![Department for Digital, Culture, Media & Sport]

DCMS Sectors Economic Estimates 2018: Trade in Services Quality assurance report

Contents

Introduction

The **DCMS Sectors Economic Estimates 2018: Trade in Services** statistics published on 6 February 2020 provide an estimate of the value of imports and exports of services in each DCMS sector (excluding the Civil Society sector). This document summarises the quality assurance processes applied during the production of these statistics by our data providers, the Office for National Statistics (ONS), as well as those applied by DCMS.

Data Sources

Estimates of trade in services for the DCMS sectors are produced using the ONS International Trade in Services (ITIS) dataset, which uses Standard Industrial Classification (SIC) codes to classify trading businesses by industry.

The definitions of 'exports' and 'imports' for the services data are calculated on a 'Balance of Payments' basis i.e. services entering and leaving an economic territory are not recorded as imports or exports unless they change ownership (between UK residents and non-residents). By contrast, the goods data defines exports and imports on a cross-border basis (even if the ownership has not changed).

Data are available for industries in each of the DCMS sectors (excluding Tourism and Civil Society); and also for sub-sectors within the Creative Industries, Digital Sector, and the Cultural Sector.

Quality assurance processes at ONS – Trade in Services

Quality assurance at ONS takes place at a number of stages, outlined below. To note, information presented here on the data sources are taken from the [International trade in services Quality Methodology Information](#) (QMI) and should be credited to the ONS.

The International Trade In Services (ITIS) data shows the import and export activity of UK companies overseas and is the main source of information for UK trade. The data is based solely on survey data.

Sampling frame and data collection
ITIS data are based on a quarterly sample of approximately 2,200 businesses and an annual sample of approximately 15,500 businesses. Response rate targets are 85% for both annual and quarterly ITIS data.

The survey data from both the quarterly and annual results are combined to produce the [annual ITIS estimates](#) and are used as a main data source to compile total trade in services estimates. It is worth noting that the surveys do not provide full coverage of the UK economy, and excluded sectors include: travel and transport; banking and other financial institutions; higher education; and most activities in the legal professions.

The ITIS survey is supplemented by the Annual Business Survey (ABS). Historically, ITIS' product-level estimates have been derived from the ABS. Since 2018, product- and industry-level data have been improved by directly surveying companies operating in some industries from ITIS itself. However, the ABS is still used as part of the process, for example to help inform the sample for these industries.

ITIS data are collected by both industry and service on a geographical basis, by collecting data for the countries to which services are exported to and where they are imported from. These data are primarily used in the compilation of the services account for the UK's Balance of Payments (BoP), which in turn contributes towards the measure of UK gross domestic product (GDP). The ITIS estimates are published annually.

Data relating to the import or export of goods are excluded from this survey. However, merchanting (earnings from arranging the sale of goods between two countries outside the UK and where the goods never physically enter the UK) is included along with earnings from commodity trading. As with merchanting, the services element is calculated as the businesses' profit minus the loss.

Validation and quality assurance

There is no simple way of measuring the accuracy of ITIS statistics, that is, the extent to which they measure the underlying "true" value for a particular period. Non-sampling errors are not easy to quantify and include errors of coverage, measurement, processing and non-response. Various procedures and checks are made to ensure these errors are minimised. As ITIS is based on survey responses, ONS systems validate these entries and prompt confirmation of suspect data is sought.

Every effort is made to ensure that the series are comparable over time. International standards (BPM6[1] and MSITS 2010) are used in the production of ITIS data; therefore, figures published by the UK should be comparable with other countries. UK representation in working groups will ensure that the UK is synchronised with any changes in international standards.

Survey returns are run through a series of checks to identify errors. These checks ensure that:

- responses to individual questions are consistent within the questionnaire as a whole, that is, totals equate to the sum of the parts
- the return is consistent with historical data from the business

Further quality assurance applied includes the detection and treatment of outliers; application of imputation (ratio and means of ratio); and the application of disclosure control. Statistical disclosure control methodology is applied to the ITIS survey data before release of the publication. This means that some published tables have been altered to ensure that information attributable to an individual or individual organisation is not identifiable in any published outputs. The Code of Practice for Statistics[2] describes the data protection procedures applied.

Quality assurance processes at DCMS

The majority of quality assurance of the data underpinning the DCMS Sectors Economic Estimates Trade in Services release takes place at ONS, through the processes described above. However, further quality assurance checks are carried out within DCMS at various stages.

---

[1] https://www.ecb.europa.eu/stats/ecb_statistics/co-peration_and_standards/bpm6/html/index.en.html
[2] https://www.statisticsauthority.gov.uk/code-of-practice/

Production of the report is typically carried out by one member of staff, whilst quality assurance is completed by at least one other, to ensure an independent evaluation of the work.

Data requirements

Compared to the summer publication, which featured Trade in Goods, Trade in Services and Tourism estimates (which measures tourist expenditure on both goods and services combined), these Trade in Services are being published on a more timely basis, in response to user needs. In particular, it is being published only days after the headline ONS estimates for ITIS.

As part of this, DCMS submitted a business case specifying its updated data requirements to ONS. To reduce the risk of accidental disclosure of unpublished data, ONS agreed to use software produced by DCMS to calculate the figures required for this report and supply these to DCMS rather than the full microdata.

It is still expected that the raw data shall be provided following the release of these statistics, as in previous years. This will be to provide more information on the Services statistics, as part of a more detailed summer release (also including Trade in Goods). The terms of use for these data is formalised in a Data Access Agreement (DAA) between DCMS and ONS. The DAA covers which data are required, the purpose of the data, and the conditions under which ONS provide the data. Discussions of requirements and purpose with ONS improve the understanding of the data at DCMS, helping us to ensure we receive the correct data and use it appropriately.

Checking of the data delivery

For these **Trade in Services** estimates, one csv file is provided for exports, and another for imports. We check we have received data for all sectors and for all relevant 4-digit SIC codes (for the overlap charts).

Later in February, or in March, one raw data file will be received from the ONS, sent in csv format. This is then converted and imported into SPSS for analysis. For 2015 data and older, we were sent two files in text file format - one for Exports ('Receipts') and one for Imports ('Payments').

For this particular data we will check that:

- We have received all data at the 4 digit SIC code level, which is required for us to aggregate up to produce estimates for our sectors and sub-sectors.
- There is no repetition of totals in order to avoid double counting.
- Data at the 4 digit SIC code has not been rounded unexpectedly. This would cause rounding errors when aggregating up to produce estimates for our sectors and sub-sectors.

Data analysis

For this release, the data (Trade in Services 2018) is provided to us by ONS in aggregated form based on R code supplied by DCMS. However, these still require secondary and tertiary disclosure control to minimise risk of disclosive data being published. These are applied by DCMS in Excel.

DCMS also builds in the following checks at this stage:

- Checks that summing up breakdowns gives the same figure as the total they contribute to. E.g.:
    - o Do sub-sectors within the Creative Industries sum to the Creative Industries total?

- o Do the individual geographic figures sum up to the wider geographic total (e.g. do the individual continents sum up to the World total?)?
- "Sense checks" of the data, which can then be queried with ONS colleagues. E.g.:
  - o Are the proportions of each sector and subsectors similar to last year? If not, why?
  - o Looking at any large differences between the data, when compared like-for-like with the previous year.

Quality assurance of data analysis

Once analysis is complete, DCMS document the checks needed for quality assurers to carry out.

The checks for this release include:

- Introductory checks (correct files, years etc. used).
- Checking the data to make sure it is not possible to derive disclosive data from the figures that are published.
- Making sure the correct data has been pasted to the final tables for publication and are formatted correctly.
- Making sure all charts are linking (correctly) to the right data and all maps produced are using the correct data.

For the full raw data, DCMS will also carry out extra checks, which may include:

- Using a different software package (SPSS) to attempt to replicate (a sample of) the outputs produced by R (currently the main package used to calculate the statistics).
- Checking that the various stages of data processing have been correctly calculated. This includes checking that:
  - o The syntax is accurate
  - o The correct codes (SIC or Commodity) have been aggregated together to form DCMS sector (and sub-sector) estimates.
  - o That all codes we require are included, and that any non-DCMS codes have not been included by accident.

Dissemination

Finalised figures are disseminated within Excel tables and a written report (which includes written text, graphs, tables and infographics) published on GOV.UK. These are produced by the Trade statistics lead. Before publishing, a quality assurer checks the figures match between the working-level analysis, the tables and the written report. The quality assurer also makes sure any statements made about the figures (e.g. regarding trends) are correct according to the analysis and checks for spelling or grammar errors.

Next steps

We encourage our users to engage with us so that we can improve our statistics and the documentation surrounding them. If you would like to comment on this quality assurance report, or have any enquiries please get in touch at evidence@culture.gov.uk.

Department for
Digital, Culture,
Media & Sport

4th Floor
100 Parliament Street
London
SW1A 2BQ

OGL