

VAT update July 2016

This article updates on the project which is exploring the use of HMRC turnover data within Short-term Output Indicators in National Accounts.

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1 . Executive summary

This is the fifth in a series of updates on the work to utilise data collected by Her Majesty's Revenue and Customs (HMRC) from Value Added Tax (VAT) returns as an administrative data source for Short-term Output Indicators (STOI) and National Accounts. The STOI in scope are the [Index of Production \(IoP\)](#), [Index of Services \(IoS\)](#) and [Output in the Construction Industry](#). Gross domestic product (GDP) data using these indicators are also in scope.

This article:

- explains changes to halt the proposed pilot to allow accelerated development of a medium-term information technology (IT) platform (section 3.1)
- outlines plans to aim to fully estimate the IoP and IoS components of quarterly GDP estimates using VAT turnover data by the end of 2017 and publish VAT turnover in regular research articles from September 2016 (section 3.2)
- details progress since the start of the VAT project (section 4)
- considers plans to use VAT turnover for regional statistics (section 5)
- outlines next steps (section 6)

2 . Background

This is the fifth in a series of articles which describes progress in utilising VAT turnover as a key administrative data source. The [first](#) and [second](#) articles, published in August and October 2015, described our intentions to use this as a comprehensive replacement for elements of the Monthly Business Survey (MBS). The [third](#) article, published in December 2015, outlined our plans to pilot changes to the Index of Services and the Output approach to measuring gross domestic product. The [fourth](#) article, published in April 2016, examined 10 candidate industries selected to pilot the use of VAT turnover as a replacement for MBS turnover.

3 . Delivering a medium-term results system

3.1 Halting the short-term pilot while delivering the medium-term strategy

To enable the pilot to proceed in September, a number of changes to existing information technology (IT) systems would have been required, utilising a significant amount of data technology resource. Against this backdrop, we are currently developing new IT platforms which will process administrative data sources (for example VAT turnover and VAT expenditure) and a rationalised set of business surveys.

The existing IT systems are not part of our long-term plans and delivering the necessary changes would have slowed the pace at which we could develop our long-term vision. Moreover, the benefits that accrued would only have been tactical in nature to show proof of concept and could not have been scaled significantly beyond the 10 industries outlined in the previous article. Consequently we have decided to halt the pilot and redirect resources to deliver the new IT platform over the medium term; choosing a strategic delivery in the medium term over a tactical delivery in the short-term.

3.2 Using VAT turnover in National Accounts

By re-directing resources we aim to fully estimate the IoP and IoS components of quarterly GDP estimates using VAT turnover data by the end of 2017 using capabilities delivered by the new IT platform..

This will allow additional time for further methodological research to be conducted in the interim. Research will be primarily focused on the four data challenges described in the December 2015 article but also on the comparison of MBS and VAT turnover as data sources with their own individual features and characteristics. We will commence publication of regular quarterly research articles in September 2016 containing VAT turnover data as well as methodological updates. The data will be under development with clear supporting commentary which will reflect on our plans to improve the quality of the output before its use by the end of 2017.

4 . Progress with VAT turnover data

At this stage it is useful to reflect on the progress we have made in considering some of the key methodological issues that are a feature of VAT turnover estimates.

4.1 Matching to the Inter Departmental Business Register (IDBR)

Previously we had only been able to use data from HMRC at aggregate industry level and using HMRC classifications which could be inconsistent with National Accounts industry classifications. Linking VAT turnover returns to [IDBR](#) statistical units has transformed our statistics by enabling us to produce data at the micro level and also capture IDBR metadata on for example industry classification, geography and legal status. Classifications are now consistent with National Accounts and at the micro level we can use metadata to deliver a richer and more accurate data source.

4.2 Coverage

VAT turnover is reported by businesses covering the entire economy as outlined in the October 2015 report. Estimates of nominal output in the short-term are primarily delivered by MBS, but this accounts for only 43% of the economy. There are significant industries that are measured by volume data alone which would conceptually benefit from an alternative estimate of nominal output. In addition, VAT estimates are comprehensive in their coverage. This was highlighted in Table 2 of the April 2016 article which compared the MBS sample of 4,000 businesses for 10 industries to a VAT universe of some 427,000 businesses for the same 10 industries. This strong feature of VAT turnover should be seen in the context of a trade-off in timeliness – MBS data is available earlier than VAT turnover.

4.3 Expenditure

We now have access to the expenditure variable collected on VAT returns (box 7 described as ‘total value of purchases and all other inputs excluding any VAT’) and this new source will be analysed and modelled to consider its usefulness as an estimator of intermediate consumption where practical, as outlined in the October 2015 article. The importance of this source will rise significantly over the medium term.

4.4 Cleaning

The three broad cleaning rules detecting amounts recorded in pounds thousands errors, quarterly reporting patterns and suspicious turnover were described in the October 2015 article. Our analysis of the data has demonstrated that the cleaning rules generally work effectively and that the need for manual cleaning or 'editing' is limited, even over a long time series. When individual returns are not cleaned appropriately they can have a significant impact on industry estimates, but these occurrences are easily identified in manual editing. These instances tend to be more common for first returns, or when a business changes industry or employment size band, so we will work to improve our automatic cleaning processes to offset the need for time-consuming manual editing.

4.5 Apportionment

This process of moving the data from HMRC reporting level to ONS Reporting Unit level was explained in the October 2015 article. At present we will retain the method of apportioning VAT turnover based to Reporting Unit level using the employment variable. Over the coming months we will test and analyse the impact of apportionment using the employment, registered turnover and derived turnover per head variable to determine the most effective approach. We will discuss this in a future research article.

4.6 Monthly data

Businesses report data on a monthly basis, over three different quarterly staggers and 12 different annual staggers. The data are currently converted to a monthly series for quarterly and annual returns by dividing the returns by three or twelve respectively. As outlined in the December 2015 article we will consider methods to improve this including the use of calendar days, working days or a cubic spline.

4.7 Forecasting

This was covered briefly in the April 2016 report and would have been a key issue if the pilot was to have been delivered in September. An analysis of simple forecasting predictions over a short timeframe produced encouraging results. However, given our decision not to progress the pilot this challenge has not been taken forward.

4.8 Data production

In the April 2016 article we reported that a process review had identified an element of duplication which would effectively save a day in the production cycle, allowing more time for analysis. That article also confirmed the 10 pilot industries and that five of these had been manually cleaned in preparation for the pilot. Currently seven industries have been manually cleaned and they show a good fit with estimates sourced from MBS turnover. However, progress has now been halted as the pilot will not commence.

5 . Regional statistics

An article '[Supporting devolution: developments in regional and local statistics](#)' we published in May 2016 outlines a timetable to produce regional short-term indicators and improved estimates of regional gross value added over the medium term. Estimates of VAT turnover and expenditure at micro level, with associated metadata, are fundamental to realising these aims and we will report on progress in forthcoming research articles.

6 . Next steps

The first VAT turnover research article will be published in the latter half of September 2016. The article will analyse VAT turnover data for a section of the economy; describe the methodology that has been used; comment clearly on the improvements that are yet to be made to the data so that users are aware of the limitations of the dataset at that moment in time; and provide a progress report on our longer term plans for delivery into National Accounts at the end of 2017.

Additional research articles will be published on a quarterly basis following the September publication.

7 . References

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