Methodological News
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ABS Methodology and Data Management Division

Australian Bureau of Statistics

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Articles

Improving the Seasonal Adjustment of Coal exports

The ABS publishes a variety of externally sourced statistics on exports and imports.

Seasonal adjustment removes the impact of systematic effects observed in sub annual statistics, such as those caused by the influence of weather, financial reporting conventions and social traditions. Quarterly exports and imports volumes are also published in seasonally adjusted terms, by first removing the impact of price changes from the collected current price values, then seasonally adjusting the resulting "real" or volume statistics.

In most cases, when the price is not influenced by seasonality, the same seasonal adjustment factors can be applied to values and to their corresponding volumes. This had been the method used for Coal exports, until the March 2011 reference quarter. However, following discussions with a major user of these statistics, the ABS introduced an independent seasonal adjustment for Coal export volumes, along with other mining commodities such as metal ores, other mineral fuels (including LNG) and for the imports of fuels and lubricants. This independent seasonal adjustment of volumes better takes into account the influence of systematic (seasonal) variation in the prices of these commodities. In particular for coal export volumes, this has greatly improved the quality of the published seasonally adjusted measure, in response to the users.

The improved seasonal adjustment methodology has been implemented for all periods after September Quarter 2005 inclusive. Application of the revised methodology throughout the entire time series is currently under investigation.

Further Information

For more information on the publication of exports and imports, please contact Selvi Sekhar (02 6252 5540) or for more information on seasonal adjustment, please contact Lisa Apted (03 6222 5932; lisa.apted@abs.gov.au) or Tom Outteridge (02 6252 6406; tom.outteridge@abs.gov.au).

Initial Release of Seasonally Adjusted Consumer Price Index

The Consumer Price Index (CPI) is an ABS "category one" major economic indicator, measuring quarterly changes in the price of a "basket" of goods and services. These account for a high proportion of the expenditure by metropolitan households. Despite its profile, the CPI was never released by the ABS in seasonally adjusted terms: instead, the Reserve Bank of Australia (RBA) produced an independent seasonal analysis on its measure of "underlying" inflation. In 2007 the RBA agreed that the ABS should review this situation and officially take over the seasonal adjustment of this measure. Compiling seasonally adjusted statistics which would immediately stand up to the expected scrutiny of financial markets and meet the standards expected from ABS data was expected to be challenging.

Following the 2007 decision, the ABS performed a detailed review of CPI expenditure classes to ensure a high quality seasonal adjustment. The release of the 16th series re-weighting of the "basket" of goods on 26th October 2011 offered the most appropriate time to introduce the ABS seasonally adjusted estimates to the CPI headline figure (All Groups average of eight capital cities), as well as the CPI underlying measures.

Seasonality in a time series can be identified by using SEASABS, the standard ABS seasonal adjustment software based on the widely used X11 program, introduced by the US Bureau of the Census in 1967. Identification of the seasonality in the time series is based on a number of standard diagnostic tools as well as critical analysis by experienced analysts. Of the 87 expenditure classes, 68 were identified as having a seasonal component, with six of these only being found to display seasonal behaviour historically though not in recent years.

Further Information

For further information on the release of the 16th series, please contact Lewis Conn, Director, CPI (02 6252 7326; lewis.conn@abs.gov.au). For information on the CPI seasonal adjustment, please contact Rachel Barker (02 6252 6183; rachel.barker@abs.gov.au) or Tom Outteridge (02 6252 6406; tom.outteridge@abs.gov.au).

Continuing the Collaborative Agreement between Australian Bureau of Statistics and the University of Wollongong

The Collaborative Agreement between the Centre for Statistical and Survey Methodology (CSSM) at the University of Wollongong and the Australian Bureau of Statistics (ABS) began in December 2004 and in March 2006 resulted in the appointment of Ray Chambers as the first Professor of Statistical Methodology - a position funded by ABS. The ABS is very pleased to announce that it has signed a new collaborative agreement that extends funding of the position from March 2011 until March 2014.

Since his appointment, Professor Chambers, working together with the director of CSSM, Professor David Steel, has improved the skills of ABS methodologists, by questioning the status-quo, encouraging innovation, and by encouraging the development of sound and defensible methods. He has achieved this through annual symposia, courses, mentorship, collaborations, workshops and membership of the ABS' Methodology Advisory Committee. In particular, Professor Chambers' leadership in developing methods of analysing data that are probabilistically-linked, an area of strategic importance to ABS, has been particularly beneficial. Frank Yu, head of the ABS' Methodology and Data Management Division believes that the work of the Centre has significantly enhanced the capability of ABS staff in conducting methodological research and improving the rigour of ABS' methodological design.

While the elements of the new agreement are essentially unchanged, it puts more emphasis on long term collaborations. The first collaborative project is to develop a framework that uses para-data, or data collected during the survey collection process, to improve response rates. Professor Chambers is continuing to work on analysis of probabilistically-linked data and will also work on likelihood methods for combining data, another area of strategic importance to ABS. A successful symposium on Robust Regression was held in October 2011. The next symposium is scheduled for October 2012 and will cover Analysis of Longitudinal Data.

Further Information
For further information, please contact James Chipperfield (02 6252 7301; james.chipperfield@abs.gov.au).

Does increased effort lead to a less representative response?

Traditionally, response rates are used in survey management as an indicator of survey quality. At the Australian Bureau of Statistics (ABS), we monitor response rates on a daily basis during data collection and compare these against response rate targets. The required effort and costs of maintaining high response rates are increasing, but it is not clear what effect this is having on survey quality.

In the literature, recent debate has focussed on differentiating the level of effort between maintaining response rates and enhancing the representativeness of the response – precision versus bias.

The Operations Research and Process Improvement Section have been looking at Representativity indicators or R-indicators, as indicators of representativeness. The R-indicator is based on the variation in response probabilities. In practice, the true values of the response probabilities are not known. Therefore, they are estimated using, for example, a logistic regression model.

We produced R-indicators for some selected case studies, namely the National Health Survey, the Survey of Income and Housing, and the Survey of Mental Health and Wellbeing (all were conducted in 2007/2008). Preliminary findings indicate that for each additional contact attempt that was made, the response rate increased, while the R-indicator showed a drop in representativeness. These results would seem to indicate that making more contact attempts may just result in more of the same kind of respondents. The R-indicator may prove to be a useful indicator of non-response bias. Further research on the use of R-indicators in ABS surveys is continuing.

In future work, we also plan to investigate using R-indicators to compare different follow-up strategies of non-respondents by conducting a simulation study.

Further Information
For further information, please contact Rosslyn Starick (03 9615 7055; rosslyn.starick@abs.gov.au).

How to Contact Us and Email Subscriber List

Methodological News features articles and developments in relation to methodology work done within the ABS Methodology and Data Management Division. By its nature, the work of the Division brings it into contact with virtually every other area of the ABS. Because of this, the newsletter is a way of letting all areas of the ABS know of some of the issues we are working on and help information flow. We hope the Methodological Newsletter is useful and we welcome comments.

If you would like to be added to or removed from our electronic mailing list, please contact:

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