

Limitations and Strengths of Scottish Economic Statistics

March 2017

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Executive Summary

The pace of devolution is beginning to expose cracks in the UK's system of producing economic statistics. The UK system of producing statistics was designed to produce economic statistics for the whole of the UK, not for the devolved administrations. Key issues include:

- Scottish economic statistics are available covering most of the key indicators used to scrutinise the UK economy. Scotland is by far the best served part of the UK in terms of economic statistics and the only UK devolved administration to produce quarterly GDP figures.
- More focus is being placed on the use of administrative data (VAT returns, PAYE data) rather than large scale surveys to build economic statistics. Whilst more cost-effective, administrative data presents challenges in extracting relevant Scottish data.
- Data for capital investment and Scotland's trade balance are inadequate.
- The Scottish Government is different to the Office for National Statistics (ONS) in that it is both a producer and consumer of official statistics; Scotland has no independent statistics body. The dual role includes producing economic statistics and using them to scrutinise and develop public policy.
- Trying to reproduce the UK's economic statistics for Scotland may not be the best use of resources. The Bean Review invites a fundamental rethink about the way we produce economic statistics. For example, it is plausible that it would be more appropriate to measure Green GDP for Scotland.
- The vast reservoir of microdata available is an underused resource and cries out for the kind of change in culture advocated by the Bean Review. The Bean Review calls for statisticians to turn their attention away from 'getting the statistics out' and think more creatively about potentially new series of data more relevant to economic policy.
- Northern Ireland has more flexibility and power to produce economic statistics and produces data such as exports through administrative data rather than bespoke surveys. Other European regions produce impressive economic statistics drawing on administrative data.

It's likely that Scottish Government statisticians would describe themselves as more opportunistic, but relatively powerless, statistical scavengers. It is important that Scotland takes up the challenge laid down by the Bean Review and looks at new approaches to develop the next generation of economic statistics.

1 Introduction

Background

1.1 The Scottish Parliament's economy, jobs and fair work committee is aware of the limitations of Scottish economic statistics (see, for example, the Committee's [recent report on the potential impact of leaving the EU](#)). This includes the gender pay gap, economic growth, productivity and exports. Committee members agreed that economic policy should be based on good statistical knowledge and scrutiny of policy needs trustworthy, timely and comprehensive data.

1.2 The committee therefore agreed to hold an inquiry into the quality, timeliness and comprehensibility of Scottish economic statistics. This report was commissioned by the Scottish Parliament to consider the current provision of Scottish economic statistics, identify gaps, consider the situation elsewhere and set out ways in which the provision of economic data in Scotland could be improved.

What is covered in this report?

1.3 This report is not intended to be exhaustive but raises issues which could be explored during the committee's inquiry. In particular the report considers what data is needed for effective scrutiny of public policy, what data is missing or not fit for purpose, how are economic statistics produced, how can they be improved (including resource implications) and some examples of good practice.

2 What data is needed for effective scrutiny?

Scrutinising public policy in Scotland

2.1 The Committee was keen to understand the economic statistics required for effective parliamentary scrutiny of areas within its remit. The committee's remit includes the Scottish economy, investment policy, labour market strategy, business, cities and energy.

2.2 The Committee's remit clearly draws on data from across a wide range of economic indicators. The UK's economic accounts, as described in the latest Blue Book (available [online](#)) identifies nine key areas (ONS, 2016). These include:

- Gross Domestic Product (GDP)
- GDP deflator
- Gross Value added (GVA) at basic prices

- Gross National Income (GNI)
- Gross National Disposable Income (GNDI)
- Population estimates
- Employment estimates
- GDP per head
- Summary accounts (covering production, distribution, use, income and accumulation)

2.3 Data from seven of the nine areas set out above are available for Scotland. However, some Scottish data is of limited quality and is not published as regularly as equivalent data for the UK. For example, Gross National Income (GNI)¹ has been measured once (available [online](#)).

2.4 The two areas in which data is missing are inflation (GDP deflator) and information on how income is produced and distributed between the different parts of Scotland's economy.

2.5 To build income and distribution accounts, a better understanding of financial institutions in Scotland is needed including the value of borrowing, lending, assets and liabilities. This would be a resource-intensive exercise and extremely difficult given the ease with which capital flows between Scotland and the rest of the UK.

2.6 It is perhaps less clear why more attention hasn't been paid to a reliable measure of inflation or GDP deflator for Scotland. At present most Scottish economic indicators shown in 'real terms' (adjusting for inflation) are often based on the UK's GDP deflator published by HM Treasury (available [online](#)).

2.7 For example, if average wages in Scottish manufacturing or Scottish Government spending on a specific area were compared over several years, it is likely the UK GDP deflator would be applied to Scottish data to show data in constant prices. This isn't an unreasonable approach as changes in general price levels in Scotland appear to have closely follow those of the UK.

2.8 However, economic policies or economic shocks may cause prices, in the short term, to rise more quickly or fall more slowly in Scotland compared to other parts of the UK. This information would be helpful in more accurately measuring short term changes in real wages and economic growth in Scotland.

¹ GNI measures income flowing into and out of Scotland taking into account the ownership of Scottish companies.

2.9 The Scottish Government publishes export statistics, manufactured export statistics and GDP statistics showing measures of value and volume (at constant prices, i.e. adjusted for inflation). These publications include an implied deflator series, different from the UK deflators, which could be a cost-effective approach to be explored further particularly in the light of the Bean Review suggesting developing consumer price indices may be too costly.

2.10 The Scottish Parliament's economy, jobs and fair work committee is aware of the limitations of Scottish economic statistics (see, for example, the Committee's recent report on the potential impact of leaving the EU). This includes the gender pay gap, economic growth, productivity and exports. Committee members agreed that economic policy should be based on good statistical knowledge and scrutiny of policy needs trustworthy, timely and comprehensive data.

2.11 A summary scoring system is set out below showing the coverage and quality of economic statistics for each of the Committee scrutiny areas. For each of the areas the availability and quality of economic statistics was rated good, partial or poor.

2.12 All of the areas were rated as at least partial, with the Scottish economy and labour market strategy rated good. This reflects the general availability of economic statistics with a good range of data available for more general analysis.

Scrutiny area	Extent & quality of coverage	
The Scottish economy	<i>Good</i>	Good range of data on the Scottish economy and economic growth, but limited data on how the benefits of growth are distributed. The time lag in publishing GDP could be reduced and the measurement of investment and trade could be improved.
Labour market strategy	<i>Good</i>	ONS surveys, including the Annual Population Survey (APS), provide a wealth of data covering a wide range of characteristics of Scotland's labour market.

Scrutiny area	Extent & quality of coverage	
Domestic & international investment policy	<i>Partial</i>	Capital investment data is available but inadequate; some data is available on inward investment projects and overseas ownership of businesses operating in Scotland.
Business, industry & manufacturing	<i>Partial</i>	A wide range of data is available but limited data on productivity (arguably the most important indicator).
Cities	<i>Partial</i>	Data is available but a significant amount of data that could be used to describe Scotland's cities remains unused.
Energy, including renewable energy industries	<i>Partial</i>	Some data is available showing the activity and jobs associated with Scotland's energy industry but further data could be developed covering specific sectors including oil and gas (<i>see case study</i>) and renewables.

Specific issues

2.13 There are two further specific issues relating to the availability of economic statistics in Scotland. The first is the quality of data on trade, the Scottish Government produces the publication Export Statistics Scotland (ESS) which measures Scottish international exports and exports to the rest of the UK (available [online](#)).

2.14 The ESS export data is based on a survey of 1,506 businesses and captures the “destination of the goods being exported regardless of how the product leaves the UK.” This means that Scottish exports traveling through ports in the rest of the UK should be counted as “international” exports.

2.15 Nevertheless, the publication notes that estimates of exports to the rest of the UK “should be treated with some caution.” The main reason for the note of caution is because “it is more difficult to ascertain the final destination of sales within the UK as companies have no statutory requirement to collate financial information below UK level.”

2.16 There is a lack of data on imports either from overseas or from the rest of the UK. The latest Quarterly National Accounts Scotland (available [online](#)) states that imports from the rest of the UK, and therefore the trade balance, includes “residual alignment adjustments.” This suggests that as imports and the trade balance can’t be measured directly, they are estimated as a balancing (residual) item within GDP.

2.17 The second specific issue relates to capital investment, which is an important component of GDP. The UK Statistics Authority (UKSA) assessed the quality of Scottish macroeconomic statistics (assessment available [online](#)). The experimental figures underpinning the investment element are “associated with a relatively high degree of uncertainty”.

2.18 The latest Quarterly National Accounts Scotland publication also provides a link to an assessment of the quality of economic statistics (available [online](#)). Investment was highlighted as being one of the lower quality economic statistics. This may partly reflect a similar issue in measuring export data, larger companies operating across the UK may not keep records of capital investment for individual sites.

2.19 A good understanding of capital investment is important as investment is one of Scottish Government’s four economic priorities. The priorities are set out in Scotland’s Economic Strategy (available [online](#)), with business investment cited as part of the overall priority of increasing investment.

3 How are key statistics produced?

Producing economic statistics in Scotland and the UK

3.1 The Scottish Government provides an overview (available [online](#)) of how statistics are produced. This includes the Scottish Government’s approach to quality assurance of economic statistics (available [online](#)).

Exports

3.2 As an example, statistics included in the Export Statistics Scotland (ESS) publication are taken from the Global Connections Survey (GCS). The GCS is administered by the Scottish Government and sent to around 5,500 businesses in Scotland each year (responses were received from around 1,700 companies, including nil responses). The survey is targeted at the most export intensive companies.

3.3 Other data are used to enhance the GCS including surveys such as the Scottish elements of UK-wide surveys including the Office of National Statistics (ONS) Monthly Business Survey and the International Trade in Services Survey (ITIS). Administrative data sources, including the HM Revenue & Customs (HMRC) produced Overseas Trade Statistics.

3.4 ESS is designated as a National Statistics product. This means that it is produced independently of Scottish Ministers and has been assessed by the UKSA as being produced in line with the Code of Practice for Official Statistics (available [online](#)). This means the statistics have been found to meet user needs, to be methodologically sound, explained well and produced free of political interference.

3.5 Most of the statistics produced and published by the Scottish Government are National Statistics. This is the name for official statistics which have been, or are scheduled to be, assessed for compliance with the UK Statistics Authority (UKSA) Code of Practice for Official Statistics.

3.6 The UKSA was established under the [Statistics and Registration Service Act 2007](#). The Authority is an independent statutory body operating at arm's length from government as a non-ministerial department and reports directly to the UK Parliament, the Scottish Parliament, the National Assembly for Wales and the Northern Ireland Assembly.

3.7 The Office for National Statistics ([ONS](#)) is perhaps the better known organisation. The establishment of the UKSA (see above) effectively granted the ONS independence from government. The ONS is the UK's largest independent producer of official statistics and is the UK's National Statistical Institute. The national statistics produced by the ONS are assessed by the UKSA in the same way as the statistics produced by the Scottish Government.

3.8 The ONS and the Scottish Government are producers of both official and national statistics, the UKSA's National Statistician maintains strategic oversight of the ONS. The UKSA published a new business plan last year, 'Better Statistics Better Decisions', a five year strategy (available [online](#)) for the UK official statistics system setting out our aims, priorities, mission and values

3.9 The Scottish Government's Chief Statistician has overall responsibility for the implementation and coordination of professional statistical standards across Scotland. The full role of the Chief Statistician is available [online](#).

3.10 Official statistics in Scotland are also produced by Crown Bodies and a number of other public bodies named by Parliamentary Order. Some examples of other bodies producing official statistics include the Higher Education Statistics Agency, Student Loans Company, Scottish Environmental Protection Agency, Scottish Natural Heritage and the Scottish Social Services Council.

Strengths and weaknesses of the current system

3.11 The pace of devolution is beginning to expose cracks in the UK's system of producing economic statistics. The UK system of producing statistics was designed to produce economic statistics for the whole of the UK, not for the devolved administrations.

3.12 A greater focus is being placed on the use of administrative data (such as VAT returns or PAYE data) rather than large scale surveys. Whilst this may be a more cost effective approach for the UK, administrative data presents further challenges in extracting relevant Scottish data (see points on trade and investment data above).

3.13 The Bean Review (available [online](#)) highlighted some important issues facing the countries and regions of the UK in producing statistics for the regions and countries of the UK. These issues would need consideration if greater use were made of administrative data.

3.14 The Bean Review gives an example of a company with a large number of outlets. National (UK) data only requires the collection of company-wide information, but a breakdown for the countries and regions of the UK may require information to be collected by individual outlet. The Bean Review suggested that "This does not seem very practical."

3.15 The Bean Review also highlighted that for smaller geographic areas sample sizes are sometimes too small to provide reliable measures. Nevertheless, the Bean Review concludes that embedding administrative data into the production of statistics for UK countries and regions "seems to be the only viable way forward to provide a sufficiently rich picture of economic developments at the regional level."

3.16 The Scottish Government is different from the ONS in that it is both a producer and consumer of official statistics. When publishing a review of pre-release access to statistics (available [online](#)) the UKSA provided an assessment of conflicts that may arise:

“Statisticians working in government departments are alert to the way in which their work is regarded by their managers and Ministers. The respect of their departmental colleagues, their pay, promotion prospects and future career can be affected by the perception of their contribution to the work of the department.

Circulation of that work, prior to publication, may serve to focus the statisticians’ attention not on the public utility of their advice but rather on how it will be received within the department. If, for example, a government department is defending a controversial policy position, this may give rise to an imperative within the department for all officials to ‘pull together’, both to achieve as much as possible and, in the meantime, present the best possible outward face. In such an environment, departmental statisticians who present evidence that is seen as unhelpful run the risk of being perceived by departmental colleagues as naive or disloyal.”

3.17 As an example, the current orders in place covering the ONS state that a list of those with pre-release access to statistics must be published. The orders in place for Scotland do not require a list to be published but must be made available on request.

3.18 The pre-release access list was requested from the Scottish Government for some national statistics produced by the Office of the Chief Economic Advisor (OCEA). A total of 31 Scottish Government workers (excluding the statistics team who produce the data) have pre-release access to Scotland’s quarterly GDP data 24 hours before release.

3.19 This compares to 26 UK Government workers with 24 hours pre-release access (available [online](#)) to the ONS preliminary (first) estimate of GDP, an additional 16 members and employees of the independent Bank of England also have pre-release access to the data (42 in total).

3.20 The Bean Review recommended that the UK government should delegate to UKSA the power to decide that a piece of data be classified as an official statistic; high-profile releases of performance information by departments should be treated as official statistics and be compliant with the Code.

3.21 The Bean Review also recommended that the UKSA should decide whether an official statistic should be assessed against the Code for the purposes of National Statistic status. This is a significant change from the present arrangements where the UKSA can ask the Scottish Government to consider how statistics should be assessed and presented.

4 How can we improve?

Why are we producing economic statistics?

4.1 Recent developments to improve or expand economic statistics in Scotland have often relied on UK-wide data. This includes measures of labour productivity (available [online](#)) and GNI (available [online](#)). However, at best Scotland will only be able to replicate some of the statistics produced for the UK, but even this may not be the best use of resources to help scrutinise public policy.

4.2 There has been little evidence that Scotland has asked the broader question of what a system of economic statistics might look like if it were produced from scratch. The Bean Review provided the following assessment of the ONS's approach to economic statistics:

“The bulk of ONS’s economic statistics are constructed in line with methodologies laid down in internationally-agreed accords, such as the UN System of National Accounts (SNA). While these accords exist for good reason – to ensure that statistics are internationally comparable – the evolution of such accords typically lag the changing structure of the modern economy. Ideally, staff would have time to invest in exploring the consequences of changes in the economy for economic measurement and for investigating the use of alternative data sources. However, time constraints and a complex and fragmented technology estate have limited the extent to which this is possible. Instead, staff are overwhelmingly focussed on simply ‘getting the statistics out’. Relatively little attention is devoted to how the quality and relevance of the statistics, or their delivery, could be improved.”

4.3 The Review invites a fundamental rethink about the way we produce economic statistics, the structure of our economic statistics system and how they are presented. Arguably a more extreme example can be found in Bhutan in which the GNH Centre Bhutan has moved to measure Gross National Happiness (GNH) instead of GDP ([available online](#)).

4.4 It is entirely plausible that it would be more appropriate to measure GDP taking into account the consumption of natural resources. The ONS publishes environmental accounts (available [online](#)) which includes indicators combining GDP and data on energy and material consumption.

4.5 Additionally, the Scottish Government has arguably produced some of its most policy relevant information when it has produced publications that don't seek to copy an existing UK publication or statistics. For example the Scottish Government's annual carbon assessment of the Scottish draft budget (available [online](#)).

How can cost effective improvements be made?

4.6 The Virtual Microdata Laboratory (VML) was established in 2004 to allow researchers access to business data. It is a secure facility within the ONS where both government officials and academic researchers can analyse sensitive, detailed data for statistical purposes. The VML in Scotland is hosted by the Scottish Government at Atlantic Quay.

4.7 The vast reservoir of microdata contained within Atlantic Quay is an underused resource and cries out for the kind of change in culture advocated by the Bean Review. Statisticians should turn their attention from 'getting the statistics out' and think more creatively about potentially new series of data more relevant to economic policy in Scotland.

4.8 For example, the Annual Business Survey (ABS) contains information that could be broken down by cities and towns across Scotland to measure GVA growth, job creation or inward investment. The survey is available by detailed industries and provides excellent information on business rates and could be used to inform the burden of business rates relative to operating profits at a local level.

4.9 The Inter-Departmental Business Register (IDBR) is a comprehensive dataset of UK businesses which covers 99 percent of UK economic activity, holding records of approximately 2.1 million businesses. The IDBR includes information on industries, employment and turnover and geographical variables such as parliamentary constituency and travel to work areas. The IDBR is one of the most up to date sets of data and could be explored, for example providing a more up to date picture for Aberdeen and the ongoing impacts of the downturn in the oil and gas sector.

4.10 It is important to review the independence of economic statistics in Scotland. From 1 April 2017 the Scottish Fiscal Commission will be constituted as a Non-Ministerial Department (details [online](#)). A similar approach could be considered with statistics in Scotland to establish either a Scottish Statistics Office, embed further statistics capacity within an existing non-departmental department or review the role of Scotland's Chief Statistician.

4.11 This will offer an opportunity to address some difficulties in accessing administrative data as reported by Scotland's head of national accounts (in evidence [provided to the Scottish Parliament](#)). By more clearly separating the functions of statistics producers and consumers, accessing data from HMRC may be easier.

Case study: Oil and gas and the North East of Scotland

4.12 Crude oil prices began to fall significantly towards the end of 2014, and have remained relatively low since. The debate about the economic impact of lower oil prices has tended to focus on Scotland's economy. The impact of lower oil prices will hit the North East of Scotland harder, but a lack of up-to-date economic statistics has limited analysis.

4.13 The latest Gross Value Added (GVA) statistics published for the North East of Scotland are currently available up to 2015. The Businesses in Scotland publication (available [online](#)) was published in March 2017 and sets out the turnover, employment and the number of businesses for local authority areas across Scotland from up to 2016 (including Aberdeen and Aberdeenshire).

4.14 A range of additional economic statistics for North East Scotland could be developed drawing on the IDBR. This could include more up-to-date statistics produced more often covering changes in scale and type of activities undertaken by businesses in the North East of Scotland. This may include changes in turnover, job creation, business start-ups and the number of businesses that have ceased trading.

4.15 It would be possible to link data together from, for example, the membership of [Oil & Gas UK](#) and the IDBR to show the economic statistics covering the Oil & Gas UK membership. This would allow a more focused measure of oil and gas related businesses covering changes in turnover, jobs and businesses.

4.16 Additionally, the Bean Review recommended looking at data generated by a range of organisations. For example, certain types of planning applications to local councils in the North East could act as a leading indicator.

5 Examples of good practice

Northern Ireland

5.1 Northern Ireland, through the Northern Ireland Statistics and Research Agency ([NISRA](#)), has far more flexibility and power to produce economic statistics. NISRA advises Northern Ireland departments on all matters relating to the collection and disclosure of statistical information from businesses under the [Statistics of Trade and Employment \(NI\) Order 1988](#).

5.2 The Statistics of Trade and Employment (NI) Order 1988 empowers Northern Ireland departments to conduct surveys of businesses, and prosecute companies failing to comply with data requests. It also contains important checks to ensure the burdens placed on businesses are not excessive.

5.3 The Northern Ireland Broad Economy Sales and Exports Statistics ([BESES](#)) 2015 published by NISRA produces estimates of exports from Northern Ireland to Great Britain, the Republic of Ireland and the rest of the world. Data for the BESES is gathered through the Northern Ireland Annual Business Inquiry (NIABI), rather than through the survey approach used by the Scottish Government.

5.4 NISRA is also developing [economic accounts](#) for Northern Ireland similar to the Scottish National Accounts Programme (SNAP). However, there is no data for imports from Great Britain and the economic accounts use a similar approach to Scotland in estimating imports (and the trade balance) as a residual component (methodology is available [online](#)).

Other examples

5.5 Scotland is the only devolved administration in the UK to have developed a quarterly GDP series; the Scottish National Accounts Programme ([SNAP](#)) has placed Scotland ahead of any other part of the UK in terms of the volume and quality of economic statistics. However, Northern Ireland has made significant advances and is developing a similar set of economic accounts.

5.6 Eurostat has played an important role in encouraging EU member states to produce economic statistics for more detailed geographic areas ([NUTS](#) 1, 2 and 3). But within this group, Scotland performs well when compared to similar areas in other EU member states.

5.7 The Statistical Institute of Catalonia ([Idescat](#)) publishes a wide range of economic statistics. The Statistical Institute of Catalonia is responsible for co-ordinating and managing the Statistical System of Catalonia.

5.8 The institute publishes a measure of inflation for Catalonia and quarterly GDP growth. Quarter three 2016 for Catalonia was published on 15 December 15 2016 compared to 18 January 2017 for Quarter three GDP growth in Scotland. However, the Catalonian growth figures are less detailed than those published for Scotland, covering a smaller number of industries.

5.9 The Basque Statistical Office ([EUSTAT](#)) collects, analyses and publishes statistical information across a wide range of issues in the Basque economy and society. EUSTAT is an autonomous agency of the Basque Government. EUSTAT published quarterly GDP growth figures for the fourth quarter of 2016 on 23 February 2017, including GDP growth figures for the Basque provinces, this is particularly impressive.

5.10 Both EUSTAT and Idescat appear to have the capacity to access and use administrative data to develop economic statistics and are dedicated agencies working independently of their respective governments. The statistical systems used by both EUSTAT and Idescat would be familiar to those using economic statistics in Scotland, both agencies have invested resources in developing Input-Output tables to provide a good quality base year of information linked to short term indicators, such as the GDP growth series.

5.11 Input-Output tables provide a complete picture of the flows of goods and services (products) an economy for a given year. The tables are useful as they can incorporate economic data from a wide range of sources to provide a detailed snapshot of an economy in any given year.

5.12 Compared to ONS statisticians, it's more likely that Scottish Government statisticians would describe themselves as more opportunistic, but relatively powerless, statistical scavengers. The economic statistics published by the Scottish Government tend to pick out relevant data from UK wide surveys and administrative data where possible.