

Seasonal adjustment of retail sales

Recurring seasonal patterns, which are present in numerous time series data including the monthly retail trade sales series published by Statistics South Africa (Stats SA), obscure the underlying behaviour of the series. With Stats SA's introduction of a taxation-based Business Sampling Frame in 2003 there was a break in the retail trade sales time series, which made the execution of seasonal adjustment procedures impossible. The retail trade time series now has enough data points to perform seasonal adjustment. Today (14 April 2010) Stats SA introduces this aspect of analysis to the retail trade sales publication.

Seasonal adjustment is a statistical procedure that identifies and removes seasonal patterns in a time series in order to reveal non-seasonal variations. Seasonal patterns may be caused by factors like religious events such as Christmas which may cause high retail sales during the festive period, weather seasons, calendar effects and holiday shifts such as Easter. The retail sales seasonally adjusted estimates are derived using the X-12 Seasonal Adjustment Program developed by the US Bureau of the Census. After the removal of seasonal variations, the resulting series is referred to as the seasonally adjusted series.

By removing the effects of seasonality on the retail trade sales series, analysis can be conducted on a month-on-month basis. Thus seasonal adjustment allows comparisons over recent months and reflects short-term trend movements for the series. In contrast, to show movements in the unadjusted series that are free of seasonal factors it is necessary to calculate changes over 12 months (e.g. December on December), i.e. a considerably longer period is needed and the most recent trend is not evident. Seasonally adjusted retail trade sales increased by 3,3% in real terms in the first two months of 2010 compared with the final two months of 2009, whereas the year-on-year change in the unadjusted series for the first two months of 2010 was -1,5%. The introduction of seasonally adjusted estimates adds an important dimension to the analysis of retail trade.

At this stage only total retail trade sales, both at current and at constant prices, will be seasonally adjusted. However, in future Stats SA plans to publish total seasonally adjusted retail trade sales by aggregating the seasonally adjusted estimates of the various components, e.g. the seasonally adjusted series for retailers of textiles, clothing, footwear and leather goods, and for retailers of food, beverages and tobacco in specialised stores, etc.

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