

Methodology of the Monthly Index of Services

Business Activities (part 1) Industry Review

Introduction

At the launch of the experimental Index of Services (IoS) in December 2000 a commitment was made to review, and improve where practical, the sources and methods used to measure the service sector. Business Activities (part 1) are a group of industries that have been reviewed as part of the third set of industries as part of the Industry Review Programme. This paper outlines the findings of the Business Activities (part 1) Industry Review.

Summary

This industry review recommended:

- to replace the Household Expenditure (HE) deflator used for 63.40 Activities of other transport agencies with the Corporate Services Price Index (CSPI) for freight forwarding
- to replace the combined Average Earnings Index (AEI) and Retail Price Index (RPI) deflator used for five of the industries within Division 74 with appropriate CSPIs.

Although the methodology will be changed all the way back to 1994 in the system, only the open period will be revised. The main impact is that for business services there is weaker growth at the beginning of 2001, whereas the growth in Auxiliary Transport Activities (a division in which one of the new CSPIs has been introduced) is stronger at the beginning of 2001.

How important is Business Activities (part 1)?

In terms of gross value added (GVA) weights in 2000, Business Activities (part 1) represents:

- 39% of the Business services and finance group (published as part of the IoS)
- 13% of the IoS
- 9% of Total GVA

Methodology

Previous methodology

Short-term movements in gross value added in Business Activities (part 1) were previously estimated by deflated monthly turnover data (sourced from the Monthly Inquiry into Distribution and Services Sector (MIDSS)), as detailed in the table below:

Table 1

SIC	Industry Description	Indicator type	Source	Deflator	GVA weight per 1000
63.40	Activities of other transport agencies	Deflated MIDSS turnover	ONS	HE: Miscellaneous travel	4.2
71.33	Renting of office machinery and equipment including computers	Deflated MIDSS turnover	ONS	PPI: Manufacture of office machinery	0.4
74.13	Market research and public opinion polling	Deflated MIDSS turnover	ONS	AEI: Real estate, renting and business activity RPIY excluding mortgage payments and indirect taxes	0.8
74.30	Technical testing and analysis	Deflated MIDSS turnover	ONS	AEI: Real estate, renting and business activity RPIY excluding mortgage payments and indirect taxes	1.2
74.50	Labour recruitment and provision of personnel	Deflated MIDSS turnover	ONS	AEI: Real estate, renting and business activity RPIY excluding mortgage payments and indirect taxes	14.0
74.60	Investigation and security activities	Deflated MIDSS turnover	ONS	CSPI: Security services	2.3
74.70	Industrial cleaning	Deflated MIDSS turnover	ONS	CSPI: Contract cleaning	2.8
74.81	Photographic activities	Deflated MIDSS turnover	ONS	CSPI: Commercial film processing RPI: Film processing	0.9
74.82	Packaging activities	Deflated MIDSS turnover	ONS	AEI: Real estate, renting and business activity RPIY excluding mortgage payments and indirect taxes	0.4
74.83	Secretarial and translation activities	Deflated MIDSS turnover	ONS	AEI: Real estate, renting and business activity RPIY excluding mortgage payments and indirect taxes	0.4

Reasons for change

The main reasons for reviewing Business Activities (part 1) were the representativeness and appropriateness of the deflators. In particular:

- The data series for SICs 74.13, 74.30, 74.50, 74.82 and 74.83 were deflated by combining the AEI for real estate, renting and business activity (adjusted for changes in productivity) with the RPI excluding mortgage payments and indirect taxes (RPIY). The AEI used is a general series covering Divisions 70 –74 and is not specific to any of the industries reviewed. The RPIY is consumer based and is not representative of these business activities.

- The business only market of SIC¹ 63.40 was deflated by a household expenditure implied price deflator that is neither representative nor appropriate.
- A Producer Price Index (PPI) was used to deflate the rental price movements for SIC 71.33. This is only acceptable if rental and manufacturing prices are congruent and there is no time lag between producers' prices and rental prices.
- The CSPIs used as deflators for SICs 74.60, 74.70 and 74.81 were based on samples set up in 1995 and were not necessarily representative or appropriate to these SICs.
- CSPIs had been developed for the other seven SICs and these needed to be investigated to establish whether they were of sufficient quality to replace the current deflators

What should we be doing?

In October 2001, Eurostat (European Union's Statistical Office) published the Handbook on price and volume measures in national accounts. The handbook provides guidance by product, on what price and volume methods should ideally be used ('A' methods), acceptable methods ('B' methods) and those methods that should not be used ('C' methods). The handbook has been written in the context of annual data but the same rules apply to sub-annual data.

Except for 74.50, the handbook does not give specific 'A' and 'B' methods for these industries. However, the general guidance is that an 'A' method is to deflate output with price indices at an appropriate level of detail and adjusted for quality. 'B' methods are those where price indices are only partially represented or do not fully reflect quality changes.

For 74.50, 'A' methods deflate turnover with wage rate indices that include productivity and quality adjustments and also reflect the administrative costs imposed by the agency, or contract prices that include quotes for specific types of workers. Wage rate indices on their own constitute 'B' methods. Issues faced by the industry review

Issues faced by the industry review

Quality of the MIDSS turnover data

MIDSS were looked at in terms of their:

- sample sizes and response rates
- quality adjustments and revisions
- comparison with other data sources

¹ The SIC is the Standard Industrial Classification, and this is the classification system used in the UK to define industrial groupings. The 4-digit refers to the level of detail and is generally the level at which data is collected and aggregated from within GDP(O) and IoS. More detail on this can be found in the IoS Methodology documentation

Sample size and response rates

The sample within the MIDSS survey is allocated on the basis of a Neyman allocation. This uses value added ratios to ensure that industries with high turnover / low margins (such as wholesale) are not disproportionately sampled. The sample sizes for the ten SICs ranged from 40 for 71.33 to over 1500 for 74.50.

On average the response rate at the time of delivery of the data to IoS/GDP was over 76%. This compares with 73% for Division 72 Computer and related activities and 79% for Division 64 Post and telecommunications.

Quality adjustments and revisions

As all ten industries are relatively small, the returned data from the samples can be influenced by what would be considered minor events in larger industries. These include:

- low response rates – figures for missing returns in the 1 in 1 strata are imputed based on previous returns. However, there have been instances, eg 71.33 Renting of office machinery, when the imputed figure has to be revised when the actual figure arrives at a later date.
- changes in the sample – some of the industries, eg 74.50 Employment agencies, have quite volatile birth /death rates among the smaller companies. Other industries have been affected by sample rotation, eg 74.81 Photographic activities, re-stratification, eg 74.60 Investigation and security activities, and / or re-classification, eg 74.82 Packaging activities. Such changes can lead to problems with grossing. However, most of the industries have well-established companies in the 1 in 1 sample and so the impact on the total industry is minor.
- the nature of the industry – some industries are very competitive, eg 63.40 Activities of other transport agencies, which can lead to sudden downturns in particular sectors. Other industries, eg 74.13 Market research and public opinion polling, rely on short / medium term contracts with clients. The loss / acquisition of a large contract can lead to a step-change in monthly turnover.
- quarterly billing – where a company bills its customers at the end of each quarter and as a consequence the company ‘estimates’ turnover for its first two MIDSS returns and provides a ‘residual’ figure for the third month.

All the above are known ‘issues with MIDSS data and the quality assurance checks that are in place ensure that any adjustments made to data are small and carried through to subsequent months.

Comparison with VAT data

MIDSS data was compared with VAT data, supplied by Her Majesty’s Customs and Excise (HMCE), using 1996 as the base year. VAT data is only a consistent time series from this point due to re-classification of VAT data to SIC(92). Analyses included comparisons of quarterly paths and quarterly percentage growth rates and the calculation of correlation coefficients. The two comparisons showed little coherence between the two series, however the correlation coefficients showed there was strong correlation for SICs 74.50, 74.60, 74,70 and 74.82, and to a lesser extent for SICs 74.13 and 74.83.

A further analysis of the Inter-Departmental Business Register (IDBR) investigated whether there were inconsistencies between the SICs of enterprises on the IDBR and the SICs that are provided by HMCE with the VAT turnover data. Any such inconsistencies would help to explain why turnover collected by MIDSS is not the same as VAT turnover. Reasons for inconsistencies include the fact that HMCE only collect data for VAT registered companies and so many of the small businesses that are on the IDBR are not included in their figures. Also, HMCE are only interested in collecting revenue and do not verify SIC classifications (businesses classify themselves) whereas IDBR do check out SIC classifications.

The analysis showed that for the four industries where there was little correlation between the MIDSS and VAT data, viz. SICs 63.40, 71.33, 74.30 and 74.81, there was a higher mismatch, in terms of turnover, between enterprise SICs and VAT SICs than for the other six industries. This helps explain inconsistency between MIDSS and VAT turnover data.

Conclusions on the quality of MIDSS

There are some problems with the quality of the raw MIDSS data, primarily due to the impact that sample rotation and re-classifications have on these small industries. The 'smallness' of these industries also leads to problems with comparing the MIDSS series with other series, namely VAT where the match of turnover on SIC classifications is poor, and Employment where there is insufficient 4-digit detail.

However, the quality assurance procedures that are in place ensure that the adjusted MIDSS series are of the best quality currently available. The review recommended the continued use of MIDSS turnover data as the short-term indicator for these industries.

Deflation

Up to Blue Book 2003 the deflators used were as per Table 1. As CSPIs were available for each of the industries and these are conceptually better² than the non-CSPIs deflators that were in use, these were considered as the only option.

CSPI for Freight Forwarding

The CSPI for Freight Forwarding, is based solely on prices for transporting various types of goods from A to B via road, sea, air or rail (or a combination of these methods) collected from companies that include many of the main players in the industry. The trade association for the industry regards Freight Forwarding as encompassing all the activities associated with moving goods, i.e. all the activities defined in SIC 63.40.

The review concluded that the CSPI for Freight Forwarding was appropriate and representative of the industry, and hence a suitable deflator for 63.40 Activities of other transport agencies.

² This is according to the Eurostat Handbook on Price and Volume (2001)

CSPI for Renting of office machinery

The CSPI for Renting of office machinery is based on the prices for renting computers, computer equipment, eg printers, and other types of office machinery, such as photocopiers and fax machines, collected from a very small sample. Computers and computer equipment represented over 90% of the index. However, there has been a shift away from renting of computer equipment and an increase in renting of office furniture.

The review concluded that the CSPI for Renting of office machinery was not fully representative of SIC 71.33 and that the PPI for the Manufacture of Office machinery should continue to be used as the deflator for this industry until the quality of the CSPI was fit for purpose.

CSPI for Market research

The CSPI for Market research is based on prices that are representative of the market research industry. The CSPI does not cover public opinion polling but this accounts for only 1.5% of turnover for SIC 74.13.

The review concluded that the CSPI for Market research was appropriate and representative of the industry, and hence a suitable deflator for 74.13 Market research and public opinion polling.

CSPI for Technical testing

The CSPI for Technical testing is based on prices that fully represent the specialist business activities within SIC 74.30.

The review concluded that the CSPI for Technical testing was appropriate and representative of the industry, and hence a suitable deflator for 74.30 Technical testing and analysis.

CSPI for Employment agencies

The CSPI for Employment agencies is based on prices that fully represent the business activities within SIC 74.50.

The review concluded that the CSPI for Employment agencies was appropriate and representative of the industry, and hence a suitable deflator for 74.50 Labour recruitment and the provision of personnel.

CSPI for Security services

The CSPI for Security services is based on prices that fully represent the business activities within 74.60/2 Security and related activities. The other part of 74.60, viz. 74.60/1 Investigation activities only accounts for 0.2% by employment and 0.4% by turnover of 74.60. Hence the series is driven by 74.60/2.

The review concluded that the CSPI for security services was appropriate and representative of the industry, and should continue to be used as a deflator for 74.60 Investigation and security activities.

CSPI for Contract cleaning

The CSPI for Contract cleaning is based on prices that fully represent the business activities within 74.70. This SIC specifically excludes activities of households employing domestics but does include some household activities such as window cleaning and chimney sweeping. However, these consumer activities represent only a small part of the overall SIC.

The review concluded that the CSPI for contract cleaning was appropriate and representative of the industry, and should continue to be used as a deflator for 74.70 Industrial cleaning.

CSPI for Commercial film processing

The CSPI for Commercial film processing is based on prices that fully represent the commercial film processing activities within 74.81/9 Photographic activities not elsewhere classified. This subclass is the dominant part of 74.81, providing over 90% of the class's turnover. The CSPI is combined with the RPI for film processing to reflect the mixed market of this industry.

The review concluded that the CSPI for commercial film processing combined with the RPI for film processing was appropriate and representative of the industry, and this combined deflator should continue to be used as a deflator for 74.81 Photographic activities.

CSPI for Contract packaging

The CSPI for Contract packaging is based on prices that fully represent the business activities within the predominately business to business market of 74.82.

The review concluded that the CSPI for contract packaging services was appropriate and representative of the industry, and hence a suitable deflator for 74.82 Packaging activities.

CSPIs for Secretarial services and translation services

Due to the disparate activities within 74.83 two CSPIs have been developed. The CSPI for Secretarial services is based on prices that fully represent the secretarial activities within this SIC and the CSPI for Translation services is based on prices that fully represent the translation and interpretation activities within this SIC. Although the SIC also includes similar activities within the business to consumer market, this is negligible compared with the business to business market.

The review concluded that the CSPI for secretarial services combined with the CSPI for translation services were appropriate and representative of the industry, and hence a suitable deflator for 74.83 Secretarial and translation activities.

Who was consulted as part of the Industry Review process?

Within the ONS, there was comprehensive consultation with relevant teams both within National Accounts and in the survey areas. The CSPI team had already met with many of the trade associations and a selection of companies connected with the ten industries reviewed. As this was all well documented, further consultation was not considered necessary.

New methodology

In summary the industry review for Business Activities (part 1) has introduced the following recommendations:

- Update the deflators previously used, by introducing seven CSPIs:

Table 2

CSPI	SIC	SIC description
Freight forwarding	63.40	Activities of other transport agencies
Market research	74.13	Market research and public opinion polling
Technical testing	74.30	Technical testing and analysis
Employment agencies	74.50	Labour recruitment and provision of personnel
Contract packaging	74.82	Packaging activities
Secretarial services	74.83	Secretarial and translation activities
Translation services		

As the CSPIs are a quarterly series, the 'monthliness' of the previous deflators is lost. Analysis comparing the interpolated CSPIs with these deflators benchmarked to the quarterly CSPI showed that there does not appear to be a problem. However, this will be reviewed annually, or more frequently if the current low inflation situation changes.

Benefits and assumptions of new methodology

Table 3

Benefits	Assumptions
More appropriate and representative deflators being used	Review of movements within quarterly data can be handled by annual reviews
Good quality briefing supplied with the CSPIs	

Impact of new methodology

The graph below shows the impact of the new methodology on both Division 63 and Division 74. The data has been revised back to January 2000. This in line with the open period for revisions set-out in the National Accounts Revisions Policy for Blue Book 2003

Figure 1

Supporting and auxiliary transport (Sic92 division 63), constant prices seasonally adjusted.

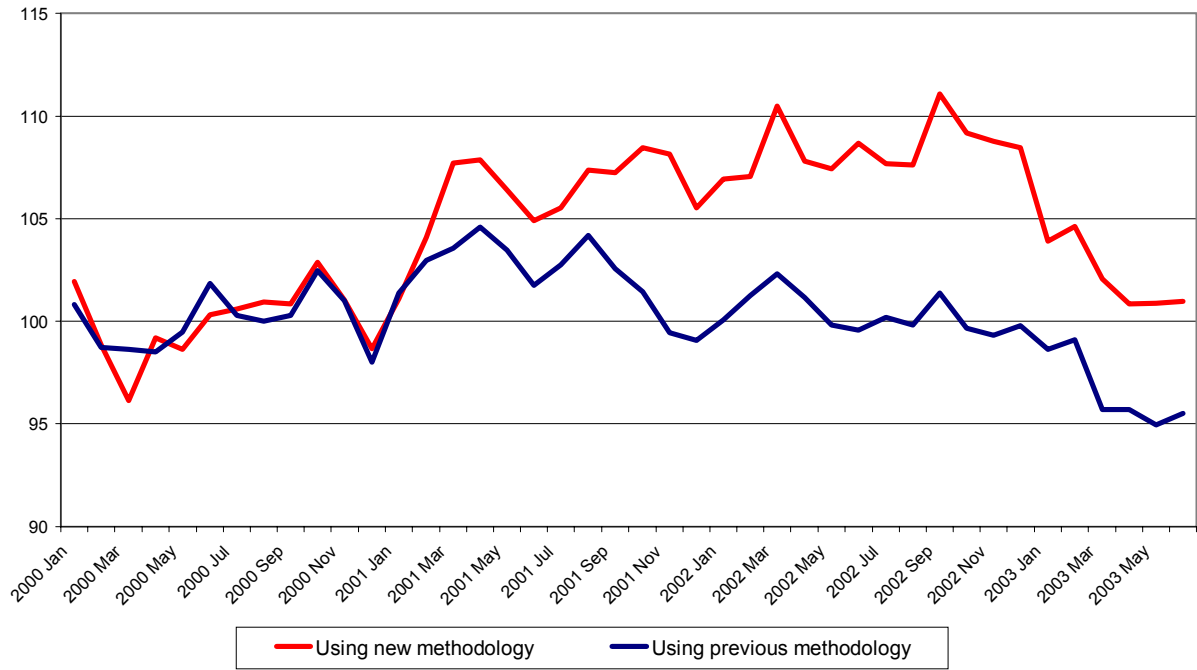
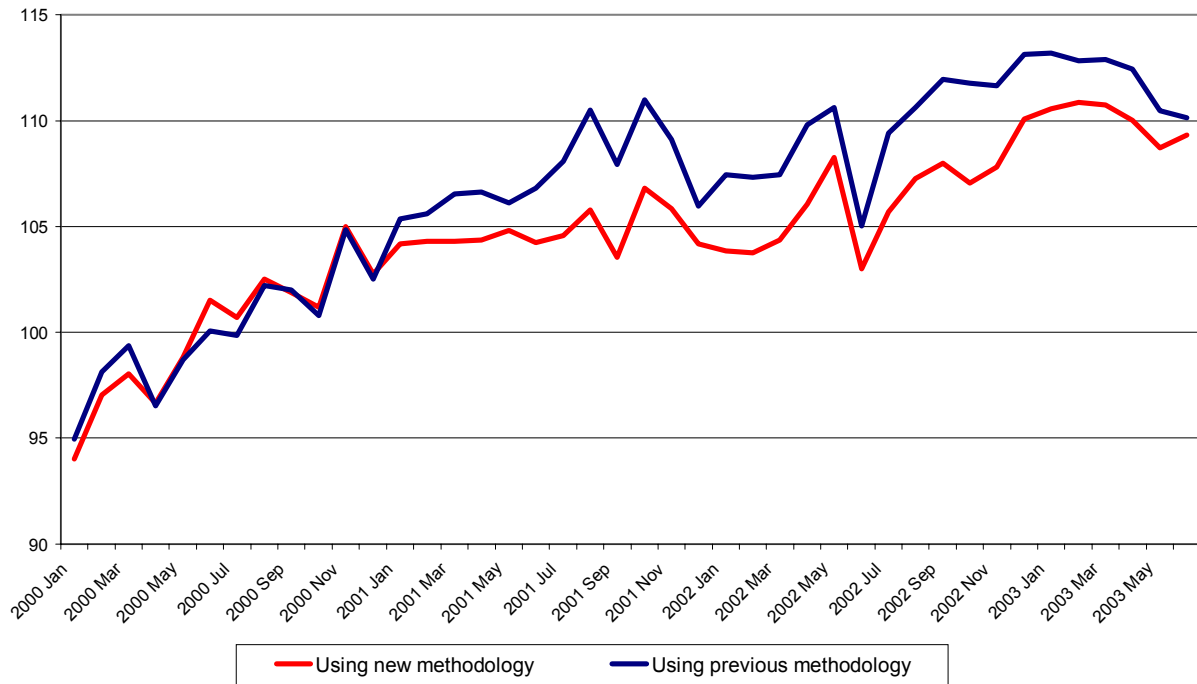


Figure 2

Other business activities (Sic92 division 74), constant prices, seasonally adjusted



The greater impact is on Division 63. This is because activities within 63.40, which is about 23% of the division, operate in a competitive market that keeps prices down. This trend is reflected in the CSPI, whereas the HE showed a steady rise in prices.

Contact Information

Any questions or comments on this article are welcome, as are offers to participate in the process of improving industry sources and methods. Any enquiries should be addressed to:

Steve Drew
Short Term Output Indicators Division
Office for National Statistics
Room 1.473
Government Buildings
Cardiff Road
Newport
NP10 8XG

Tel: 01633 812484

E-mail: steve.drew@ons.gov.uk

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For more information on CSPI please visit <http://www.statistics.gov.uk/cspi>