

A Quarterly Expenditure Measure of GDP for Scotland

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The Office of the Chief Economic Advisor (OCEA) and the Department of Enterprise, Transport and Lifelong Learning (ETLLD) commissioned DTZ to carry out a scoping study into the future production of a quarterly expenditure measure of GDP for Scotland – the GDP (E). The study establishes the data requirements for the series, the current availability of data and any additional data collection required. This is intended to develop a fuller understanding of how the economy operates, by triangulating a final demand measure with the existing output-based series.

Main Findings

- Scotland is relatively well served in the production of economic statistics. To the best of our knowledge, Scotland is unrivalled among European regions with a timely quarterly official measure of real economic growth – the output-based GDP(O) series.
- Our investigation has shown that an expenditure approach measure of GDP is both possible and would meet international standards set by the International Monetary Fund (IMF).
- The preferred approach advocated by the EU, UN, IMF and World Bank for producing quarterly GDP(E) is to find volume indicators for key expenditure components within each category of final demand.
- Following these international guidelines, the only quarterly GDP(E) series that Scotland can deliver with existing data sources is a constant price series using a base year and volume inflation for individual series and quarters.
- There is sufficient data available across the government spending and consumer demand components of final demand to make a volume adjusted series. Many of these indicators are based on the same sources as applied by the ONS to produce the UK GDP(E) series. Thus, the series should be comparable for benchmarking.
- The base year weights are of equal importance to the volume (or value) change in a series, because series are multiplicative and base year weight errors will be compounded over time.
- The development of a single set of high quality Input-Output tables in the chosen base year would provide base year weights for GDP(E) and possibly improve the weights currently used for GDP(O) (also based on Input-Output tables).
- Although taken from the same Input-Output tables, the base years weights for GDP(O) and GDP(E) would be different and meet the requirements for independence of the two series.

Economic context

Growing Gross Domestic Product (GDP) is a priority for the new Parliament, with aspirations for a specific GDP target to equal UK growth. GDP can be calculated in a three ways and the Scottish Government publishes a quarterly output measure of GDP. The output measure allows the performance of industries, and their influence on overall economic growth, to be tracked and assessed.

Scotland's existing output measure of GDP has received much attention in the media, offering detailed industry analysis.

To develop a fuller understanding of how the economy operates there is a need to triangulate different GDP measures looking at the key components in the economy - income, output and expenditure. A measure of GDP(E) would add a new dimension to the existing analysis: regular messages for final demand markets.

The Scottish Government produces annual Input-Output tables providing a snapshot of the three measures of GDP at current prices. However, the Input-Output tables are only available with a lag of around 3 years and are currently not able to form consistent time-series.

A new series therefore offers three main advantages:

1. GDP(E) is a fundamental building block for understanding the economy and a current gap in available information;
2. To boost the credibility of Scottish economic statistics, offering greater depth for analysis; and
3. To provide a comparative point of view with the UK, aimed at measuring performance against any explicit targets for raising the sustainable growth rate.

Identifying Best practice

Our literature review has identified the following key desirable attributes for any set of official quarterly national accounts (QNA) statistics:

1. QNA statistics should be built on accurate and timely data. "Indirect" and econometric techniques are not substitutes;
2. QNA statistics should be consistent with annual equivalents;
3. Revisions to QNA series will generally be necessary and should be made in a transparent manner;
4. QNA statistics should be presented as a consistent time series;
5. In terms of specific QNA series, GDP is important, but so are the sub-components; and
6. Unadjusted data should be the foundation of national accounts compilation.

Any QNA series that exhibits these characteristics will conform to the requirements of the SNA and ESA (95).

Case studies were conducted for comparative series including the UK, New Zealand and Republic of Ireland. In each case, the adopted approach for producing quarterly GDP(E) is to find volume indicators for key expenditure components within each category of final demand. This is also the preferred approach advocated by the EU, UN, IMF and World Bank.

Constructing the series

Data requirements

The study asked a number of fundamental questions to determine the best format for the series. Should the new series show current or constant prices? Should the new series show monetary values or an index? Should the new series be independent, integrated or benchmarked with the existing quarterly GDP series? Each has a direct consequence for data requirements.

At the outset of this investigation we established the principle of making best use of Scottish data, to reflect real (observed) characteristics of Scotland's economy. Following this principle, it was evident early on in our investigation that a current price measure of GDP for Scotland was unlikely. There is a dearth of information relating to prices for a range of goods and services in Scotland. These prices would be needed to form a Paasche Price Index in order to construct a current price series of GDP.

By contrast, the requirements for a constant price GDP(E) series are:

- A reliable base year value of GDP including all expenditure components of consumer spending, tourism, investment, government spending and the balance of trade; and
- A volume or quantity index of expenditure components from the base year to the current year.

Data availability

A comprehensive review of sources was undertaken and found that suitable data are available for all components of final demand: Expenditure by households, tourists, Government, on investment and the trade balance.

Each expenditure component contains a large number of goods and services. However, the study concludes that a small number of goods and services account for the majority of each component, and that reasonable proxies can be applied to the remaining expenditure. This simplifies the process, and removes the need for additional primary research.

Volume measures are readily available for key components of consumer spending, government and investment. Some of these measures are common to the existing output series, and so will be improved further still as the Atkinson review is implemented.

The greatest challenge for Scotland (as with other regions) relates to measurement of trade flows. The volume of UK intra-regional exports and imports are not comprehensively available, though an index of manufactured exports does exist.

However, this issue can be broached without new data collection by focusing on the trade balance itself, rather than the absolute flows of exports and imports.

Quality testing the sources

At time of publication, the ONS is working to develop and implement a coherent, comprehensive, effective and systematic approach to quality measurement and reporting. A key objective is that all ONS outputs will be accompanied by a range of quality measures and indicators, so that users are able to understand the strengths and limitations of official statistics and how to use them appropriately.

This study conducted an initial quality test for the available sources across the ex anti measurable indicators: relevance, accuracy, timeliness & punctuality and comparability. The initial findings were that each component of final demand in Scotland has a sufficiently high quality measure available to inform development of a GDP(E) series.

Conclusions

In the spirit of telling a fuller economic story for Scotland, a measure of GDP(E) is desirable. Scotland already has both ingredients available to build a high quality, constant price series, capable of offering up-to-date, real messages on final demand markets.

The process of using a base year, weighted by a volume index is common practice amongst both developed and developing countries. It offers a simple, but elegant approach to build a series that will comply with international publication standards.

With support from the Scottish Government economists and statisticians, the report outlines a cost effective way to address this missing macroeconomic chapter in Scotland's story.

Commentary on any new series is likely to concentrate on outcomes rather than acknowledge its infancy and future development. Although the report outlines a positive way forward, the first steps should be taken with caution, perhaps an initial in-house pilot series.