An experimental measure of Internet retail sales: Changes to methods

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Introduction

Retail sales made over the Internet are already collected and included as part of the monthly Office for National Statistics (ONS) Retail Sales Inquiry (RSI). This note reports an improved approach to reporting on the proportion of total retail sales which are made over the internet.

An experimental Internet estimate, which extracts the proportion of retail sales made over the Internet, has been published on a monthly basis since December 2008 and disseminated as part of the Retail Sales Statistical Bulletin (http://www.statistics.gov.uk/StatBase/Product.asp?vLnk=870). A previous supplementary note accompanied the introduction of the experimental estimate of Internet retail sales and explained how the estimate was compiled (http://www.statistics.gov.uk/downloads/theme_economy/November_2008_Internet_Supplementary_note.pdf).

The ONS now has an improved series for Internet sales. Since March 2009, a dedicated question asking about the proportion of sales made by individual businesses over the Internet has been included in the RSI questionnaire. This returned information, for all businesses within the RSI, has now been weighted and aggregated together to give an improved overall estimate of average weekly sales by the Internet for all retailers. Note that retail sales made over the Internet have always been included in the total retail turnover supplied by businesses. This approach is part of a planned continuous improvement in this estimate and follows guidance outlined in the Code of Practice for Official Statistics (UKSA, 2009).

This information note summarises the changes to methods in calculating the experimental Internet retail sales estimate and is an update of the supplementary note released in December 2008.

The changes to methods used for calculating the experimental Internet estimate will be introduced in the January 2010 Retail Sales Statistical Bulletin published on 19 February 2010.
Capturing Internet retail sales using the Retail Sales Inquiry

Retail sales made over the Internet are already collected and included as part of the total monthly turnover data provided by businesses. The improved methods now include a dedicated question for all businesses in the RSI which asks the proportion of sales made over the Internet by each business.

RSI is a monthly survey of approximately 5,000 businesses in Great Britain. These businesses cover approximately 95 per cent of the retail sector in terms of turnover in Great Britain. The RSI covers sales from businesses registered as retailers where the retail sector is defined as the sale of goods to the general public for household consumption. Businesses are classified according to the internationally defined Standard Industrial Classification (SIC) (Hughes 2009 and McLaren 2010) and estimates are derived using methods which are based on international best practice (McLaren, 2009).

Each business within the RSI is asked to provide total retail turnover including sales from stores, via the internet, mail order, stalls and markets, door-to-door and telephone sales. The RSI covers Internet businesses whose primary function is retailing but also covers Internet retail sales by other British retailers, such as online sales by supermarkets, department stores and catalogue companies. This means that the RSI has always covered three of the main types of household Internet spending:

a. spending on goods from specialist Internet retailers,
b. spending on goods from store-based retailers,
c. spending on goods from catalogue-based mail order retailers.

The RSI does not cover household spending on services bought from the retail sector as it is specifically designed to only cover goods. Businesses are also asked to separate out the non-goods elements of their sales. For example, on-line sales of services, such as car insurance, are excluded from the coverage of the RSI. Businesses specialising in providing material for downloading over the Internet, such as music and mobile phone ring tones, are covered if they are predominantly retailers only and are not also involved in the production or processing of such material. Sales of downloads by store-based retailers would be included in their total sales figures.

Overview of changes to methods

The estimation of the total average weekly retail sales uses an estimation method based on the assumption that the monthly turnover by businesses is correlated to the annual registered turnover supplied by businesses.

However, it can be shown that the annual registered turnover of a business is generally poorly correlated with their Internet sales. This means that an alternative estimation approach needs to be used. Analysis shows that the most appropriate estimator to use is the expansion (or number raised) estimator due to the large proportion of zero returns of Internet sales, and generally poor correlation between Internet sales and registered turnover for positive returns. More details on the expansion and related estimators are available from Särndal (1992).

The use of the expansion estimator for Internet sales replaces the previously used approximation of fixed factors for small and medium businesses, which was described in ONS (2008).
The use of additional information based on real returns from businesses from March 2009 onwards means that there is a change in the level of the series at this point. To ensure comparability of estimates over time, this change in the level has been blended into the historical data. This will result in revisions to previously published data. This assumes a gradual increase in Internet related activity over this historical period.

To determine the ratio of total average weekly Internet sales to total average retail sales, the ratio of the estimate for internet sales to the estimate for retail sales is used.

**Internet retail sales as a percentage of total retail sales**

Table 1 and Figure 1 give the average weekly Internet retail sales as a percentage of average weekly total sales, for all retailers, within Great Britain under the revised method from March 2009. Revised published data are available from November 2006.

The data are not seasonally adjusted as a reliable estimate of seasonality cannot currently be estimated. Year-on-year percentage change of the non-seasonally adjusted data enables comparisons that take into account seasonal patterns, although it does not allow for effects such as evolving seasonality, or the change in standard reporting periods over time.

**Table 1: Value of retail sales and Internet retail sales, for all retailers (non seasonally adjusted)**

<table>
<thead>
<tr>
<th></th>
<th>Average weekly value for all retailing (£ million)</th>
<th>Average weekly value for Internet retail sales (£ million)</th>
<th>Internet sales as a percentage of total retail sales (%)</th>
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</thead>
<tbody>
<tr>
<td>2009</td>
<td>Mar 5,200.0</td>
<td>336.8</td>
<td>6.5</td>
</tr>
<tr>
<td></td>
<td>Apr 5,400.0</td>
<td>300.6</td>
<td>5.6</td>
</tr>
<tr>
<td></td>
<td>May 5,300.0</td>
<td>304.5</td>
<td>5.7</td>
</tr>
<tr>
<td></td>
<td>Jun 5,400.0</td>
<td>307.0</td>
<td>5.6</td>
</tr>
<tr>
<td></td>
<td>Jul 5,400.0</td>
<td>325.5</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>Aug 5,300.0</td>
<td>311.6</td>
<td>5.8</td>
</tr>
<tr>
<td></td>
<td>Sep 5,300.0</td>
<td>337.3</td>
<td>6.3</td>
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<tr>
<td></td>
<td>Oct 5,600.0</td>
<td>413.0</td>
<td>7.4</td>
</tr>
<tr>
<td></td>
<td>Nov 6,100.0</td>
<td>500.5</td>
<td>8.2</td>
</tr>
<tr>
<td></td>
<td>Dec 7,100.0</td>
<td>624.5</td>
<td>8.8</td>
</tr>
</tbody>
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**Figure 1: Internet sales as a percentage of total retail sales, for all retailers (non seasonally adjusted)**
Table 2: Differences in previously published and updated experimental Internet retail sales, for all retailers (non seasonally adjusted)

<table>
<thead>
<tr>
<th></th>
<th>Internet sales as a percentage of total retail sales</th>
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<tbody>
<tr>
<td></td>
<td>Current published ratio</td>
</tr>
<tr>
<td>2009</td>
<td>Apr</td>
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<tr>
<td></td>
<td>May</td>
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<td></td>
<td>Jun</td>
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<td>Nov</td>
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<td></td>
<td>Dec</td>
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</tbody>
</table>

Table 2 shows the Internet sales as previously published, using information from the pilot study and the Monthly Commodity Inquiry, and the updated estimate using actual returned data from all businesses from March 2009.

The differences in level between the updated experimental estimate of Internet retail sales and the series previously published are expected as the coverage has been increased now that the Internet data are now collected from all businesses within the RSI rather than based on fixed factors. The movements at the current end of the series are broadly similar.

Discussion

The continued development of the experimental internet sales statistic has been a planned process to improve the scope and coverage of this activity. These method changes only impact on the estimate of Internet sales as a percentage of total retail sales. The method changes do not impact on the estimate of total retail sales, i.e. the total turnover reported by businesses already previously included this information.

To aid interpretation, the use of seasonal adjustment is planned once a reliable estimate of seasonality can be derived. The Internet retail sales estimates will remain as an experimental series until further development work is completed.

Comparison against alternative indicators was previously discussed in a supplementary note released in December 2008 (ONS, 2008). Care needs to be taken in the interpretation and comparison of alternative estimates as they can differ greatly due to significant differences in scope, coverage and methodology.
Contact details

For general queries on retail sales please contact: retail.sales.enquiries@ons.gsi.gov.uk or 01633 455602.

Further information


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