

Experimental Monthly Index of Services

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- On 8 May 2001 the 'experimental' label was dropped from the Index of Distribution (IoD) and a monthly IoD First Release was introduced.
- The timeliness of the IoD and experimental Index of Services (IoS) has been improved by four weeks; they are now published around 9½ weeks after the end of the month.
- Detailed documentation of the IoS is now available on the National Statistics (NS) website.
- Reviews of the motor trade and wholesale industries have been completed. Data will be revised to take on the new methodology on 28 June, when the national accounts *Blue Book* data set is published.
- Six new experimental Corporate Services Price Indices (CSPIs) have been introduced since December 2000, bringing the total number of CSPIs to 28. A further 15 series are currently being developed.
- Developments in methodology include improvements to the method of interpolating monthly turnover data and sampling improvements for ONS's Monthly Inquiry into the Distribution and Service Sector (MIDSS).
- Future plans include continuing the programme of industry reviews, taking on more monthly data and making further improvements to timeliness.

Introduction

This article sets out the progress made since the launch of the experimental IoS in December 2000 and it gives details of the further work that must be done before the IoS can be launched as a mainstream statistic.

The article covers:

- background and conceptual basis;
- achievements since the launch of the experimental monthly IoS in December 2000;
- future plans;
- conclusion.

Background

In December 2000 ONS introduced an experimental constant price monthly IoS. An article in the December 2000 edition of *Economic Trends*¹ explained that the introduction of an experimental IoS was the first step towards providing, for the service industries the periodicity, range and quality of output indicators that have existed for the production industries for many years. The article described the work that had been done to produce the experimental IoS and it gave details of the planned future developments.

A note on IoD quality issues was made available when the IoD First Release was initially published in May 2001; it can be found on the National Statistics website at www.statistics.gov.uk/ioid

The experimental IoS now comprises the monthly index for total services and the published components: hotels and restaurants; transport and communication; business and finance; and government and other services.

Speeding-up the IoS

On the day the IoD First Release was launched, the timeliness of the IoD publication was improved by four weeks; from 13½ to about 9½ weeks after the end of the month. On 3 January 2002 the timeliness of the experimental IoS was also improved by about 4 weeks, to match the timeliness of the IoD. Plans to further speed up the production of the IoS are set out later in this article.

Now that the IoS is produced faster, for one month in every three, the monthly IoD and the experimental monthly IoS show data for a period that is ahead of the published quarterly GDP estimate. For example, the estimates of IoD and the rest of the IoS for January 2000 were published on 4 April, whilst the preliminary estimate of GDP for the first quarter of 2002 was published on 26 April. Also the

IoD First Release publishes quarterly estimates for retail, wholesale and motor trades before this level of detail has been published within the quarterly national accounts and the experimental IoS reveals a quarterly estimate for hotels and restaurants before it has been published within the quarterly national accounts.

Figure 1 below shows the current timing of the monthly IoD and experimental IoS compared to the publication dates of the quarterly national accounts.

Use of National Statistics website

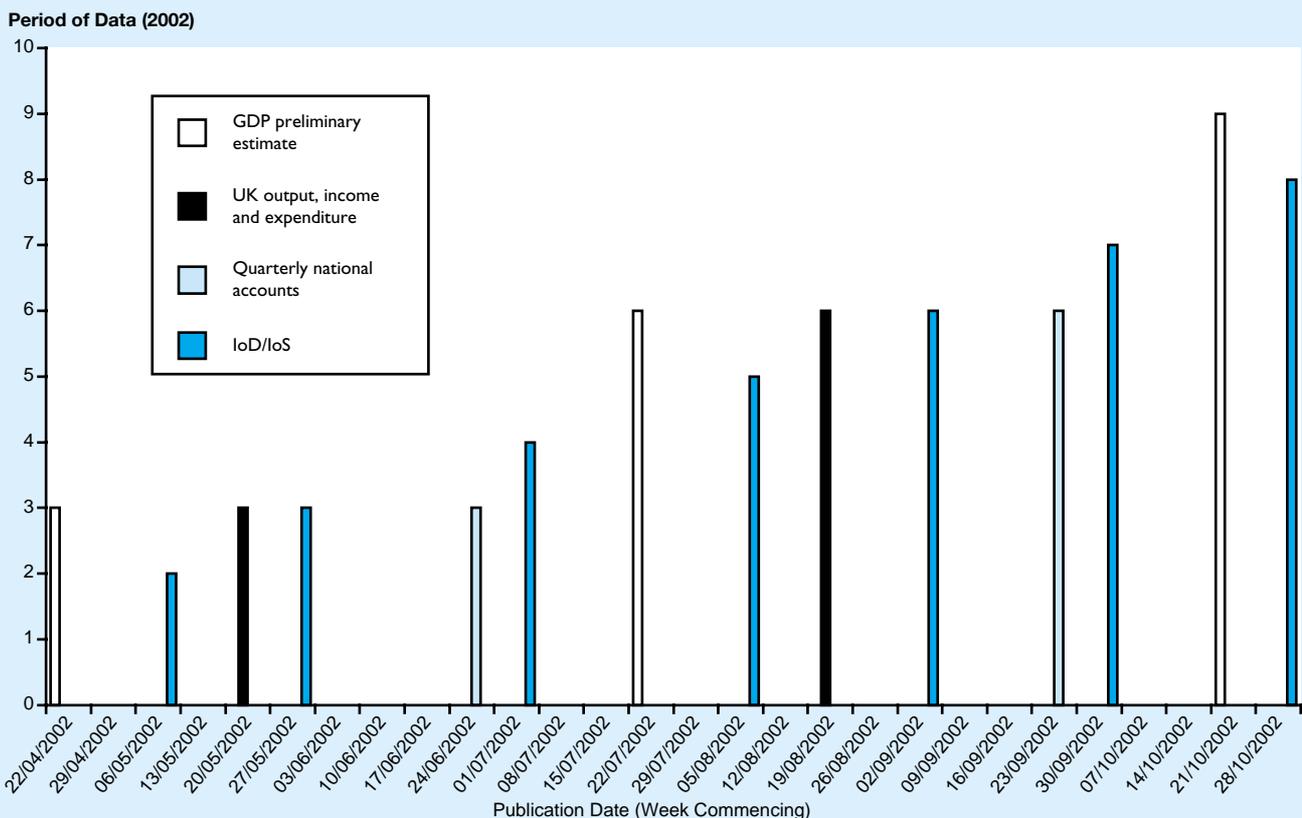
Every month since the launch of the experimental monthly IoS in December 2000 an IoS release has been published in the experimental statistics area of the National Statistics website. The IoS press release receives over 300 hits each month.

Documentation

In April 2001, ONS gave a presentation on the IoS development to the Official Statistics Section of the Royal Statistical Society. In the discussion that followed, we offered to make details of the construction of the IoS available once the experimental index had bedded in. Also when the IoD First Release was launched we committed ourselves to publishing detailed documentation for the index.

Figure 1

The publication of IoD/IoS in relation to the publication of quarterly GDP



In January 2002 we placed detailed documentation for the experimental monthly IoS and the IoD on the National Statistics website. The IoS documentation comprises a main section under eight headings and five annexes providing more detailed descriptions (e.g. Annex A provides an algebraic description of the index construction). The documentation can be found at www.statistics.gov.uk/iosmethodology

The main page of the documentation has been receiving up to 200 hits a month and many of the pages providing detail have been receiving 50 or more hits a month.

Indicator developments

A commitment was made at the launch of the IoS in December 2000 to improve both the range and quality of the indicators used to measure the IoS and the service sector of GDP(O). In order to take forward the development of this work, an industry review programme has been set-up to tackle these issues. The programme for industry reviews has been decided in conjunction with the Bank of England (BoE), HM Treasury (HMT) and the Department of Trade and Industry (DTI).

The approach adopted has been to evaluate and improve the methodology on an industry-by-industry basis. The first two reviews looked at the motor and wholesale trades. The methodological changes of both reviews will be introduced on 28 June 2002, in the monthly production round coinciding with the publication of the annual UK National Accounts – the *Blue Book*.

Industry Review Process

The review process starts by quality assuring the existing data sources and methods. This involves documenting the methodology, meeting with data suppliers to fully understand the data and flagging up any issues with the data. The current methods are then evaluated against the Eurostat guidance for annual price and volume measurement⁴, in order to assess the indicators' conceptual appropriateness.

The next stage is to look at how the current methods can be improved, e.g. what alternative data sources are available. This includes both internal sources (this is mainly through taking on more of the MIDSS turnover data that has not yet been used within IoS and quarterly GDP(O)) and external data sources (i.e. other government departments, external organisations). Following the assessment of alternative sources the preferred data sources are tested and the recommendations are presented to a Peer Group Appraisal of ONS national accounts experts and methodologists.

Consultations are held throughout the review process, where appropriate, with other government departments, trade associations, industry experts, academics and other National Statistical Institutes.

Motor trade industry review

Current methodology

The motor trade represents 3.0 per cent of services and 2.1 per cent of the whole economy by gross value added (GVA) weight.

Short-term movements in GVA in the motor trades are currently estimated by a combination of four output indices for: new cars; used cars; other new vehicles; and fuel. The new vehicles data are based upon Driver and Vehicle Licensing Agency (DVLA) new vehicle registrations data, while the fuel data are based upon the volume of fuel deliveries from refineries to retail fuel outlets. More detail of the specific indicators used to estimate each Standard Industrial Classification (SIC) sub-division can be found in the IoS methodology found on the National Statistics website at www.statistics.gov.uk/iosmethodology

The main reasons for changing this approach are:

- the availability of conceptually better data sources that were previously not in existence;
- the fuel series is used as a proxy to measure two-thirds of SIC division 50, whereas it should only be used for 8 per cent;
- the current methodology uses new vehicle registration data as a proxy for sales of new and used vehicles;
- the fuel data include retail activity from companies outside SIC division 50 (e.g. supermarkets, which are part of the retail industry (SIC division 52)).

Issues faced

The main issues faced in the industry review have been listed below:

- which deflators should be used for the motor trade;
- how these deflators should be weighted together;
- for automotive fuel, the choice between the current method of using census data on automotive fuel deliveries against the conceptually more appropriate method which uses survey data.

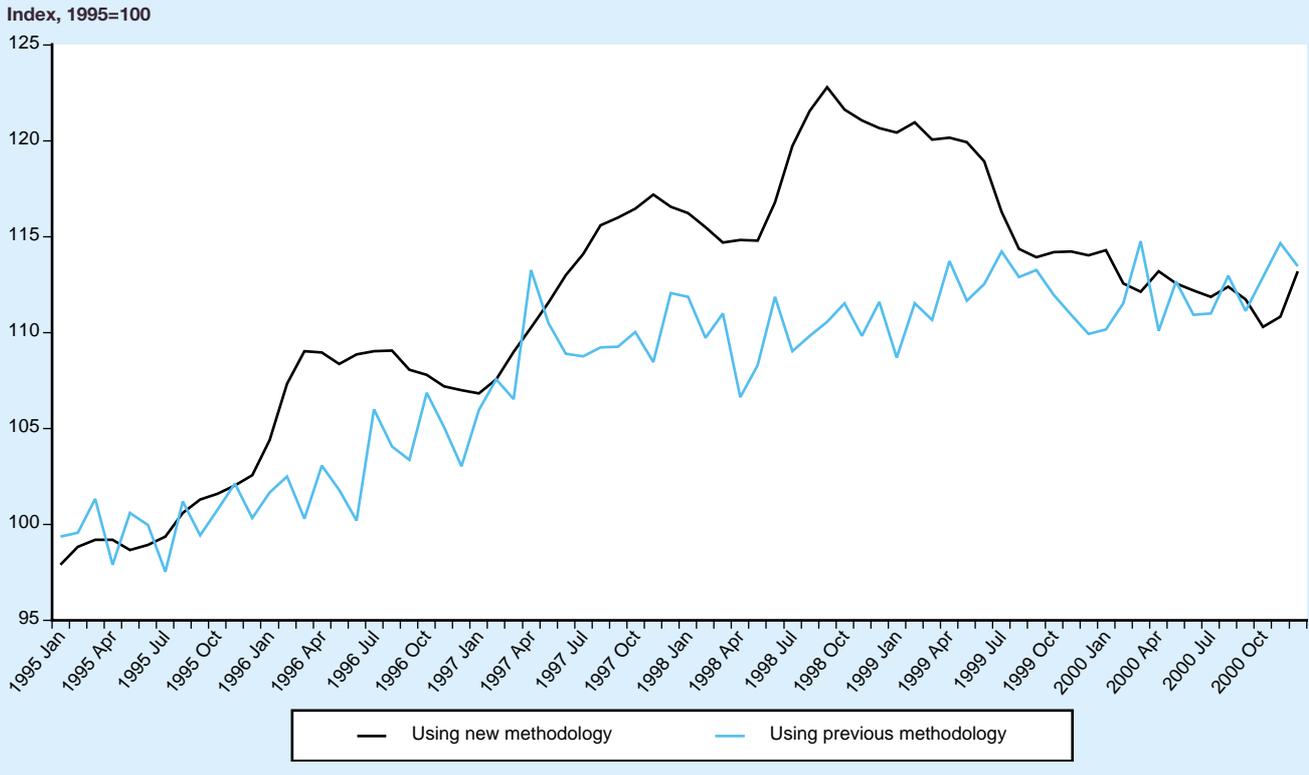
The industry review report gives full details of the issues faced (see link at the end of this section).

New methodology

For all five SIC sub-divisions we will be changing to use monthly turnover data from the MIDSS deflated by Retail Price Index (RPI) components and, in one case, a CSPI to measure the output of the motor trades. This is a conceptually better methodology in

Figure 2

Sale, maintenance and repair of motor vehicles, retail sale of automotive fuel (SIC92 division 50), constant prices, seasonally adjusted



accordance with international guidance. These five series will be weighted together by Annual Business Inquiry (ABI) turnover weights.

The graph above shows the monthly path of the new methodology for division 50 compared with the current methodology up to December 2000. These data are subject to the national accounts balancing process, which may possibly lead to coherence adjustments being applied to some months.

Benefits of new methodology

- survey turnover sources include the other revenue activities currently not being measured (servicing, repairs, parts);
- measures used car sales rather than via new car registrations;
- quality changes are conceptually accounted for within the price series.

A report explaining the motor trade industry review process in full is available from the following weblink

www.statistics.gov.uk/themes/economy/Articles/shorttermindicators/loS_Methodology/future_improvements.asp#irr

Wholesale industry review

Current methodology

Wholesale represents 6.5 per cent of services and 4.6 per cent of the whole economy by GVA weight.

Short-term movements in gross value added in the wholesale trade are currently estimated by a combination of Retail Sales Index (RSI) proxies (42 per cent), Index of Production (IoP) proxies (35 per cent) and deflated monthly wholesale turnover (23 per cent). The turnover data come from the MIDSS and are deflated by weighted combinations of Producer Price Indices (PPIs). More detail of the specific indicators used to estimate each SIC sub-division can be found in the IoS methodology found on the National Statistics website at www.statistics.gov.uk/iosmethodology

The main reasons for changing this approach are:

- the availability of conceptually better data sources that were previously not in existence;
- seventy-seven per cent of wholesaling output is currently measured indirectly (i.e. by the use of production and retail proxies);

- current methods assume that there is no time interval between production and wholesale, or between wholesale and retail (using the RSI as a proxy for parts of wholesale meant that there was a one month lag – e.g. the peak in wholesaling is in November but at the moment the data indicates December);
- the loP proxies do not capture the wholesaling of imported goods;
- the RSI and loP proxies do not correspond exactly to the products being wholesaled;
- the RSI proxies include retail activity not originating from wholesalers;
- more appropriate PPIs are now available to use as deflators.

Issues faced

The main issues faced in the industry review have been listed below:

- whether to use PPIs or RPIs to deflate the wholesale of goods that are bought by households (e.g. food, drink, tobacco and household goods);
- how we should deflate of the wholesale of computers.

The industry review report gives full details of the issues faced (see link at the end of this section).

New methodology

For all SIC sub-divisions we will be using MIDSS turnover deflated by PPIs and Import Price Indices (IPIs) to measure the output of

wholesale. This is a conceptually better methodology in accordance with international guidance. These series will be weighted together using weights from the ONS Prodcum survey.

The graph below shows the monthly path of the new methodology for division 51 compared with the current methodology up to December 2000. These data are subject to the national accounts balancing process, which may possibly lead to coherence adjustments being applied to some months.

Benefits of new methodology

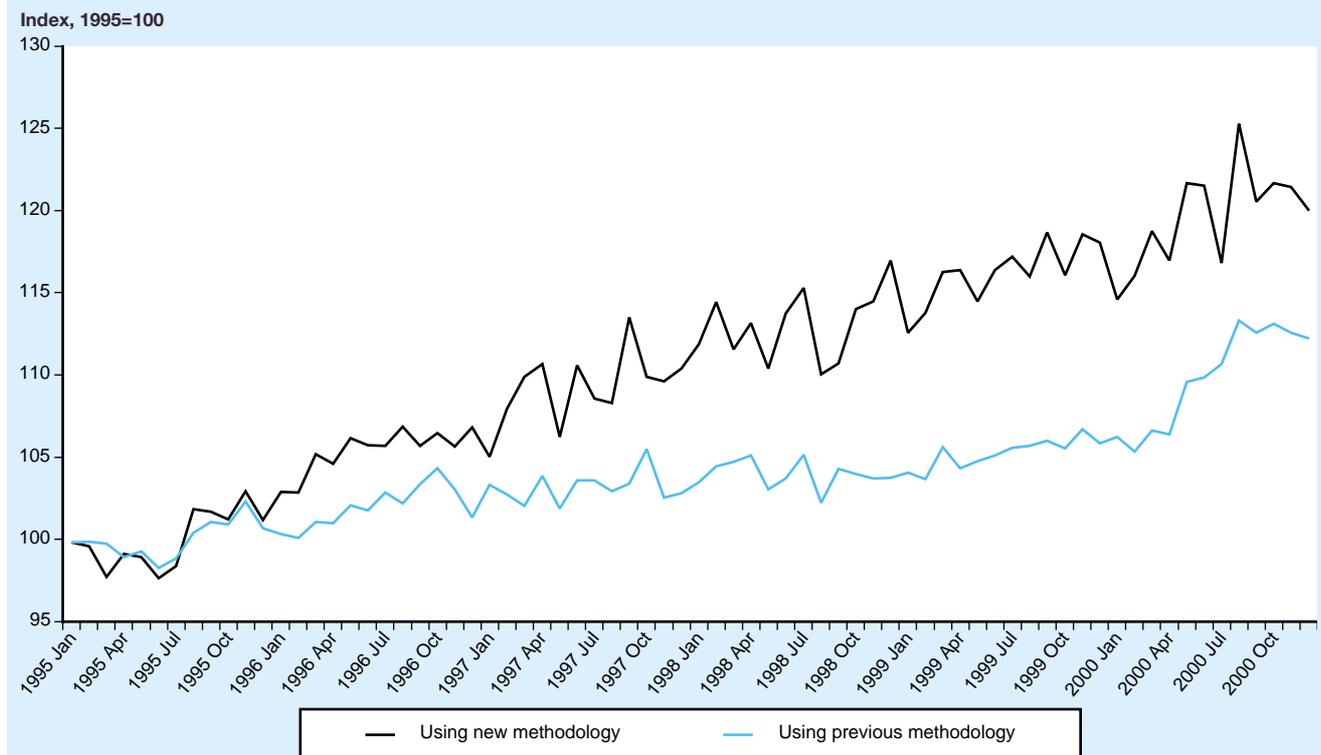
- the lag between retailing and wholesaling is accurately measured;
- import activities of wholesalers will be captured;
- deflators are more appropriate and representative and include the effects of imported goods.

A report explaining the wholesale industry review process in full is available from the following weblink

www.statistics.gov.uk/themes/economy/Articles/shorttermindicators/loS_Methodology/future_improvements.asp#irr

Figure 3

Wholesale trade and commission trade (SIC92 division 51), constant prices, seasonally adjusted



Increased monthliness

We have expanded the monthly data sources for IoS by:

- completing the process of converting ONS's Quarterly Inquiry into the Distribution and Service Sector (QIDSS) to monthly collection;
- receiving monthly data for air transport from the Civil Aviation Authority.

However, although the data are collected monthly we are still aggregating and treating as quarterly until there is a larger time-series of monthly data (to allow reliable seasonal adjustment of the monthly series).

Price developments

The article in the December 2000 edition of *Economic Trends*¹ mentioned the progress being made by the CSPI development programme. CSPIs measure the price movements of services provided to businesses and central and local government, but any element where the service is provided directly to the individual for final consumption is excluded (as these are measured by the RPI). An article in the July 2000 edition of *Economic Trends*⁵ outlined the progress made in developing CSPIs.

Improved range of CSPIs

Indices for 28 industries are currently released every quarter, along with an experimental top-level index in the experimental statistics area on the National Statistics website. This represents an increase of six series since December 2000. As well as the series that are already being published, a further 15 series are undergoing active development (see Table 1 below).

Table 1

SIC code	Description
55.10	Hotels
60.10	Inter-city services
60.10	Rail freight
60.22	Taxi operation
65.12	Banking
66.03	Insurance (non-life)
71.31	Renting and agricultural machinery
71.33	Renting office machinery
72.20	Computer services
74.11/9	Legal services
74.12	Accountancy*
74.20/1	Architectural activities
74.20/3	Quantity surveyors
74.20/4	Consulting engineers
74.40	Advertising**

Note:- * In due course, a separate index will be developed for management consultancy – currently combined with accountancy.

** The development of the index for advertising will be divided between placement and creation.

The development programme for CSPIs involves close liaison with the IoS development programme, to ensure that the priorities for indices being developed by CSPI take account of the requirement for deflators within IoS and GDP(O).

Methods developments

Order of processing

Where monthly data are not available we derive the monthly path using the Holt-Winters method to forecast data and a cubic spline to interpolate the monthly path (these methods are explained within the IoS documentation at www.statistics.gov.uk/iosmethodology). We have improved the method of interpolating monthly data by changing the order of processing so that we now forecast three quarters (or years) ahead before we interpolate a monthly path using a cubic spline. This approach avoids the potential for distortion at the end of a series when a cubic spline is applied to series without employing forecasts beforehand.

Optimal allocation of MIDSS sample

A review of the MIDSS highlighted that the allocation of the sample between industries was no longer optimal due to changes in the mix of industries. Therefore, in June 2001, the sample was redesigned using a Neyman allocation, whilst maintaining the overall sample size. For practical reasons, the reallocation was introduced in three phases starting in September 2001, with other phases in January 2002 and March 2002. The full reallocation has now been implemented and the sample will continue to be monitored to ensure it reflects the industrial composition of services.

Implications of Short-Term Output Indicators Review⁶

A number of STOIR recommendations have been addressed since the IoS was launched in December 2000. These include the co-ordination of developments of MIDSS and CSPI and the development of practical acceptance criteria for the inclusion of CSPIs in IoS/GDP(O) (which would be taken on through the industry review programme).

Future plans

This section covers:

- the schedule for future industry reviews;
- taking on more monthly data;
- improving timeliness.

Schedule for industry reviews

An industry-by-industry approach has been adopted to improve the quality of indicators used to measure output in the IoS and GDP(O).

As this article has already explained, the first two industries reviewed were motor trade and wholesale.

The rationale for reviewing these industries was to review the components that make up the IoD, which has First Release status.

In planning the future programme of reviews, we have been faced with competing priorities. These include:

- targeting industries that have scope for conceptual improvement;
- taking on new data sources;
- reviewing rapidly changing industries;
- importance by GVA weight.

After consultation with our main users, we have set out the future programme of reviews that yields a balanced approach to address these various priorities.

Table 2

Industries to be Reviewed	Implementation date
Retail (excluding motor trade)	<i>Blue Book</i> 2003
Computer services	<i>Blue Book</i> 2003
Hotels and restaurants	<i>Blue Book</i> 2003
Business services (pt 1)*	<i>Blue Book</i> 2003
Post and telecommunications	<i>Blue Book</i> 2003
Recreation, culture and sport	<i>Blue Book</i> 2004
Business services (pt 2)*	<i>Blue Book</i> 2004
Real estate	<i>Blue Book</i> 2004
Land transport	<i>Blue Book</i> 2004

* Business services (which includes accountancy, architecture, legal services, market research and many other corporate services) has been split into two for practical reasons.

Taking on more monthly data

In April 2000, around 70 per cent of QIDSS were converted to monthly and the remainder were converted in January 2001. However, at least two to three years' monthly data are required to allow seasonal adjustment. Now that we have two years' monthly data for those industries that became monthly inquiries in the first tranche we have started to look at the monthly data to see whether stable seasonal patterns have emerged. We will revise the data to reflect the seasonally adjusted monthly series as reliable monthly seasonal adjustment becomes possible.

Where monthly turnover data are being collected for an industry, but they are not used to compile the IoS and GDP(O), the review of data sources and methods for that industry will consider whether deflated turnover data would be a more appropriate proxy for estimating GVA.

A number of indicators in the IoS are provided by non-ONS data suppliers (e.g. other government departments). Where these are not provided as monthly data we are exploring whether monthly data could be made available.

Improving timeliness

Both the IoD and the experimental IoS are currently published around 9½ weeks after the end of the month. We aim to improve the timeliness of the IoD and the experimental IoS by around 1½ weeks at the end of 2002. The exact relationship with the quarterly national accounts is still to be resolved but the monthly IoD and the experimental IoS will either be published coincident with, or a day or two after, the publication dates of the quarterly GDP First Releases (Preliminary GDP, UK Output, Income and Expenditure and the UK Quarterly National Accounts). We expect to achieve this mainly by becoming more efficient at quality assuring the data and compiling the indices, as the procedures become more established. There will be very little impact on the availability of source data.

Conclusion

Good progress has been made in the development of the IoS since the launch of the experimental index in December 2000. The experimental label has been dropped from the IoD and it is now being published monthly as a First Release. Both the IoD and the experimental IoS are now being published after 9½ weeks, four weeks earlier than they were published in December 2000. The programme of work to review and improve data sources is well under way. Two industries have been reviewed and the new methodologies and data sources will be introduced on 28 June. A further five reviews are in progress.

However, there is still much to do in terms of reviewing and improving data sources and methods, increasing the proportion of monthly data and improving timeliness. It is likely to be some two to three years before the IoS is considered to be 'fit for purpose' and a decision is made to drop the 'experimental' label.

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

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For more information on the IoS, including latest data and some of the articles above, please visit the IoS area on the National Statistics website www.statistics.gov.uk/ios

