

## FEATURE

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# Rebasing the services producer price index

## SUMMARY

The experimental services producer price index (SPPI) was rebased as of 26 November 2008, an exercise that has re-referenced the index to 2005=100 from its previous base of 2000=100. The weighting patterns have also been updated to reflect market shares in the new base year. This article briefly describes the development of the SPPI, construction of the index, the methodology employed and weighting patterns calculations and compares growth in both the net and gross sector indices on both bases.

The experimental services producer price index (SPPI), formerly the corporate services price index (CSPI), renamed in 2006 for consistency with the more established producer price indices (PPIs), has recently been rebased. The rebasing exercise has re-referenced the index to the year 2005=100 from its previous base of 2000=100 and updated the weighting patterns, to reflect market shares in the new base year. The top-level SPPI is published on both a net sector and a gross sector basis, with growth being generally greater in the case of the net sector index.

Since the previous rebasing project, new indices for computer services and advertising placement have been introduced; a redeveloped index for financial intermediation – formerly the banking index – has also been introduced (the banking index was suspended in August 2007 due to quality concerns). This redeveloped index will be published in its own right but will not be included as part of the top-level SPPI indices.

## Overview of the SPPI

A more complete background and history of the SPPI (under its previous title of CSPI) is available in *Economic Trends* articles by Palmer (2000), Skipper (1998) and Price (1996). Briefly:

- the SPPI is an index compiled quarterly to measure the changes in price of a range of service products provided by UK businesses to other UK businesses and to local and central government. Service

products provided to private individuals and to companies operating outside the UK are beyond the scope of the SPPI

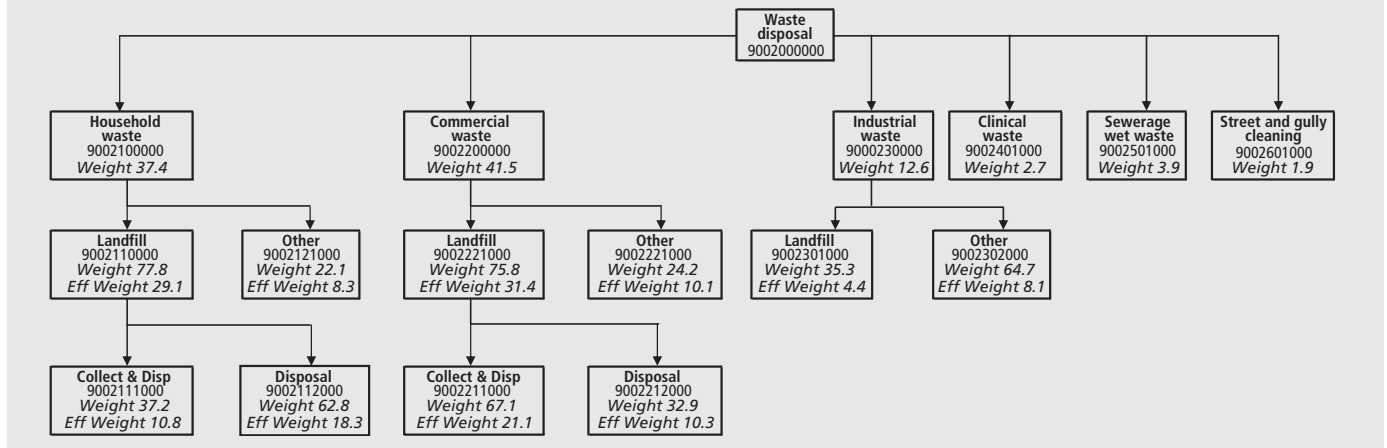
- SPPI development began in 1990 with the aim of creating a services price index to supplement the (manufacturing) producer price indices
- the SPPI has been gradually expanded and currently covers the activities of 32 separate industries aggregated to produce the top-level indices. Work is ongoing to further increase the coverage of the SPPI, developing indices for industries not currently included, for example, freight carriage by air
- the majority of the individual industry-level SPPIs are currently used within the UK National Accounts division. They are used as price deflators in the compilation of the experimental monthly index of services and quarterly Gross Domestic Product (GDP) by the output method

## Index construction

Industry-level indices are currently the lowest level of aggregation to be published. These indices are weighted together to produce the top-level SPPI, which is published on both a net sector and gross sector basis.

The net sector SPPI represents transactions made by businesses from the service sector with UK businesses outside the service sector and with general government. The gross sector SPPI represents transactions made by businesses from the service sector with all UK businesses and with general government.

**Figure 1**  
**Waste disposal family tree**



In order to model the pricing structure of a particular service industry, its activities are arranged into a hierarchical structure of product groups, subproducts and items. Within each industry is a range of product groups, each of which is assigned an index number. These are the product group indices and each is given a percentage weight calculated as the market share attributable to that product group. Market share is calculated from information gathered via the SPPI turnover inquiry and is the sum of respondent market share and an estimate of market share for other non-sampled businesses engaged in similar activity.

For the purpose of the index structure, each product group can be made up of a number of subproducts, each of which is assigned an index number and a weight in similar fashion to the product group indices. In turn, these subproducts could be made up of further subproducts, again with index numbers and weights of their own.

Figure 1 shows how the industry level index for waste disposal (SIC 90020) is constructed.

The product group or subproduct indices at the bottom of this 'family tree' are known as stage one indices. Each stage one index is made up of a collection of specific items, also assigned index numbers and weights, for which prices are collected from a number of respondents. These items can be considered as the foundation on which all of the upper level indices are built.

Figure 2 shows an example of one collection of items feeding index 9002501000 from Figure 1.

**Methodology**

Rebasing is currently carried out on a five-yearly cycle, so this is the second time since its inception that the SPPI has been rebased,

to update base prices and index weights. The exercise is necessary since, over time, the relative volumes of service commodities consumed, and prices charged for them, will change. It is important, therefore, that base prices and weighting patterns employed in the construction of the indices are updated at regular intervals to reflect these changes. All weights have been updated to reflect the market shares of each of the products in the year 2005.

As stated, weighting patterns calculated at each level below industry level are based on turnover information collected on each of the products, subproducts or items within that level. Industry-level weighting patterns are calculated using information from three separate sources and, as stated, the methodology employed has been reviewed and improvements made since the previous rebasing project.

**Industry-level weighting patterns calculations**

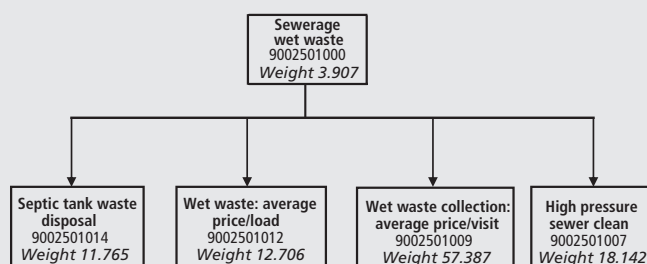
During the current rebasing exercise, improvements have been made to the methodology for calculating the industry-level weighting patterns. These are used to aggregate the individual industry indices into the top-level net sector and gross sector headline indices. The term weighting pattern indicates the proportion

of the turnover of each industry within the SPPI relative to the turnover of all other industries within the index.

At the time of the previous rebasing project, data from Office for National Statistics (ONS) business surveys were primarily used to calculate the weighting patterns. In a number of cases, these data were supplemented with information from external bodies, such as trade associations and industry regulators. For the current rebasing exercise it was decided to base the calculations primarily on data taken from the National Accounts Supply-Use Tables (SUT) (turnover information across all sectors of the economy is collected by broad industry category and presented in the SUT). Some disaggregation of these data was necessary and this was achieved using data from more detailed business surveys, namely, the Annual Business Inquiry and the SPPI turnover inquiry. In each case, the most up-to-date information available in relation to the base year was used. Using only ONS business survey data avoided the need for any supplementary information.

The reason behind the decision to change the methodology was twofold. Firstly, much of the supplementary information received, albeit based on expert opinion, was likely in some cases to be no more than conjecture. Secondly, and perhaps more pertinent, it

**Figure 2**  
**Sewerage wet waste family tree**



was unlikely that similar information could be collected from the same sources for the current exercise. This was due, in the main, to a lack of any sufficient audit trail.

### Changes to the weights

It is apparent from **Table 1** that, in general, there has not been a great deal of relative change to the weights. At the time of the previous rebasing, six industries carried weights greater than 5 per cent under the net sector and gross sector calculations. Combined, they accounted for more than 55 per cent of the net sector weight and almost 60 per cent of the gross sector weight. Those same six industries now account for around 60 per cent of the net and gross sector weights.

### Growth

**Figure 3** compares the top-level SPPI net and gross sector indices on both the 2000 and 2005 bases. **Figure 4** illustrates that the growth trend in the net sector index before and after rebasing is very similar up until early 2006, with growth in the rebased index running at about 0.5 per cent lower than previously. By mid-2006, the level of growth associated with the rebased index has overtaken previous growth levels and for the next year or so runs at about 0.25 per cent higher. From mid-2007, the levels of growth continue in almost identical fashion.

The story of the trend in the growth is very similar in the case of the gross sector indices. Up until early 2006, the growth in the rebased index is around 0.75 per cent less than previously. By the middle of 2006, the rebased growth is on a par with previous growth and both follow an almost identical path thereafter.

#### CONTACT

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#### REFERENCES

Palmer N (2000) 'Corporate Services Prices: Publication of Prototype Index', *Economic Trends* 560, pp 33–45.

Price J (1996) 'Producer Prices for Services: Development of a New Price Index', *Economic Trends* 513, pp 14–18.

Skipper H (1998) 'Development of the Corporate Service Price Index: A review of progress', *Economic Trends* 538, pp 25–31.

Table 1

### Comparison of 2000- and 2005-based SPPI weights

|  | Percentages |       |              |       |
|--|-------------|-------|--------------|-------|
|  | Net sector  |       | Gross sector |       |
|  | 2005        | 2000  | 2005         | 2000  |
| Maintenance and repair of motor vehicles | 3.62        | 1.98  | 3.35         | 2.62  |
| Hotels                                   | 1.54        | 3.89  | 1.26         | 3.30  |
| Canteens and catering                    | 1.71        | 3.20  | 1.40         | 2.71  |
| Business rail fares                      | 0.58        | 0.16  | 0.55         | 0.28  |
| Rail freight                             | 0.23        | 0.98  | 0.22         | 0.56  |
| Bus and coach hire                       | 0.81        | 0.18  | 0.39         | 0.11  |
| Freight transport by road                | 14.73       | 20.12 | 7.05         | 11.38 |
| Commercial vehicle ferries               | 0.18        | 0.35  | 0.15         | 0.26  |
| Sea and coastal water freight            | 1.07        | 0.87  | 0.86         | 0.85  |
| Business airfares                        | 0.21        | 1.51  | 0.33         | 2.93  |
| Freight forwarding                       | 7.68        | 5.90  | 7.70         | 6.69  |
| National post                            | 1.07        | 1.72  | 1.70         | 3.11  |
| Courier services                         | 1.30        | 1.20  | 2.06         | 2.16  |
| Telecommunications                       | 3.62        | 5.13  | 6.51         | 10.59 |
| Property rentals                         | 22.23       | 11.72 | 11.43        | 7.04  |
| Estate agent activities                  | 0.25        | 1.48  | 0.50         | 3.32  |
| Construction plant hire                  | 3.84        | 5.41  | 2.30         | 2.13  |
| Computer services                        | 7.47        | 6.80  | 11.24        | 11.26 |
| Market research                          | 2.59        | 0.94  | 3.18         | 1.02  |
| Technical testing                        | 0.97        | 0.92  | 1.04         | 0.69  |
| Advertising                              | 6.39        | 1.46  | 5.99         | 1.56  |
| Employment agencies                      | 8.05        | 6.27  | 14.74        | 12.68 |
| Security services                        | 1.60        | 2.36  | 2.94         | 1.76  |
| Industrial cleaning                      | 1.68        | 2.25  | 3.07         | 2.10  |
| Commercial film processing               | 0.03        | 0.18  | 0.05         | 0.14  |
| Contract packaging                       | 0.22        | 1.26  | 0.41         | 0.53  |
| Secretarial services                     | 0.06        | 0.32  | 0.11         | 0.30  |
| Translation services                     | 0.05        | 0.04  | 0.10         | 0.04  |
| Adult education                          | 1.06        | 1.46  | 4.83         | 1.36  |
| Sewerage services                        | 2.45        | 3.80  | 1.72         | 2.03  |
| Waste disposal                           | 2.36        | 2.39  | 1.65         | 1.29  |
| Commercial washing and dry cleaning      | 0.35        | 0.64  | 1.17         | 0.60  |

Figure 3

### Comparison of 2000- and 2005-based top-level SPPI indices

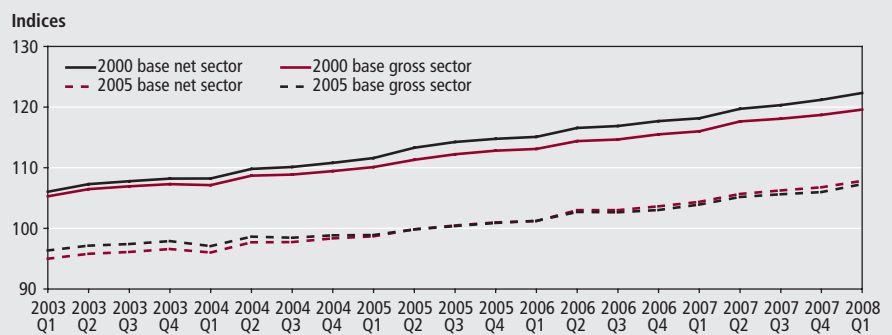


Figure 4

### Top-level SPPI: comparison of growth rates

