

Information on calculating the DEEWR Monthly Leading Indicator of Employment

by

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13 February 2008

Background:

The DEEWR Monthly Leading Indicator of Employment is produced monthly and is based on four weighted time-series variables, which are conventionally viewed as partial forward indicators of changes in cyclical employment. It is a technical (rather than a fundamental) indicator in that component series are chosen on the basis of predictive performance and not the extent to which they represent fundamental or structural economic relationships. The weighting of the component series is determined by regression analysis of the time-series data. The Leading Indicator incorporates data lagged one year for the Dun and Bradstreet Employment Expectations series and the most up to date data for other series. This is based on econometric testing which revealed that the Dun and Bradstreet series had a longer lag. The name of the issue, and the labels for the x-axis of the chart, relate to the month the Indicator is released. The data used to derive the cyclical employment chart line, however, are two months behind the Indicator release month.

The variables are:

1. *ANZ Newspaper Job Ads* from *ANZ Job Advertisements Survey* (monthly, seasonally adjusted);
2. *Dun and Bradstreet Employment Expectations* from *Dun and Bradstreet Business Expectations Survey* (monthly, seasonally adjusted);
3. *Westpac-Melbourne Institute Leading Index of Economic Activity Survey* (monthly, seasonally adjusted); and
4. *Westpac-Melbourne Institute Consumer Sentiment Index Survey* (monthly, seasonally adjusted).

Methodology:

The time series of these variables, together with the employment time series, can be decomposed into seasonal, trend, cyclical and irregular elements. The following basic steps are involved in the process of extracting the cyclical elements of these series, and combining the weighted cyclical elements of the various component series to form the Indicator, which is then compared with the cyclical element of employment.

1. The component series and the employment series are smoothed using 13-term Henderson weights to remove their irregular elements. This gives the one-year trend employment level.
2. The resulting series are then exponentially extrapolated both forwards (and backwards where necessary), using an average compound growth rate for the preceding five years, for 36

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monthly observations and the trend elements are calculated as 73-term centred moving averages. This allows us to obtain the six-year trend employment level.

3. The cyclical elements of the series are obtained by subtracting the six-year trend level from the one-year trend level of each series.
4. The cyclical elements are then obtained by subtracting the mean from each series (to standardise it) and then normalising them by dividing by each series' standard deviation.
5. The partial forward indicators' components are combined linearly, applying weights obtained through econometric regression (see next section).
6. The Indicator is then obtained by dividing the combined set of components by its standard deviation.

Weighting on Each Series

A regression analysis is performed (in December or January of each financial year) on the series in order to determine weightings for the component series best capable of leading employment. The regression results are standardised by constraining the series to equal 1 (i.e., dividing each coefficient by the total of all coefficients) and the latest results are shown in the table below.

WEIGHTS OF THE COMPONENTS SERIES OF THE NEW LEADING INDICATOR

Series	Weights (%)
ANZ Newspaper Job Ads	44.3
Dun and Bradstreet Employment Expectations	22.4
Leading Index of Economic Activity	24.1
Consumer Sentiment Index	9.2

Comments:

The DEEWR Monthly Leading Indicator of Employment is designed to give advance warning of turning points in cyclical employment. The average lead time of the Indicator (i.e., the time between a peak or trough in the Indicator and the corresponding peak or trough in cyclical employment) is around nine months (or about twelve months if account is taken of the additional twelve-month lag in the Dun and Bradstreet Employment Expectations Index), although it has varied significantly over the past decade. A 'turning point' in the Indicator is said to be confirmed when there are six consecutive monthly movements in the same direction after the turning point. A fall (or rise) in the Indicator does not necessarily mean that the level of employment will subsequently fall (or rise). Rather, it implies that after a lag, the growth rate of employment may fall below (or rise above) its trend rate of about 2.5 per cent a year (in February 2008). Users of the Indicator must also be aware that historical relationships between the Indicator and employment can vary from time to time. Judgements about the future levels of, and changes in, employment derived from the Leading Indicator should therefore be qualified appropriately.

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