

Standard Report  
on  
Methods and Quality (v2)  
for  
Retail Sales Index

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This documentation applies to the reporting period:  
**Monthly**

Last edited: 08/09/09

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## **1 Overview**

The Retail Sales Index (RSI) is the official short-term indicator of changes in the level of consumer spending on retail goods. It measures the trend in the level of average weekly sales for each month, after allowances are made for calendar composition. The RSI is compiled and published every month by the Central Statistics Office (CSO).

Commencing with January 2009, the index is compiled with respect to a new base year (Base Year 2005 = 100) using updated baseweights taken from the 2005 Annual Services Inquiry (ASI), replacing the former series (Base Year 2000 = 100).

## **2 General Information**

### **2.1 Statistical Category**

Primary statistical survey.

### **2.2 Area of Activity**

Retail Sales Section

Short Term Statistics Division

Business Statistics Directorate

### **2.3 Organisational Unit Responsible, Persons to Contact**

Business Statistics Directorate, Short Term Statistics Division, Retail Sales Section

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### **2.4 Objectives and Purpose; History**

The first monthly RSI index figures were published in March 1963 and the RSI has been published continuously since then. The first figures published were value figures only and date back to January 1961. In March 1977 volume figures were first produced and at this time the first seasonally adjusted figures were also produced. Seasonally adjusted and unadjusted RSI value and volume indices for “Total Retail Sales” were produced with figure going back to January 1968.

The primary purpose of the RSI is to provide a short-term indication of changes in the value and volume (or quantity) of retail sales in Ireland. In doing so the RSI provides a leading monthly indicator on economic activity. It provides an accurate and objective measure of retail trading and supplies a valuable guide to consumer spending behaviour in the Irish economy. More generally, in conjunction with several other monthly and

quarterly economic indicators published by the CSO, the RSI offers a valuable tool for better understanding the general economic climate and performance in Ireland.

## **2.5 Periodicity**

This survey is carried out monthly and has been conducted continuously since 1962.

## **2.6 Client**

The RSI is a statutory inquiry, collected under the Statistics (Retail Sales) Order 2008 No. 140/2008. The survey is also conducted in compliance with Council Regulation (EC) No. 1165/98 and Commission Regulation No. 472/2008 concerning short-term statistics.

## **2.7 Users**

- Eurostat
- National Accounts, CSO
- Retail Groups
- Government Department and Agencies
- Economists
- Brokers
- Researchers and Academics
- The general public

## **2.8 Legal basis**

The RSI is a statutory inquiry, collected under the Statistics (Retail Sales) Order 2008 No. 140/2008. The survey is also conducted in compliance with Council Regulation (EC) No. 1165/98 and Commission Regulation No. 472/2008 concerning short-term statistics.

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## **3 Statistical Concepts, Methods**

### **3.1 Subject of the Statistics**

The RSI measures retail turnover for Ireland for a specific period. The index also provides information on year-on-year and month-on-month changes in turnover for the retail sector in Ireland.

The primary data collected from retail enterprises is their monthly turnover figure. Retailing is the resale (sale without transformation) of new and used goods mainly to the general public for personal or household consumption or utilisation, in shops, department stores, stalls, mail-order houses, door-to-door sales persons, hawkers, consumer cooperatives, auction houses etc. Most retailers take title to the goods they sell, but some act as agents for a principal and sell either on consignment or on a commission basis.

The RSI primarily includes the retail trade in shops; however the RSI also covers the retail trade and repair of motor vehicles and motorcycles as well as bar sales. Also, the RSI excludes sales by street stalls and markets, street based newspaper vendors and other retailing activities not conducted from permanent business premises. In addition, the following are excluded: mail-order, internet, second hand and repairs of personal, electrical and household goods unless included as turnover arising from a secondary activity but classified to the principal activity. The direct retail sales of non-distribution enterprises (e.g. manufacturing enterprises with no separate sales establishments) together with the incidental sales of wholesale businesses are also excluded.

### **3.2 Units of Observation/Collection Units/Units of Presentation**

The reporting unit is the enterprise, where an enterprise is defined as the smallest legally independent unit, allowing enterprises to provide a single overall retail sales figure each month. It also ensures that any new branches opened by respondents are automatically included in the index. All enterprises are eligible for selection i.e. no size cut-off is applied to the enterprise population.

Aggregated monthly retail sales figures are presented as indices with 2005 as the base year. The retail sales figures are presented for 22 separate categories. There are 13 business groups and 9 combined groups (see section 3.11 for more details). Each aggregated indices is presented in as a:

- Unadjusted Value Index
- Unadjusted Volume Index
- Seasonally Adjusted Value Index
- Seasonally Adjusted Volume Index

Data is compiled and published at national level only i.e. NUTS 1 level<sup>1</sup>.

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<sup>1</sup> Nomenclature of Territorial Units

### **3.3 Data Sources**

The primary data source is micro-data (i.e. turnover) from individual enterprises. This is collected via a postal survey. Prices data is provided by the Consumer Price Section of the CSO.

### **3.4 Reporting Unit/Respondents**

The reporting unit is the enterprise, where an enterprise is defined as the smallest legally independent unit, allowing enterprises to provide a single overall retail sales figure each month. It also ensures that any new branches opened by respondents are automatically included in the index. All enterprises are eligible for selection i.e. no size cut-off is applied to the enterprise population.

### **3.5 Type of Survey/Process**

The survey is a sample survey and is drawn from the Annual Services Inquiry. The survey is primarily a postal survey however data is also collected via:

- On-line facilities, e.g. e-forms,
- E-mail,
- Fax and
- Telephone.

### **3.6 Characteristics of the Sample/Process**

#### **3.6.1 Population and Sampling Frame**

The population of retail enterprises in Ireland is approximately 28,000. The RSI sample comprises about 1,800 enterprises. This gives an average sampling fraction of over 6%, however this fraction can differ significantly from sector to sector and within size class. If coverage is viewed from a turnover perspective, the coverage is considerably higher, with an average sampling fraction of approximately 50%.

#### **3.6.2 Sampling Design**

Within each NACE Classification there are 4 Size Classes. These Size Classes are defined according to annual turnover i.e. enterprises are categorised into 4 groups (or size classes) according to their turnover.

The 4 size classes are:

<b>Size Class</b>	<b>Annual Turnover Thresholds</b>
1	€ 499,000 > Turnover
2	€ 500,000 ≤ Turnover < € 999,999
3	€ 1,000,000 ≤ Turnover < € 4,999,999
4	€ 5,000,000 ≤ Turnover

Generally a census of all enterprises within Cell Size 1 is conducted. Then a sample of enterprises with a turnover of less than €5.0m is then conducted. This sample is a stratified sample. Enterprises are stratified initially by their NACE classification and then within each NACE sector by turnover.

The RSI sample is regularly updated by taking a random sample from the Central Business Register of enterprises not already on the RSI register.

### **3.7 Survey Technique/Data Transfer**

The survey is primarily a postal survey however some data is collected via:

- On-line facilities, e.g. e-forms,
- E-mail,
- Fax and
- Telephone.

The received data is manually keyed into the purpose built Sybase system. This raw turnover data is then aggregated to produce unadjusted value indices. Using prices data from the CSO's Consumer Price Index and fixed product weights monthly volume deflators are calculated separately in Excel for each RSI Index. The unadjusted value indices are transformed into volume indices using these monthly deflators.

### **3.8 Questionnaire (including explanations)**

Each month participants in the survey are requested to return their turnover figure (inclusive of VAT) for the reference month. Respondents are offered the option of responding in:

1. a 4-4-5 week pattern, or
2. on a calendar month basis.

The 4-4-5 week pattern means that each quarter has exactly 13 weeks, distributed so that the first 2 months have exactly 4 weeks each while the third month has exactly 5. Data returned on a calendar month basis will require adjustment to this standardised pattern. If a responding enterprise opts to return data in a 4-4-5 week pattern, their data may still

require adjustment if the 4-4-5 week pattern selected does not match ours i.e. if their accounting periods do not match ours.

The Retail Sales uses the following 4-4-5 week pattern:

<b>Quarter</b>	<b>4 week month</b>	<b>4 week month</b>	<b>5 week month</b>
1	January	February	March
2	April	May	June
3	July	August	September
4	October	November	December

### **RSI Form:**

[http://cmintra01/cso.ie/surveysandmethodologies/surveyforms/documents/distribution\\_services/pdf\\_docs/retail\\_sales\\_](http://cmintra01/cso.ie/surveysandmethodologies/surveyforms/documents/distribution_services/pdf_docs/retail_sales_)

### **3.9 Participation in the Survey**

This is a statutory survey, so participation is compulsory.

### **3.10 Characteristics of the Survey/Process and its Results**

The RSI is a monthly turnover index. This presents a comparability problem as months differ in length i.e. the number of days in each month. A further difficulty arises from what those days are i.e. how many Fridays, Saturdays etc. are in a particular month. This is critical for retail trade as a higher volume of trade is generally conducted on Fridays and Saturdays. Therefore an extra Friday or Saturday in a month could significantly inflate the turnover generated in that month.

To overcome this difficulty, the RSI indices are compiled using standardised reporting periods (SRPs) of 4, 4 and 5 weeks, i.e. the first two months of every quarter comprises of 4 weeks while the third month has 5 weeks. With this SRP approach the number of days in every month is equalised. So not only does each month have a standardised number of weeks, turnover is “trading day” adjusted so that effectively, each of those weeks are identical – every week begins with a Sunday and finishes on a Saturday.

For each period, enterprises have the option of reporting their turnover using either the standardised month or the actual calendar month. About 30% of respondents, particularly large enterprises, supply data corresponding to the 4-4-5 pattern. The remaining enterprises provide calendar month data. This calendar month is then adjusted to a standardised month using calendar correction factors.

These calendar correction factors are based directly on trading day micro data provided by enterprises on the RSI sample. Every 5 years, as part of the rebasing process,

enterprises are asked to distribute the average weekly sales over the 7 days of the week. This data is then compiled to construct the trading day weights (see appendix 2). These fixed trading weights are then used to calculate calendar correction factor for each month.

The 4-4-5 pattern adds up to 364 day year and consequently requires a re-calibration every 5<sup>th</sup> or 6<sup>th</sup> year (depending on when leap years fall) to account for the missing week. Here the exact 52 week year is replaced by an exact 53 week year. This additional week is added to February, replacing the 4-4-5 pattern with a 4-5-5 pattern for the 1<sup>st</sup> quarter of the re-calibrated year.

The RSI is calculated using a modified fixed weight Laspeyres index:

$$\left[ \frac{\sum W_{m-1} \left( \frac{T_m}{T_{m-1}} \right)}{\sum W_0} \right] \times 100$$

Where:

$W_0$  and  $W_{m-1}$  are the base weights and updated weights (or values) respectively  
 $T_m$  and  $T_{m-1}$  are aggregated turnover values for the current and last period respectively.

In the case of the RSI, 12 distinct sets of “seasonal” base weights are used, one for each month of the year. The compilation of the index for the current month ( $m$ ) is based on the percentage change in average weekly sales (based on a matched sample) over the corresponding monthly period of the previous year ( $m-1$ ).

### **Volume indices (Constant prices)**

Retail sales volume indices exclude the effects of retail price changes. The unadjusted<sup>2</sup> volume indices are calculated by deflating each value indices using specially constructed deflators calculated for each individual index. The deflators used for the RSI are calculated based on a combination of current prices gathered for the Consumer Price Index (CPI) and deflator baseweights<sup>3</sup> constructed using product micro data gathered from enterprises as part of the rebasing process.

### **Seasonal adjustment**

<sup>2</sup> These indices are trading day adjusted as a result of the 4-4-5 pattern of data recording.

<sup>3</sup> The baseweights are distributions of COICOP (Classification of individual consumption by product) classified products to the various indices which are based on NACE Rev. 2 classifications.

Retail sales are subject to a high degree of seasonality, particularly for individual businesses. To facilitate interpretation of underlying trends value and volume indices are adjusted to remove these seasonal fluctuations.

Seasonal adjustment is conducted using the direct seasonal adjustment approach. Under this approach each individual series is independently adjusted, e.g. aggregate series are adjusted without reference to the component series. Each individual seasonally adjusted series is calculated based on unadjusted data spanning from January 2000 to the current period.

The adjustments are completed by applying the X-12-ARIMA model, developed by the U.S. Census of the Bureau to the unadjusted data. This methodology allows seasonal factors to be estimated whilst also taking into consideration factors that impact on the quality of the seasonal adjustment such as:

- Calendar effects, e.g. the timing of Easter,
- The phase shift effect, i.e. the fact the reporting period of the RSI does not coincide with the calendar month and
- Outliers, temporary changes and level shifts in the series.

For additional information on the use of X-12-ARIMA see (Findley, D.F., B.C. Monsell, W.R. Bell, M.C. Otto, and B. Chen (1998), “New Capabilities and Methods of the X-12-Arima Seasonal Adjustment Program”, *Journal of Business & Economic Statistics*, 16, pp. 127-177.) and [www.census.gov/srd/www/x12a/](http://www.census.gov/srd/www/x12a/).

### 3.11 Classifications used

The retail sector as defined for the purposes of the RSI is:

Business Group Description	NACE REV. 2 code
Motor Trade (Excluding wholesale)	45
Non specialised stores with food, beverages or tobacco predominating	47.11
Department Stores	47.19
Food, Beverages and Tobacco in specialised stores	47.2
Fuel	47.3
Pharmaceutical Medical and Cosmetic Articles	47.73-5
Clothing, Footwear and Textiles	47.51, 47.71-2
Furniture & Lighting	47.59
Hardware Paints & Glass	47.52
Electrical Goods	47.41-3, 47.54
Books, Newspapers & Stationery	47.61-2
Other Retail Sales	47.53, 47.63-5, 47.76-8

The RSI coverage differs from the strict NACE (Rev. 2) retail trade classification (NACE 47) owing to the inclusion of the retail trade and repair of motor vehicles and motorcycles (NACE 45) and Bars (NACE 56.3). Also, the RSI excludes sales by street stalls and markets, street based newspaper vendors and other retailing activities not conducted from permanent business premises. In addition, the following are excluded: mail-order, internet, second hand and repairs of personal, electrical and household goods unless included as turnover arising from a secondary activity but classified to the principal activity. The direct retail sales of non-distribution enterprises (e.g. manufacturing enterprises with no separate sales establishments) together with the incidental sales of wholesale businesses are also excluded.

### **Changes to Activity Classifications**

a) The Adoption of the NACE REV. 2 Classifications:

Retail Sales Index is now classified in accordance with the statistical classification of economic activities in European Communities, i.e. NACE Rev. 2. The only significant change to compilation of the series is that enterprises that predominantly sell petrol and diesel now no longer appear in the motor trade division of retail sales, but appear in their own group, i.e. NACE 47.3 retail sale of automotive fuel in specialised stores. A combined motors & fuel group is now calculated which is comparable to the former Motor Trades business group published under the NACE Rev. 1.2 classifications.

b) Department Stores are reported differently:

In the new series there is a change in the reporting of Department Stores. In the previous series (Base Year 2000 = 100) the value of retail sales in Department Stores were further broken down into Clothing & Footwear, Furniture, Soft Furnishings etc. and Other Goods and Services. Department Stores will now be reported once only and there will no longer be a further breakdown of their activity.

c) The Recording of Retail Sales for Major Multiple Supermarket Chains:

Also in the previous series in the case of the major multiple supermarket chains, a more detailed breakdown of their turnover was obtained for the categories of Grocery, Clothing & Footwear and Hardware & Other goods. The turnover for Clothing & Footwear and Hardware & Other Goods were then assigned to the appropriate specialised stores groups. In the new series only one turnover figure will be received from major multiple supermarket chains and these turnovers figures will be assigned to the NACE Rev. 2 Class 47.11, i.e. retail sale in non-specialised stores with food, beverages and tobacco predominating.

## Combined Groups

A Combined Group is a combination of Business Groups. There are 9 combined business groups compiled for the Retail Sales Index. The table below lists these groups and their constituent parts. A Business Group may form part of one or more Combined Groups.

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<b>Combined Groups</b>	<b>Business Group Combinations</b>
<b>1</b> All Business	1 - 13
<b>2</b> All Business Ex Motor Trades	2 - 13
<b>3</b> All Business Ex Motor Trades & Bars	2 -12
<b>4</b> Motors & Fuel	1 and 5 2 - 4 and 6 -
<b>5</b> All Business Ex Motor Trades , Fuel & Bars	12
<b>6</b> Food	2 and 4
<b>7</b> Non Food ( Excl Motor & Fuel & Bars)	3 and 6 - 12
<b>8</b> Household Equipment (G_47_NF_Other2)	8 - 10
<b>9</b> Books, Newspapers, Stationery & Other Goods (G_47_NF_Other1)	11 and 12

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### 3.12 Regional Breakdown of Results

Results are published at State level and are only broken down by the NACE business groups mentioned above or by combined groups derived from the individual business groups.

## **4 Production of the Statistics, Data Processing, Quality Assurance**

### **4.1 Data Capture**

Data are manually entered into a purpose built Sybase data capture and processing system.

### **4.2 Coding**

Not applicable.

### **4.3 Data Editing**

Data is edited and cleaned within the Sybase system. Edit checks are conducted initially at the data entry stage. Atypical data is usually queried directly with the respondents at this stage.

Through the Sybase system automated edit checks are generated. The primary edit rule applied is a query range edit of 0.8-1.4 (where the value for the current month is compared to the value for the same month in the previous year). Any observation outside this range is examined and queried if necessary.

A period of 3-4 weeks out of a 6-7 week survey process is spent dealing with micro-editing. The editing process begins as soon as the data is entered onto the IT system (at t+1 weeks). Respondents are sometimes contacted regarding unusual results.

Explanatory notes are entered onto the system for legitimate turnover figures outside the edit range. Any corrections to data are only applied at the micro-level. Edits are re-run after correction.

### **4.4 Imputation (for Non-Response or Incomplete Data Sets)**

The retail sales index adopts a matched sample approach and therefore there is generally no need to conduct imputation. Occasionally, however, some ad-hoc imputation is carried out for some significant firms. In these cases each firm is looked at individually and an extension of nearest neighbour and last observation carried forward techniques are used to impute the missing values.

### **4.5 Grossing and Weighting**

#### **Trading Day Weights**

The daily trading weight is an estimate of the proportion of weekly sales that occur on a given day. Within each Business Group, Trading Day Weights sum to 1 for the week. These weights are based on results from a special survey where retailers are asked to estimate the percentage of turnover attributed to each day of the week for an average week. These Trading Day Weights or factors are unique to each Business Group.

Baseweights for each cell are derived from ASI (2005). These baseweights are updated on a monthly basis by applying a cell relative calculated using a year on year matched sample approach.

### **Baseweights**

The current base for the Retail Sales Index is the year 2005. The weights that correspond to the base period are referred to as base weights. The base weights for the current series are derived from the Annual Services Inquiry (ASI) 2005. By convention, base year weights are expressed as 100 i.e. Base Year = 100.

### **Monthly Base Weights**

The Retail Sales Index is calculated using a seasonal basket of weights i.e. a different set of monthly weights are used for each month, or in other words, for each Business Group there are 12 different base weights, one for each month of the year. These monthly weights reflect the changing relative importance of different Business Groups throughout the year. For example, consumers typically spend more on Clothing & Footwear in September because of the return to school. More new cars are purchased in January than any other month with the introduction of new registration plates. In order for such seasonal peculiarities to be accurately reflected in the “All Businesses” index, a different base weight is required for each month of the base year.

The base weights are derived from the Annual Services Inquiry (ASI) turnover data where the wholesale element of sales in retail outlets and the associated VAT is removed from the total turnover figure. However, the ASI can only provide annual turnover data for each Business Group. The monthly pattern of retail sales needed to convert annual ASI turnover data to a set of monthly turnover figures is derived from micro data collected for the RSI in 2005.

### **Average Weekly Turnover**

The Retail Sales Index is calculated on a 4-4-5 week basis, i.e. each quarter has exactly 13 weeks, distributed so that the first 2 months have exactly 4 weeks while the third month has exactly 5. The monthly turnover calculated by applying sales patterns from the Retail Sales Index is converted into Average Weekly Turnover by dividing the monthly turnover figure by the appropriate number of weeks. The average weekly turnover for each Business Group is used as the Base Year Weight for the respective Business Group.

#### 4.6 Computation of Outputs, Estimation Methods Used

Outputs are calculated using a matched sample approach. The business categories are based mainly on the Statistical Classification of Economic Activities in the European Community (NACE Rev 2.1). The index system is structured on the retailing enterprises covered in the 2005 Annual Services Inquiry classified by 13 retail business categories and four cell sizes based on turnover value.

The value indices are calculated by updating the aggregate 2005 retail turnover (including VAT) of these enterprises in these fifty two cells using the monthly retail sales data provided by the enterprise respondent panel from 2000 onwards.

The compilation of the index for a current month is based on the percentage change in average weekly sales in these cells over the corresponding monthly period of the previous year. The monthly volume indices are calculated by deflating the seasonally unadjusted value indices by specially constructed retail price indices derived from the Consumer Price Index (CPI).

In the case of the RSI, 12 distinct monthly base weights are calculated from the Annual Services Inquiry (2005), for cell in each business group. The compilation of the index for the current month ( $m$ ) is based on the percentage change in average weekly sales (based on a matched sample) over the corresponding monthly period of the previous year ( $m-1$ ).

The RSI sample is broken down into 13 NACE Rev.2 sub-categories (business groups) and further broken by 4 cell sizes. Initially, for each cell, a matched sample based on returns for the current month is established. The ratio ( $R_c$ ) of total cell turnover for the current month ( $T_{cm}$ ) over total cell turnover for the same month of the previous year ( $T_{c(m-1)}$ ) is then calculated.

$$R_c = \frac{T_{cm}}{T_{c(m-1)}}$$

$R_c$  is then applied to the cell weight from the previous ( $W_{c(m-1)}$ ) to calculate an updated cell weight ( $W_{cm}$ ).

$$W_{cm} = R_c \cdot W_{c(m-1)}$$

An updated business group weight ( $W_{bm}$ ) is then calculated for the current month by summing the four updated cell weights.

$$W_{bm} = \sum_{c=1}^4 W_{cm}$$

$W_{bm}$  is then converted into an index by dividing by the average 2005 monthly baseweight for the business group ( $W_{bmo}$ ) and multiplying by 100.

$$Index_{bm} = \left( \frac{W_{bm}}{W_{bm_o}} \right) \cdot 100$$

To calculate an updated “RSI” weight the individual business group weights are summed.

$$W_{RSI_m} = \sum_{b=1}^{13} W_{bm}$$

$W_{RSI_m}$  is then converted into an index by dividing by the average 2005 monthly baseweight for the retail sales ( $W_{RSI_o}$ ) and multiplying by 100.

$$Index_{RSI_o} = \left( \frac{W_{RSI_m}}{W_{RSI_o}} \right) \cdot 100$$

A copy of the Retail Sales Index is available on our website ([www.cso.ie](http://www.cso.ie)).

#### **4.7 Other Quality Assurance Techniques Used**

Macro editing is conducted using VAT information from the Revenue Commissioners as well as some motor trade information from the Society of Irish Motor Industry and the Transport Section of the CSO. The RSI deflators and prices are also compared to the CPI data and other price sources.

## **5 Quality**

### **5.1 Relevance**

The Retail Sales Index is a key short term indicator used both nationally and by the EU. It provides information required by National Accounts in compilation of the quarterly GDP – Regulation 2223/96.

### **5.2 Accuracy and Reliability**

#### **5.2.1. Sampling Effect & Representivity**

The population of retail enterprises in Ireland is approximately 28,000. The RSI sample comprises about 1,800 enterprises. This gives an average sampling fraction of over 6%, however this fraction can differ significantly from sector to sector and within size class. If coverage is viewed from a turnover perspective, the coverage is considerably higher, with an average sampling fraction of approximately 50%.

Information on standard errors are not calculated as part of the RSI aggregation process.

#### **5.2.2. Non-Sampling Effects**

Bias may be introduced as a result of the matched sample approach. It is difficult to completely represent the population due to the ongoing births and deaths of enterprises within the sector. This may result in the consistent under-estimation of growth during sustained periods of growth.

##### **5.2.2.1 Quality of the Data Sources used (other than survey register)**

Monthly product price data from the CSO's consumer price section is supplied to the retail sales section in order to calculate RSI deflators. The data supplied is thoroughly cleaned and edited.

##### **5.2.2.2 Register Coverage**

The retail sales registry is updated annually with relevant enterprises in the retail sector. Commencements of businesses, changes of business activity and cessations of businesses are updated at this time. Ad-hoc changes are also made to the register when relevant information becomes available from individual enterprises or from other sources. The retail sales registry is a subset of the Central Business Register (CBR). The CBR is updated on an on-going basis using administrative and survey data.

##### **5.2.2.3 Non-response (Unit and Item)**

High quality of data is ensured due to a high response rate (75%). The response rates for the provisional survey are typically in the order of 60% covering about 90% of the value of the turnover surveyed. The corresponding figures for the final month are 75% covering about 95% of the value of the turnover.

The retail sales index adopts a matched sample approach and therefore there is generally no need to conduct imputation. Occasionally, however, some ad-hoc imputation is carried out for some significant firms. In these cases each firm is looked at individually and an extension of nearest neighbour and last observation carried forward techniques to impute the missing values.

Non response bias is not measured in the survey.

#### **5.2.2.4 Measurement Errors**

Measurement Error is not regarded as a major concern for this survey. The following should be noted:

1. Questionnaire – the questionnaire is clear with the period requested clearly defined. The design of the questionnaire is monitored and changes made if necessary. Occasionally enterprises may provide turnover inconsistent with the period covered. These errors are usually highlighted at the data-cleaning stages.
2. Data collection method – the collection method is by post. This method is unlikely of itself to be a source of measurement error.
3. Interviewer- this technique not used by the survey.
4. Respondent – survey data can contain sensitive and confidential information due to the fact that it is a short-term survey and may be requested prior to annual accounts being completed. The survey publishes aggregated indices at 4 digit NACE (may publish at 3 or 4 digit NACE, or may aggregate more than one two digit NACE group – due to confidentiality).

#### **5.2.2.5 Processing Errors**

1. Data capture errors are likely to be low risk as survey forms keyed and edited immediately.
2. No manual coding is done.
4. Data editing- edits are run which test the returns against a range of values, e.g.;
  - Turnover is unusually high
  - Large change in turnover since previous month/year (range varies between +40% and - 20% depending on the size of company).
  - Large change in number outlets since previous month.
5. Contact is made with company to confirm returned figures if required. Data are manually changed if required.

#### **5.2.2.6 Model-related Effects**

See 5.2.2.3.

### **5.3 Timeliness and Punctuality**

#### **5.3.1 Provisional Results**

Retail Sales Provisional Index is published 7 weeks after the end of the survey period.

#### **5.3.2 Final Results**

Retail Sales Index is published 11 weeks after end of the survey period.

### **5.4 Coherence**

Consistency checks are done on an ad-hoc basis with the Annual Service Inquiry. Differences are verified and this leads to improved data quality.

In certain instances comparison with other data sources such as Revenue Commissioners data and Industry data are conducted. These are investigated where necessary leading to better quality data. In general the same trends are evident in the various data sources.

### **5.5 Comparability**

In general, the reporting of retail sales is similar throughout Europe but the underlying methodologies may differ. Many countries will not include Motor Trade and Bar sales in their retail figures. Therefore to compare Ireland's retail sales figures with those of other countries in Europe the retail sales figure as reported in the 'All Businesses excluding Motor Trades and Bars' is widely used.

### **5.6 Accessibility and Clarity**

#### **5.6.1 Assistance to Users, Special Analyses**

Our release and background notes are available on the CSO website at 11am on each release day.

Each month specific tailored data is provided to certain users to suit their requirements. Our methodology and historical data are available on the CSO website.

Methodology:

[http://www.cso.ie/surveysandmethodologies/surveys/services/retail\\_sales\\_index.htm#Method](http://www.cso.ie/surveysandmethodologies/surveys/services/retail_sales_index.htm#Method)

Historical Data

<http://www.cso.ie/px/pxeirestat/database/eirestat/Retail%20Sales/Retail%20Sales.asp>

## **5.6.2 Revisions**

Each month the provisional data from the previous month is revised on the receipt of late returns or amendments of existing returns. The current month's data is always provisional and only becomes final when the next month is published. The size of the revision varies from month to month but would typically be in the order of +/- 2% for 'All Industries' indices.

As turnover indices are seasonally adjusted, the complete series are revised monthly due to updated seasonal factors. Other revisions are flagged as such in the Release. Updating methodologies are not usually announced in advance but simultaneously with implementation. A significant change (e.g. rebasing of the indices) will be notified in advance.

## **5.6.3 Publications**

### **5.6.3.1 Releases, Regular Publications**

Our release is published each month at 7 (Provisional) and 11 (Final) weeks. After each rebase the methodology is updated and published on the web and in a hard copy.

### **5.6.3.2 Statistical Reports**

Annual value and volume indices are included for all our categories in the statistical yearbook.

[http://www.cso.ie/releasespublications/statistical\\_yearbook\\_ireland\\_2008.htm](http://www.cso.ie/releasespublications/statistical_yearbook_ireland_2008.htm)

### **5.6.3.3 Internet**

Each month our latest release is published on the CSO website. The Database direct facility on the CSO website is also updated each month to reflect the latest available data. Historical data is also available via the database direct on the CSO website.

[http://www.cso.ie/releasespublications/pr\\_services.htm](http://www.cso.ie/releasespublications/pr_services.htm)

## **5.6.4 Confidentiality**

The retail turnover data provided by the respondent enterprises are treated as strictly confidential in accordance with Part V of the Statistics Act, 1993 and cannot be accessed under the terms of the Freedom of Information Act, 1997. Data are not disclosed by the CSO to any other Government Department or outside body.

## **6 Additional documentation and publications**

The Retail Sales Methodology is available on the CSO website and contains all the relevant weights and product breakdowns that are relevant to the current base year. Eurostat publish seasonally adjusted retail trade figures for Ireland on a monthly basis. The figures reported by Eurostat are the “All Businesses Excluding Motors and Bars” reported in the RSI release.

Statistics on CSO Website:

[http://www.cso.ie/surveysandmethodologies/surveys/services/retail\\_sales\\_index.htm](http://www.cso.ie/surveysandmethodologies/surveys/services/retail_sales_index.htm)

<http://www.cso.ie/px/pxeirestat/database/eirestat/Retail%20Sales/Retail%20Sales.asp>

Statistical Yearbook of Ireland:

[http://www.cso.ie/releasespublications/statistical\\_yearbook\\_ireland\\_2008.htm](http://www.cso.ie/releasespublications/statistical_yearbook_ireland_2008.htm)

EU level data and methodology is available via the Eurostat website:

<http://ec.europa.eu/eurostat/euroindicators>

The entry for this statistic under StatCentral (the portal to Ireland’s official statistics) is at

<http://www.statcentral.ie/viewStat.asp?id=13>