may be subject to change.

### Financial Services Survey

The [Financial Services Survey \(FSS\)](#) collects information on the income, expenditure, assets and liabilities of businesses in the other financial institutions (OFI) sector, which includes non-bank financial intermediaries and financial auxiliaries.

Significant changes were made to the FSS in March 2015 in which the Financial Services and Securities Dealers surveys were merged. This resulted in new questionnaires, improvements in sampling and estimation, and expanded survey coverage. In the future, these improvements may allow the Office for National Statistics (ONS) to use FSS data to enhance estimates of OFI activity.

It is possible that at some stage in the future the FSS could be a potential new data source for regionalising OFI in GVA(P). However, the financial surveys are generally not configured in a way that allows precise regionalisation. Within the finance surveys the region in the data extract may be for the head office of the entity, which may be situated in a specific geographical area, but the financial activity may be undertaken in different geographical areas. The entity may have national coverage, but this would not be captured in the region the reporting unit is based. This would therefore make it difficult to use these data to regionalise activity.

ONS are still at an early stage of working with the initial results from this survey. Once robust data are available we will assess the viability of the FSS for accessing regional data.

## Pensions data

Data on pensions in the UK National Accounts are compiled from a range of administrative and survey data which are in the process of review. Regional information is unavailable.

## Administrative data

Another avenue that was investigated for potential data sources was the use of administrative data, data that are already collected by public bodies to meet an operational need or provide a service. Part of this investigation involved looking through the administrative sources catalogue, a catalogue of administrative data that is stored and currently used by the Office for National Statistics (ONS). Of the data sources in this catalogue relevant to the finance and insurance industries, none provided an avenue for further investigation. Some of the data sources are lists of companies or lists of pension funds, rather than sources with data on the activity in the industry. Additionally, the lowest geographical coverage of the data sources for the finance and insurance industries is either country, NUTS1 or not available. A lower geographical breakdown would be needed to make these viable sources for use in the Regional Accounts.

Two new administrative data sources that were investigated were Solvency II and Value Added Tax (VAT). Solvency II provides quarterly and annual data on UK insurers, with a wide range of variables covering data such as premiums, claims and financial balance sheet of stocks. Over the next year enhanced financial accounts (EFA) will be releasing experimental statistics (a first release is scheduled for 30 April 2018) with a view to full implementation of Solvency II data in the UK National Accounts in 2020 (at the earliest). With regards to using these data to regionalise the insurance industry, data are only completed by insurers on a UK basis, and no split of regions is currently identified.

VAT data is a new data source that has been incorporated into the UK National Accounts, with our December 2017 regional gross value added (GVA) publication being the first ONS publication to make use of this new administrative data source (for selected industries). The ONS now holds a dataset of VAT turnover from Her Majesty's Revenue and Customs (HMRC). These data have information on the turnover of all companies above a threshold of £85,000 (98% of all UK businesses), held at a microdata level. At a national level, the finance industries account for around 35% to 40% of all UK turnover.

Turnover is a reasonable proxy for output, so could be used in our compilation of GVA(P). These data are already being used in the UK National Accounts, using the Inter-Departmental Business Register (IDBR) to link the VAT dataset to enterprise level. We intend to use local unit (LU) employment data to apportion the data further to LU level, therefore generating regional VAT turnover data. Work is ongoing on the development of the LU data, and until this dataset is complete we are unable to reliably analyse the results for the finance and insurance industries. However, an analysis of single-site enterprises from the IDBR suggests that VAT data could reasonably be used for certain supply use table (SUT) groups.

**Table 4: Analysis of IDBR extract, December 2016**

| <b>SUT group</b> | <b>Percentage of employment from single site enterprises</b> |
|------------------|--|
| 64.1             | 7%   |
| 64.2-9           | 49%  |
| 65               | 15%  |
| 66.1             | 41%  |
| 66.2             | 27%  |
| 66.3             | 50%  |

Notes:

1. SUT = supply use table.

As shown, the proportion of single-site enterprises in SUT groups 64.2-9 and 66 suggests the LU level VAT data, once developed, will give us a good measure of output for regions. The proportions of single-site enterprises in SUT groups 64.1 and 65 suggests that if we were to use VAT data in these industries, it would be heavily reliant on LU data modelling and therefore unlikely to deliver an improvement over current methods.

The VAT dataset also contains expenditure data, which can potentially be used as a proxy for intermediate consumption. However, these data are still at an early exploration stage in ONS, so more investigation is needed at a national level before any use in Regional Accounts will be possible.

## **Bank of England messaging standard**

In September 2017 the Bank of England (BoE) sought views on the migration to the messaging standard ISO 20022 in CHAPS, the sterling high value payment system. ISO 20022 is a messaging standard that can be used for financial transactions. When businesses exchange data the messaging standard ensures the sender and receiver can both interpret the information. ISO 20022 represents an improvement on the current messaging standard owing to its capacity for richer, more structured data. The BoE's migration to ISO 20022 will be for high value payments, however faster payment transactions (FPS) and BACS will also be moving to ISO 20022 over a similar timeframe.

The BoE held discussions with the Office for National Statistics (ONS) as a key stakeholder, to understand our key needs and issues, and to help formulate proposals for data enhancements to the messaging standard. As part of the discussion, ONS specified the following as information we would like to be included in the messaging standard for regional statistical use: the location at both ends of the transaction; an idea of the type of institution; and the purpose of the transaction. There was also discussion around the use of institution codes in the message, codes currently used by ONS, and the use of legal entity identifiers (LEI). LEIs are reasonably new, however, if they were included in the message they could be linked to information on the company, including the company address. With regards to the finance and insurance industries, if the institutional sector is included in the message it would be possible to identify financial corporations and gain an understanding of activity in these industries. Additionally, if location details are included in the message, and the LEI, it would be possible to regionalise the data.

The BoE are planning to publish a consultation document at the end of May setting out the plan to enhance the messaging standard within the high value payment system. Transition timelines are yet to be decided, but this should be considered a longer-term piece of work, with lead times of several years, and possibly longer for fields to become mandatory.

## **7 . Plan of action**

## **Anticipated in our gross value added (GVA) December 2018 publication:**

The use of national non-domestic rates (NNDR) to regionalise rental income in GVA(I) at all levels of geography. This will be an improvement on our current method as it reflects the value of property held in each region.

The use of compensation of employees (CoE) to regionalise GVA(P) for all finance and insurance industries (with the exception of monetary financial institutions at NUTS1 level) using a lower industry breakdown of Annual Survey of Hours and Earnings (ASHE) data.

## **Future work**

Both Value Added Tax (VAT) data and Bank of England (BoE) data may deliver improvements that we can implement into our December 2018 publication, however there remains some uncertainty around these data and timings. We would, however, like to use these data if feasible and appropriate. Once we have developed the local unit VAT data, we will be able to assess the viability of using VAT data to regionalise the finance and insurance industries in GVA(P).

We will stay up to date with the ongoing work within enhanced financial accounts (EFA) and their assessment of alternative data sources for insurance, pensions and other financial institutions (OFI). We will also assess the viability of the Financial Services Survey (FSS) for accessing regional data as a potential improvement for OFI.

The potential to obtain location data and institutional information from the messaging standard ISO 20022 in the sterling high value payment system would be a significant improvement that we can hopefully use at some point in the future, although this is still a few years away from fruition. For the near future, the outcome of the consultation on the ISO 20022 messaging standard will be followed to see whether the location at both ends of the transaction, the type of institution and the purpose of the transaction will be included in the messaging standard.

## **8 . Conclusion**

We were able to implement a preliminary improvement (replacing employment with compensation of employees (CoE)) for gross value added production approach (GVA(P)) before our December 2017 publication. This improved our method for regionalising all finance and insurance industries at NUTS1 and NUTS2 level (with the exception of monetary financial institutions at NUTS1 level). This method will be improved further for our December 2018 publication.

We have identified a change to our methods for regionalising rental income in gross value added income approach (GVA(I)) that will improve our regionalisation at NUTS2 level and below. This will be implemented for our December 2018 publication.

It is likely that the collaboration with the Scottish Clearing Banks, Bank of England (BoE) and Scottish Government will provide the basis for a wider range of variables to be modelled and used in Regional Accounts, which could potentially be used in both GVA(P) and GVA(I) to improve both measures.

At present, aside from our preliminary improvement of CoE replacing employment, we have not identified any other immediate improvements for other financial institutions (OFI; 64.2-9) or insurance, reinsurance and pension funding (65) for GVA(P). We will, however, assess the viability of the Financial Services Survey (FSS) for accessing regional data as a potential improvement for OFI.

Value Added Tax (VAT) data may deliver improvements that we can implement for OFI (64.2-9) and activities auxiliary to financial services and insurance activities (66), with these being industries with a high proportion of single-site businesses. Once we have developed the local unit VAT data, we will be able to assess the viability of using VAT data to regionalise these industries in GVA(P).

The BoE's migration to the messaging standard ISO 20022 (in the sterling high value payment system) is a potential data source for the future that may provide data on the location at both ends of the transaction, the type of institution and the purpose of the transaction. This would be a significant improvement to our methods of regionalisation, however, this is several years away from fruition.