

## **The Challenges of Measuring the UK Service Sector**

Darren Morgan and Mark Stephens  
Office for National Statistics, Newport, UNITED KINGDOM  
[darren.morgan@ons.gsi.gov.uk](mailto:darren.morgan@ons.gsi.gov.uk), [mark.stephens@ons.gsi.gov.uk](mailto:mark.stephens@ons.gsi.gov.uk)

### **Abstract**

Statistical systems around the world generally measure manufacturing industries well via established and proven surveys and methods. During the last 15 years there have been efforts to rebalance many of these systems to reflect the relentless increase in the importance of the services industries. This presentation will describe the approach taken by the Office for National Statistics (the UK's National Statistical Institute) in the short-term measurement of the services industries. The session will include the challenges faced and overcome to develop, produce and publish a monthly index of services and will then describe what happened next: the user reaction, the highs and lows as we continue to try to keep the index up to date and how we are facing new pressures that include meeting new European statistical legislation.

Key Words: index of services, index of services production, ISP, Office for National Statistics, ONS, service industries

### **1. Introduction**

In 1989 the Pickford Review of UK macro-economic statistics highlighted that the statistical system had failed to meet policy needs on the accuracy, breadth and timeliness of estimates. GDP was at that time constructed as an average of the Expenditure, Income and Output measures but they had become divergent, with the Output measure relying on increasingly non-specific proxies and indicators and failing to adequately cover the service sector. By the mid 1990s the Office for National Statistics (ONS – including its precursor body) had reacted effectively in the manufacturing sector but the real challenge was in measuring services and re-balancing the statistical system to one that better reflected the growing importance of the service sector.

Between 1948 and 1970 the manufacturing sector maintained a steady proportion of UK GDP, falling from 36% to 33%. The 1970's witnessed manufacturing declining to reach 27% of GDP in 1980 although the service sector gained little – growing from 53% to 55% between 1970 and 1980. Since 1980 manufacturing has gradually but consistently declined in importance while the service sector has continued to grow and now accounts for 77% of UK GDP with manufacturing contributing 10%.

With the importance of the service sector continually rising users identified that the gap should be addressed and, following significant investment, the Index of Services (IoS) was launched in 2001 as an experimental statistic with a need to continually review its data and methods to allow it to reach a standard which users would find acceptable. Following a continuing programme of long-term investment IoS achieved the ONS quality benchmark status that was 'National Statistics' in 2007. However, in 2013 the challenge of appropriately measuring the service sector remains particularly given the proliferation of non-standard methods across different products in the service sector, and a renewed focus has been accepted as a strategic priority for UK National Accounts.

## 2. Progress

1989-1994: In response to the Pickford Review, GDP estimates became a balance of the Expenditure, Income and Output (or Production) methods by confronting the various data through annual supply and use tables, and Output (GDPO) was chosen as the source of what would become an accelerated preliminary or flash estimate. This led to investment in more robust monthly turnover inquiries and price indices to deliver a stronger Index of Production (IoP) while parts of the service sector benefitted from new quarterly turnover inquiries from 1991.

1995-2000: By the mid 90's, ONS aimed to measure services in the way it would the production sector, and from 1995 the transition from quarterly to monthly inquiries for the service sector began to steadily strengthen the flash estimate. Progress was tempered by the need to fully establish new surveys over a number of years to produce meaningful time series. At the same time the lack of service sector prices were addressed with the launch of a new quarterly Corporate Services Price Index (CSPI) which covered business to business activity in the service sector. However, coverage was more limited than the turnover surveys and the expansion proved slower than planned due to the difficulty in resolving some of the methodological challenges.

2001-2006: The launch of the IoS in 2001 did not signal that the development programme was complete. It simply marked the end of the first phase of expansion in which the more straightforward challenges had been addressed and the move from quarterly to monthly turnover inquiries had all but been completed. National Accounts integrated the IoS within GDPO seamlessly but new methods and approaches were required to confront the issues such as those surrounding non-market activity, financial services and the enduring weakness of deflation.

Against this background the Industry Review programme commenced in 2001 with a remit to systematically review each industry within the service sector and ensure that concepts, methodology and data sources followed robust international standards. Prioritisation was based broadly on industries that had scope for conceptual development, that were rapidly changing, that had importance in terms of Gross Value Added (GVA) weight and could embrace new data sources.

In this context the Eurostat 'Handbook on price and volume measures in national accounts' (2001 edition) became the IoS guidebook as it sought 'National Statistics' status. Furthermore in a practical sense, Canada and the UK were key contributors to the OECD 'Compilation manual for an index of services production' which was published in 2007. However, it would be misleading to believe that the wider statistical community had agreed all the standards or answered all the questions that could support a short-term approach to measuring service sector output – our community itself needed time to reflect on the new challenges.

In the UK the experience of the move to the International Standard of Industrial Classification Revision 3.1 (ISIC Rev3.1) equivalent to the UK Standard Industrial Classification (SIC) 2003 did little to improve the focus on service industries. This would only come with the adoption of ISIC Rev4 equivalent to SIC 2007 although it is arguable that further work is required to more completely address the imbalance of detail that exists between the manufacturing and service sectors.

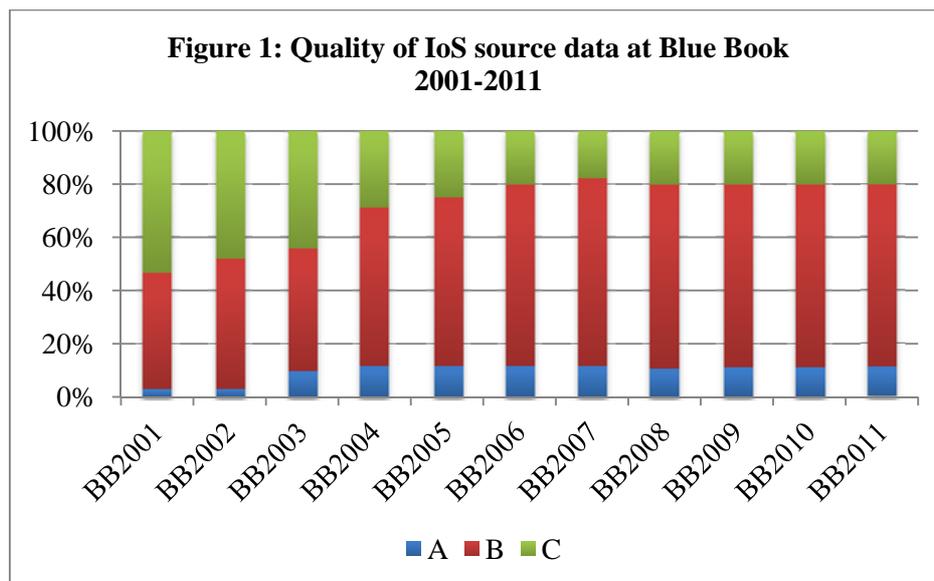
With prices, the Voorburg Group discussions proved supportive and helpful in spreading knowledge and practice internationally but they demonstrated that the challenges in measuring services are ongoing and are far from solved in a practical sense. We must also recognise the pricing issues observed when comparing final

consumption expenditure and intermediate consumption in the service sector – a challenge which is not mirrored within manufacturing. While the debate and discussion over Financial Intermediation Services Indirectly Measured (FISIM) highlighted the fact that financial services were complex and were becoming ever more complex during the opening decade of the 21<sup>st</sup> century.

### 3. Delivery

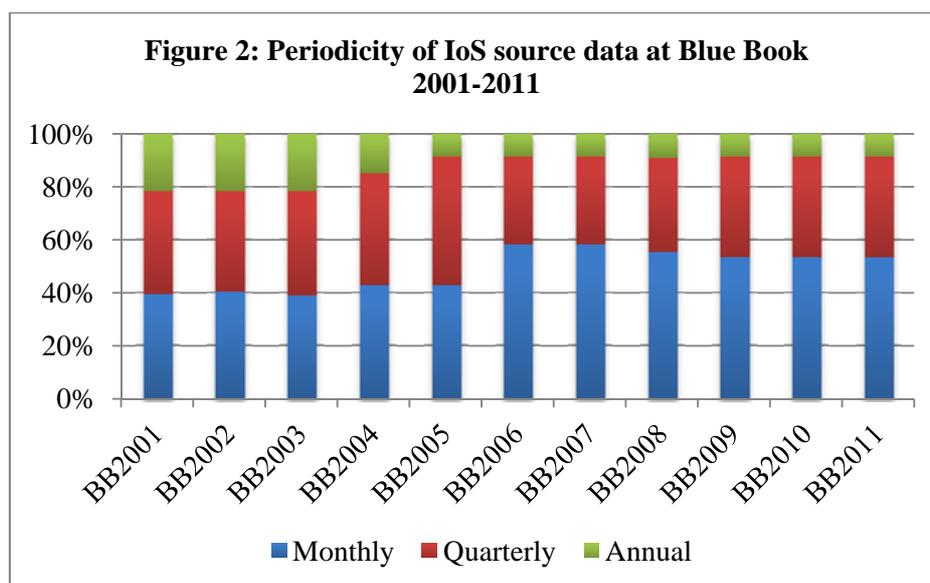
2007-2012: By 2007 almost the whole of the service sector had experienced an industry review. The cost of the programme was significant and some of this was borne by cutting the cost base supporting the IoP. Over time detailed inventory estimates were removed, questions on merchant goods ceased and eventually the IoP moved to sampling at the three digit level of SIC 2007 to allow the burden on business to be contained and spread more evenly across the whole economy as new monthly turnover inquiries began to emerge. This rebalancing of the cost on business was instrumental in allowing ONS to finally deliver ‘National Statistics’ status for IoS in 2007 and users of the data now had access to a robust monthly indicator of output in the service sector which was fully integrated with National Accounts.

Before the launch of the IoS in 2001, 40% of the GDPO preliminary estimate was based on a survey response of just 20%. The monthly IoS delivered responses of over 80% for the first two months of the quarter with only the third month reliant on a 20% response rate. It also meant that the timeliness of the IoS could be improved to 8 weeks after the reference period compared to the 13.5 weeks previously. The most significant change by 2007 was that of conceptual quality. Using the Eurostat handbook as a guide, in 2000 only 2% of service sector estimates were compiled using A or ideal methods (see Figure 1). Acceptable (B) methods accounted for 46% and inappropriate (C) methods a further 52%. In 2007 this had improved to 12% using ideal methods, 68% acceptable methods and 20% inappropriate. The primary cause for the amount of inappropriate methods was the lack of service sector price data but progress was also frustrated by the inconsistency exhibited between the Short-Term Statistics regulation and the Price and Volume regulation.



Nonetheless there were also improvements in periodicity as the amount of annual data fell from 21% in 2000 to 9% in 2007 (see Figure 2). The supply of monthly data increased from 39% to 57% (including 70% of market activity for the latter) while

quarterly data fell from 40% to 34% with two thirds of this covering non-market activity.



It is important to stress that the need for more timely estimates should not undermine quality. In this context the new breadth and underlying quality of the data was demonstrated by the fact that revisions to quarterly GDP growth remained low. Analysis has shown that revisions to GDP between the preliminary or flash estimate of a quarter and the third estimate averaged -0.02%. The Industry Review programme offered an opportunity to review data, concepts and methodology in a structured way and to assure users of the ongoing quality of GDPO estimates.

Improvements to GDPO continued with the first FISIM estimates in 2008 and progress was initially maintained with Industry Reviews before the programme came to an end in 2009 as a result of a number of competing priorities. In the preceding years National Accounts and GDPO had overcome the pressure on resources created by chain-linking, the move to a more integrated computer system and the beginnings of the displacement of National Accounts from London to the Newport office with a consequential temporary impact on the experience and capability of staff. However, the final move to a new computer system, closely followed by the move to SIC 2007, stretched the limited experience of National Accounts and GDPO compilers at the Newport site. Something had to be stopped and it was decided that these new developments should take precedence over Industry Reviews.

In 2011 the United Kingdom Statistical Authority (UKSA) reviewed the ‘National Statistics’ status of short-term economic output indicators. One of the key recommendations surrounded delivery of a plan to review data and methods to ensure that outputs continued to merit ‘National Statistics’ status. This became the impetus for a renewed IoS Industry Review programme which was re-launched in March 2012.

**4. Where are we now?**

ONS has announced that real estate, market sector health and financial services will be the first industries to be reviewed under the new programme which has also been widened to cover the whole economy. In addition to traditional Industry Reviews the

programme will consider wider cross-cutting issues under the banner of the GDPO Improvement programme.

This will include a review of how we adjust for productivity gains when using labour input series, the level at which wages are used when adjusting labour volumes and lessons that can be learned from benchmarking short-term and annual turnover estimates. The programme will also seek to expand turnover coverage by reviewing the feasibility of using administrative data such as recently available Value Added Tax (VAT) data and expanding monthly turnover inquiries to new service industries. We will also continue to review our existing external data supplies to ensure they are appropriate indicators of activity.

However, in many ways the challenges of 2013 remain much as they were in 2001. Perhaps the most intractable issue is that surrounding prices. In 2006, CSPI was re-named the Service Producer Price Index (SPPI) and the development of new prices continued as before but at a slower pace in terms of the impact on GDPO. However, as available resources have shrunk in recent years the investment in new SPPIs has also declined and it will be challenging to argue for significant new investment in a strategic expansion of SPPI given the challenging economic conditions. The UK also lacks the service sector equivalent to PRODCOM, the product based analysis that could underpin weights for deflation which undermines the conceptual appropriateness of our price estimates. But we should be clear that it is not just a question of resources. The same technical and conceptual challenges remain and even with a long-term resource commitment progress could be painfully slow.

This could also be said when confronting the issue of FISIM where there has been considerable international debate. Although the UK is aware of areas for improvement in its own calculation of FISIM estimates it may be misleading to believe that there is a unifying consensus on an agreed method. While post-recession developments in financial services show it has lost none of its appetite to innovate and challenge those who wish to measure it.

Similarly, the difficulty of measuring non-market activity has not disappeared. The Atkinson Review of Measurement of Government Output and Productivity in 2004 scoped the need to more fully understand the impact of the public sector on GDP estimates and to go beyond the narrow confines of measuring GDP to consider well-being and the qualitative impact of public services on the lives of UK citizens. The establishment of the UK Centre for the Measurement of Government Activity within ONS signalled a step change in how ONS and potentially National Accounts could more appropriately measure the contribution of public services. However, the upcoming revision to the 'Handbook on price and volume in national accounts' will signal that quality adjustments for non-market services should not feature in the main National Accounts but be contained in satellite accounts. By adopting a more pragmatic attitude to what is achievable perhaps this demonstrates that our community could go even further.

In Europe the Framework Regulation Integrating Business Statistics (FRIBS) will be agreed over the coming years and set new standards of statistical consistency and integrity. Will this offer an opportunity to reform the Short-Term Statistics Regulation which stubbornly requires output data for the production sector at four-digit level? The updated version of the 'Handbook on price and volume measures in national accounts' will be more pragmatic and less prescriptive for national statistical institutes where resources are stretched. Pragmatism may further suggest that the statistical community devotes a greater share of its diminishing resources to the service sector at the expense of the production sector.

**References:**

- Allsopp C (2004) Review of Statistics for Economic Policymaking, Final Report, March. The Stationery Office: London and at [http://www.hm-treasury.gov.uk/d/allsopp\\_final\\_ch1to3\\_384.pdf](http://www.hm-treasury.gov.uk/d/allsopp_final_ch1to3_384.pdf)
- Atkinson T (2005) Measurement of Government Output and Productivity for the National Accounts, Final Report, January. Palgrave Macmillan: Basingstoke and at <http://ons.gov.uk/ons/about-ons/what-we-do/programmes---projects/completed-projects-and-reviews/atkinson-review/final-report/atkinson-review-final-report---download.pdf>
- Drew S and Morgan D (2003) 'Experimental Monthly Index of Services – An update', Economic Trends 599, pp 84–95 and at <http://ons.gov.uk/ons/external-links/articles-and-summaries/articles/experimental-monthly-index-of-services---an-update.html>
- Drew S and Morgan D (2005) 'Experimental monthly Index of Services: Development programme update', Economic Trends 620, pp 61–78 and at <http://ons.gov.uk/ons/external-links/articles-and-summaries/articles/experimental-monthly-index-of-services---development-programme-update.html>
- Eurostat (2001) Handbook on price and volume measures in national accounts. Office for Official Publications of the European Communities. ISBN 92-894-2000-6 and at [http://epp.eurostat.ec.europa.eu/portal/page/portal/product\\_details/publication?p\\_product\\_code=KS-41-01-543](http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/publication?p_product_code=KS-41-01-543)
- IoS Industry Review Reports are available at <http://ons.gov.uk/ons/guide-method/method-quality/specific/economy/index-of-services/future-improvements/index.html>
- IoS Methodology is available at <http://ons.gov.uk/ons/guide-method/method-quality/specific/economy/index-of-services/index.html>
- Pickford S, Cunningham J, Lynch J, Radice R and White G (1989) Government Economic Statistics: A Scrutiny Report. Cabinet Office. HMSO: London.
- Pike R and Drew S (2002) 'Experimental Monthly Index of Services', Economic Trends 583, pp 70–78 and at <http://ons.gov.uk/ons/external-links/articles-and-summaries/articles/experimental-monthly-index-of-services.html>
- Pike R and Reed G (2000) 'Introducing the Experimental Monthly Index of Services', Economic Trends 565, pp 51–68 and at <http://ons.gov.uk/ons/external-links/articles-and-summaries/articles/introducing-the-experimental-monthly-index-of-services.html>
- Robinson H (2006) 'Quality assurance of new methods in National Accounts', Economic Trends 629, pp 14–19 and at <http://ons.gov.uk/ons/rel/elmr/economic-trends--discontinued-/no--629--april-2006/economic-trends.pdf>
- Skipper H (2005) 'Early estimates of GDP: information content and forecasting methods', Economic Trends 617, pp 26–35 and at <http://ons.gov.uk/ons/rel/elmr/economic-trends--discontinued-/no--617--april-2005/economic-trends.pdf>
- Tily G (2006) 'Improvements to timely measures of service sector output', Economic Trends 630, pp 29–42 and at <http://ons.gov.uk/ons/external-links/articles-and-summaries/articles/improvements-to-timely-measures-of-service-sector-output.html>