An Phríomh-Oifig Staidrimh
Central Statistics Office

Standard SIMS Report:

Retail Sales Index

Single Integrated Metadata Structure (SIMS) Report

For

Retail Sales Index

This documentation applies to the reporting period:
2022

Last edited: 09/11/2023

1. Table of Contents

2. Introduction

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.

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4. Metadata Update

4.1. Metadata last certified

21/09/2022

4.2. Metadata last posted

28/09/2022

4.3. Metadata last update

21/09/2022

5. Statistical Presentation

5.1. Data Description

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 index also provides information on year-on-year and month-on-month changes in turnover for the retail sector in Ireland.

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.

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.
The RSI excludes

- Sales by street stalls and markets, street-based newspaper vendors and other retailing activities not conducted from permanent business premises.
- 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.

Aggregated monthly retail sales figures are presented as indices with 2015 as the base year.
The retail sales figures are presented for 22 separate categories. There are 13 Business Groups and 9 Combined Groups (see 'Sector Coverage'). Each aggregated index is presented as:

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

5.2. Classification System

The RSI is classified according to Statistical Classification of Economic Activities in the European Community, Rev. 2 (2008) (i.e. NACE Rev. 2).

5.3. Sector Coverage

The NACE Rev.2 divisions covered by the RSI are as follows:

- **NACE 45 Motor Trades -** Sale, maintenance and repair of new and second-hand vehicles and motorcycles
- **NACE 47.11 Non-Specialised Stores -** Retail sale in non-specialised stores with food, beverages or tobacco predominating - mainly supermarkets
- **NACE 47.19 Department Stores** - Retail sale of a large variety of goods of which food products, beverages or tobacco are not predominant activities of the department stores. Retail sale of a general line of merchandise, including wearing apparel, furniture, appliances, hardware, cosmetics, jewellery, toys, sports goods, etc.
- **NACE 47.2 Food, Beverages & Tobacco** - Retail sale of fruit and vegetables, meat and meat products, fish, crustaceans and molluscs, bread, cakes, flour and sugar confectionery, and beverages in specialised stores
- **NACE 47.3 Fuel** - Retail sale of fuel and lubricating products and cooling products for motor vehicles and motorcycles. Excludes wholesale of fuels
- **NACE 47.73 - 75 Pharmaceuticals, Medical & Cosmetic Articles** - Retail sale of pharmaceuticals, medical and orthopaedic goods, cosmetic and toilet articles in specialised stores
- **NACE 47.51, 47.71 – 72 Clothing, Footwear & Textiles** – Retail sale of textiles, clothing, footwear and leather goods in specialised stores

- **NACE 47.59 Furniture & Lighting** - Retail sale of furniture, lighting equipment and other household articles in specialised stores
- **NACE 47.52 Hardware, Paints & Glass** - Retail sale of hardware, paints and glass in specialised stores
- **NACE 47.41-43, 47.54 Electrical Goods** – Retail sale of information and communication equipment, computers, peripheral units and software, telecommunications equipment, audio and video equipment and electrical household appliances in specialised stores
- **NACE 47.91 online and mail order** -Retail trade not in stores, stalls or markets
- **NACE 47.61 -.62 Books, Newspapers & Stationery** – Retail sale of books excluding second-hand or antique books, retail sale of office supplies such as pens, pencils, paper, etc.
- **NACE 47.53, 47.63-65, 47.76-8 Other Retail Sales** – Retail sale of carpets, rugs, wall and floor coverings, music and video recordings, games and toys, flowers, plants, seeds, fertilisers, pet animals and pet food, jewellery, and other new goods in specialised stores
- **NACE 56.3 Bars** – Preparation and serving of beverages for immediate consumption on the premises

5.4. Statistical Concepts and definitions

NET TURNOVER
The objective of the net turnover index is to show the development of the market for goods and services. Net turnover comprises the totals invoiced by the observation unit during the reference period, and this corresponds to market sales of goods or services supplied to third parties. Net turnover also includes all other charges (transport, packaging, etc.) passed on to the customer, even if these charges are listed separately in the invoice.
Net turnover excludes VAT and other similar deductible taxes directly linked to net turnover as well as all duties and taxes on the goods or services invoiced by the unit.
The indices of domestic and non-domestic net turnover require turnover to be split according to the first destination of the product based on the change of ownership. The destination is determined by the residency of the third party that purchased the goods and services. Non-domestic net turnover is further sub-divided into turnover despatched to euro-zone countries and all other non-domestic turnover.

VOLUME OF SALES
The volume of sales represents the value of turnover in constant prices and as such is a quantity index. It is normally calculated by deflating turnover at current prices with an appropriate deflator of sales.

5.5. Statistical Unit

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.

5.6. Statistical Population

The RSI population consists of Enterprises in NACE Rev.2 divisions 45, 47 & 56.30 as specified under 'Sector Coverage'.
All enterprises are eligible for selection i.e. no size cut-off is applied to the enterprise population.

5.7. Reference Area

The geographical area covered is the Republic of Ireland.

5.8. Time Coverage

2015-date

5.9. Base period

Base year 2015=100

6. Unit of Measure

Collection: Euro.

Dissemination: Indices and percentage changes.

7. Reference Period

The reference period can either be a 4 week or 5 week period depending on the month.

8. Institutional Mandate

8.1. Legal Acts and other agreements

The RSI is a statutory inquiry, collected under the Statistics (Retail Sales) Order 2023 No. 510/2023. http://www.irishstatutebook.ie/eli/2016/si/118/made/en/print

The survey is also conducted in compliance with Council Regulation (EC) No. 1165/98 and amended by Commission Regulation No. 1158/2005, Regulation no 1863/2006, 329/2009 and 596/2009 and Commission Regulation No. 472/2008 concerning short term statistics.

8.2. Data Sharing

Data is not shared.

9. Confidentiality

9.1. Confidentiality – policy

All information supplied to the CSO is treated as strictly confidential. The Statistics Act, 1993 sets stringent confidentiality standards: Information collected may be used only for statistical purposes, and no details that might be related to an identifiable person or business undertaking may be divulged to any other government department or body.

These national statistical confidentiality provisions are reinforced by the following EU legislation: Council Regulation (EC) No 223/2009 on European statistics for data collected for EU statistical purposes. Further details are outlined in the CSO's Code of Practice on Statistical Confidentiality.

For more information on the CSO confidentiality policy please visit: https://www.cso.ie/en/aboutus/lgdp/csodatapolicies/statisticalconfidentiality/

9.2. Confidentiality – data treatment

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 is not disclosed by the CSO to any other Government Department or outside body.

10. Release Policy

10.1. Release Calendar

The date of dissemination of all statistics released by CSO can be found in the Release Calendar published in CSO.ie. This calendar is regularly updated.

In addition, a weekly release calendar which contains a schedule of precise release dates for those statistics that are to be published by the CSO during the following week is issued each Thursday by e-mail to the media and all other interested parties.

10.2. Release calendar access

The release calendar can be accessed via the CSO website, www.cso.ie, or directly from this link:
https://www.cso.ie/en/csolatestnews/releasecalendar/

10.3. User access

In accordance with Principle 6 of the European Statistics Code of Practice all users of CSO statistics have equal access via the CSO website at the same time of 11 am. Any privileged pre-release access to any outside user is limited, controlled and publicised. In the event that leaks occur, pre-release arrangements are revised so as to ensure impartiality.

The CSO recognises that in very limited circumstances a business need for pre-release access may be substantiated. Any form of pre-release access is a privilege and a strict CSO pre-release access policy is adhered to for these special requests. The full pre-release access policy can be accessed at:
https://www.cso.ie/en/aboutus/lgdp/csodatapolicies/csopolicyonpre-releaseaccess/

The various results are published nationally in statistical release format as well as on the CSO website (www.cso.ie). Selected extracts from the results are posted on the CSO's data dissemination database, PxStat.

The CSO disseminates the RSI publication on the CSO website at 11am (local time) on the day of publication (see point 8.1). RSI data is transmitted to Eurostat after 11am on the day of publication or under embargo, if the national RSI publication is scheduled to be published after the deadline for transmission of data to Eurostat.

11. Frequency of Dissemination

Monthly

12. Accessibility and clarity

12.1. News release

The most recent press release for Retail Sales Index can be found at:
https://www.cso.ie/en/csolatestnews/pressreleases/2022pressreleases/pressstatementretailsalesindexmarch2022provisionalfebruary2022final/

12.2. Publications

Data on retail sales are released in the following locations on the CSO website:
https://www.cso.ie/en/statistics/retailandservices/retailsalesindex/

12.3. On-line database

Data from the RSI can be accessed on tabular format via the CSO dissemination database, PxStat, as follows:

- Retail Sales Index (Nace Rev 2) (Base 2015 = 100):https://data.cso.ie/table/RSM5
- Turnover generated by Online Sales: https://data.cso.ie/table/RSM07

12.3.1. AC 1. Data tables - consultations

The table below indicates the number of times each release was accessed from the time of publication until October 2021

Month published	Total page views	Unique page views
October 2020	889	419
November 2020	1846	864
December 2020	3141	1468
January 2021	2848	1366
February 2021	1987	956
March 2021	1821	866
April 2021	1758	811
May 2021	1638	761
June 2021	1517	707
July 20201	1633	773
August 2021	1929	912
September 2021	594	275
Total	21601	10178

12.4. Micro-data Access

Micro data are not publicly available.

12.5. Other

Statistical Yearbook of Ireland:
https://www.cso.ie/en/releasesandpublications/ep/psyi/statisticalyearbookofireland2020/

Data are sent to Eurostat to be used in European aggregates and/or to be released as national data. There are no planned future changes in national dissemination.

EU level data and methodology is available via the Eurostat website:
Eurostat – STS: https://ec.europa.eu/eurostat/web/short-term-business-statistics/data/main-tables

EU level data and methodology is available via the Eurostat website:
http://ec.europa.eu/eurostat/web/short-term-business-statistics/methodology

12.5.1. AC2. Metadata consultations

Not calculated.

12.6. Documentation on Methodology

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. It can be accessed directly on the following link: https://www.cso.ie/en/methods/services/retailsalesindex/

12.6.1. AC3 – Metadata completeness – rate

Not calculated.

12.7. Quality Documentation

Further information on the documentation associated with this output can be found in the Methods page in cso.ie: https://www.cso.ie/en/methods/services/retailsalesindex/

13. Quality Management

13.1. Quality Assurance

Quality Management Framework
The CSO avails of an office wide Quality Management Framework (QMF). This framework allows all CSO processes and outputs to meet the required standard as set out in the European Statistics Code of Practice (ESCOP). The QMF foundations are based on establishing the UNECE's Generic Statistical Business Process Model (GSBPM) as the operating statistical production model to achieve a standardised approach to Quality Management. All and any changes implemented to CSO processes and outputs require adherence to the QMF.

Other Quality assurance techniques used:
Macro editing is conducted using

- VAT information from the Revenue Commissioners
- Motor Trade information from the Society of Irish Motor Industry (SIMI)
- Vehicle Licensing from the Transport Section of the CSO
- Other Retail Sector surveys are also referenced
- Credit Card data made available to the CSO during the pandemic and has been used to verify data
- The RSI deflators and prices are also compared to the CPI data and other price sources

13.2. Quality Assessment

The CSO conducts self-assessment reviews on all their published processes on an annual basis. The last iteration of this review carried out didn't identify any quality issues that required immediate attention.

14. Relevance

14.1. User Needs

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.

Due to Globalisation of the Irish Economy the Retail Sales is also seen as a main indicator of the domestic economy without the Global influence.

14.1.1. Main National Users

- Government Department and Agencies
- Economists
- Other CSO divisions, e.g. National Accounts
- Retail Groups
- Professional bodies
- University students and other interest groups for research purposes
- The general public

14.1.2. Principal External Users

Eurostat

14.2. User Satisfaction

No user satisfaction survey was conducted.

14.3. Data Completeness

The index is fully compliant with requirements of the Council Regulation (EC) No 1165/98 concerning short-term statistics and the subsequent amendments.

14.3.1. Data Completeness rate

100%

15. Accuracy and reliability

15.1. Overall accuracy

Response rates are compiled and analysed each month. Quality checks and validation of data are done throughout the whole compilation process.

For interpretation of results, users have to be aware that every index draws a picture of reality in a simplified way. There is no statistical model which is able to represent the complexity of reality in total.

15.2. Sampling Error

The CSO tries to reduce sampling errors by using a sample of enterprises that is as large as possible while taking burden on enterprises and time and resource constraints into account. The sample is designed to focus on the larger enterprises which have the largest turnover and therefore the greatest impact on the statistics.

The population of retail enterprises in Ireland is approximately 25,400. The RSI sample comprises about 3,000 enterprises. This gives an average sampling fraction of 7%, 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%.

15.2.1. A1. Sampling error indicator

Month	Standard Error	Coefficient of Variation %
Jan-20	0.08	7.3
Feb-20	0.1	9.6
Mar-20	0.07	6.1
Apr-20	0.1	10.1
May-20	0.05	4.5
Jun-20	0.08	7
Jul-20	0.06	5.2
Aug-20	0.05	4.7
Sep-20	0.04	3.9
Oct-20	0.07	6.9
Nov-20	0.05	5.2
Dec-20	0.07	7.5

15.3. Non-sampling Error

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

15.3.1. Coverage error

In general, the RSI register is static in terms of births for 5 years. Exceptions are made for large/key enterprises that might start operating in Ireland.. The Retail Sales register is a subset of the Central Business Register (CBR).

15.3.1.1. A2. Over coverage rate

Not calculated.

15.3.1.2. A3. Common units – proportion

Not calculated.

15.3.2. Measurement error

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 stage.
2. **Data collection method** – the collection method is by electronic questionnaires (eQ). Data editing (see 'Data Validation') is implemented at the processing stage to minimise any measurement errors due to incorrect form completion by respondents.
3. **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 Rev.2 (may publish at 3 or 4 digit NACE Rev.2, or may aggregate more that one-two digit NACE group – due to confidentiality).

15.3.3. Non-Response Error

High quality of data is ensured due to a high response rate (60%). The response rates for the provisional survey are typically in the order of 50% covering about 85% of the value of the turnover surveyed. The corresponding figures for the final month are approx. 60% covering about 90% 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.

15.3.3.1. Unit non-response rate

Provisional release:
50% unweighted non-response rate
15% size weighted non-response based on turnover.

Final release:
40% unweighted non-response rate
10% size weighted non-response rate

15.3.3.2. Item non-response rate

Not calculated. (see comment above)

15.3.4. Processing error

1. Data capture errors are likely to be low risk as survey forms keyed and edited immediately.
2. No manual coding is done.
3. 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
4. Contact is made with company to confirm returned figures if required. Data is manually changed if required.

15.3.5. Model assumption error

See 'Data Compilation' section. For interpretation of results, users must be aware that every index draws a picture of reality in a simplified way. There is no statistical model which can represent the complexity of reality in total.

16. Timeliness and punctuality

16.1. Timeliness

Provisional Results: The preliminary data are published by the CSO within T + 28 days after the end of the reference month.

Final Results: The final data are published by the CSO within T + 58 days after the end of the reference month (i.e. the final results are published at the same time as the provisional results for the subsequent month).
The results are transmitted to Eurostat within T + 28 days after the end of the reference.

16.1.1. /TP1. Time lag – First results

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

16.1.2. TP2. Time lag – Final results

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

16.2. Punctuality

The publication dates of all CSO releases are specified in the public release calendar available from CSO.ie. The RSI release was disseminated in accordance with the date determined in the calendar.

16.2.1. TP3. Punctuality – Punctuality - delivery and publication

0 days. RSIs have always been published nationally on the pre-announced release dates and RSIs have always been transmitted to Eurostat within the agreed time frame even during COVID.

17. Comparability

17.1. Comparability – Geographical

In general, the reporting of Retail Sales is similar throughout Europe but 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.

17.1.1. CC1. Asymmetry for mirror flow statistics

Not applicable.

17.2. Comparability over time

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 figures going back to January 1968.

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 trade varies on certain days.

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 20% 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. 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 5th or 6th 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 1st quarter of the re-calibrated year.

17.2.1. Length of Comparable Time series

There have been breaks in series due to NACE classification changes and every 5 years there is a rebase where new weights are used. The current series is comparable for over 7 years from January 2015.

17.3. Coherence – cross domain

In certain instances, comparisons 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.

Coherence checks are done with Vehicle Licensing.

17.3.1. Coherence – Sub annual and annual statistics

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

17.3.2. Coherence with National Accounts

Not applicable.

17.4. Coherence – internal

Data is tested for coherence at individual enterprise level each month comparing data with the corresponding data from the same month of the previous year and any inconsistencies are followed up with the enterprise.

18. Cost and Burden

Estimates of Cost and Burden can be obtained from the Response Burden Barometer
https://www.cso.ie/en/statistics/multisectoral/responseburdenbarometer/

Survey specific information is available via CSO's dissemination database PxStat.
https://data.cso.ie/product/RBB

19. Data Revision

19.1. Data Revision Policy

Revisions refer to changes made to published statistical data when the information used in its production has been updated or corrected. This information includes all data used in compiling the statistic e.g. respondent data, administrative data, weights and factors, methodology, classifications, definitions, modifications to survey questionnaires, survey scope and data collection methods. The data revision policy that CSO statistics adheres to can be found via the following link:
https://www.cso.ie/en/methods/quality/treatmentofrevisions/

19.2. Data Revision Practice

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 following month is published.

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

2020 was a particularly difficult year for Retail with many months of non essential retail closed in Ireland. Estimating for Key companies was very difficult and contacting companies was difficult. Even if the retail business was open the accounting staff were generally working from home.

19.2.1. Data Revision – Average size

The size of the revision varies from month to month but would typically be in the order of +/- 2% for 'All Businesses' indices.

For 2020 the following were calculated for the volume of retail sales

- the mean average revision was 0.1%
- the mean absolute revision was 0.9%
- range of revisions were -2.1% to 2.4%

For 2020 the following were calculated for the value of retail sales

- the mean average revision was 0.1%
- the mean absolute revision was 0.9%
- range of revisions were -2.0% to 2.2%

20. Statistical processing

20.1. Source Data

The primary data source is micro-data (i.e. turnover and internet sales) surveyed from individual enterprises.

Monthly product price data from the CSO's Consumer Prices section (CPI) is supplied to the Retail Sales section in order to calculate RSI deflators.

20.1.1. Population and sampling frame

The population of retail enterprises in Ireland is approximately 36,000. The Retail Sales register is a subset of the Central Business Register (CBR). The CBR is updated on an on-going basis using administrative and survey data.

20.1.2. Sampling design

The RSI collection is based on a stratified sample where the strata are based on NACE Rev 2 and size class. There are four size classes within each NACE Rev.2 Classification. These size classes are defined according to annual turnover i.e. enterprises are categorised into four groups (or size classes) according to their turnover. The four size classes are:

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

The stratified sample of enterprises is conducted with a higher proportion of Cell size 4 being included compared to Cell size 1. This sample design ensures a larger percentage of turnover being collected while reducing burden on smaller enterprises. Enterprises are stratified initially by their NACE Rev.2 Classification and then within each NACE Rev.2 sector by turnover. Every five years the RSI sample is updated by taking a random sample from the Central Business Register of enterprises not already on the RSI register. 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.

20.1.3. Survey size

The RSI sample comprises of about 2,500 enterprises. A decision was taken to retain a number of enterprises as the response rate and statistical quality of the survey would suffer without them

20.1.4. Survey technique

Data for the survey is collected via electronic questionnaires (eQ) , however some data is collected via:

- E-mail
- Telephone

The received data is scanned into the purpose built Sybase system. This raw turnover data is then aggregated to produce unadjusted value indices. Using price data from the CSO's Consumer Price Index (CPI) and fixed product weights, monthly volume deflators are calculated separately for each RSI Index. The unadjusted value indices are converted into volume indices by using these monthly deflators.

20.2. Frequency of data collection

Monthly

20.3. Data Collection

The collection method is via electronic questionnaires (eQ). The received data is uploaded into the purpose built Sybase system. Data editing is implemented at the processing stage to minimise any measurement errors due to incorrect form completion by respondents.

20.3.1. Type of Survey/Process

The survey is a sample collected via electronic questionnaires (eQ). No administrative data are used.

20.3.2. 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:

1. In 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 weeks.
Data returned on a calendar month basis will require adjustments to this standardised pattern. If a responding enterprise opts to return data in a 4-4-5 week pattern, their data may still require adjustments

if their 4-4-5 week pattern (accounting period) does not match that of the CSO. Retail Sales use the following 4-4-5 week patterns:

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

The questionnaire used for the survey can be found via the following link:
http://www.cso.ie/en/methods/services/retailsalesindex/

20.3.3. Survey Participation

This is a statutory survey, so participation is compulsory.

20.3.4. Data Capture

Data is scanned and loaded into Data Management System (DMS) a capture and processing system. Data is also entered manually when required.

20.4. Data Validation

The edit checks performed are checks on consistency of data between months.

The following edit checks are carried out:

1. Large increase/decrease in turnover compared to the corresponding month last year.
2. If turnover is greater than 0 then number of outlets must also be greater than 0.

Each member of staff is responsible for a block of enterprises based on Business Groups. Key enterprises have been identified on each block based on turnover and are prioritised regarding edits. Each edit is checked for possible scanning or verification errors and any comment that may explain an inconsistent figure on the return. Returns for the previous months are also checked for indications of a trend. The enterprise is contacted to resolve any discrepancy where necessary. The return is then manually edited on the basis of the explanation from the enterprise. Once all errors are amended a copy is made of the clean dataset.

Reports are run throughout the survey period outlining the number of edits outstanding and also response rates are tracked.

The Edit rules had to be changed in 2020 and depending on the sector due to the massive impact the COVID 19 pandemic had on turnover.

20.5. Data Compilation

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). The index system is structured on the retailing enterprises covered in the2015 Annual Services Inquiry classified by 13 retail business categories and 4 cell sizes based on turnover value.

The value indices are calculated by updating the aggregate 2015 retail turnover (including VAT) of these enterprises in these 52 cells using the monthly retail sales data provided by the enterprise respondent panel from 2015 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 (2015), for each cell in every 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 (Rc) of total cell turnover for the current month (Tcm) over total cell turnover for the same month of the previous year (Tc(m-1)) is then calculated.

$$\mathbf{Rc = T_{cm}/T_{c(m-1)}}$$

Rc is then applied to the cell weight from the previous (Wc(m-1)) to calculate an updated cell weight (Wcm).

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

An updated Business Group weight (Wbm) is then calculated for the current month by summing the four updated cell weights.

$$\mathbf{W_{bm} = Sum(W_{cm})} \text{ where c = 1 to 4}$$

Wbm is then converted into an index by dividing by the average 2015 monthly baseweight for the business group (Wbmo) and multiplying by 100.

$$\mathbf{Index\ BG_m = (W_{bm}/W_{bm0})x100}$$

To calculate an updated "RSI" weight the individual Business Group weights are summed.

$$\mathbf{W_{RSIm} = Sum(W_{bm})} \text{ where b = 1 to 13}$$

WRSI_m is then converted into an index by dividing by the average 2015 monthly baseweight for the retail sales (WRSI_o) and multiplying by 100

$$\mathbf{Index\ RSI_0 = (W_{RSIm}/W_{RSI0})x100}$$

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 trade varies on certain days.

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 20% 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. 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 5th or 6th 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 1st quarter of the re-calibrated year.

20.5.1. 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 Key firms. In these cases each firm is looked at individually and estimated if not in for the provisional month. Estimates are based on the sector trends and previous returns: an extension of nearest neighbour and last observation carried forward techniques are used to impute the missing values.

No imputation/estimation is done for smaller companies

20.5.1.1. A7. Imputation rate

Not calculated.

20.5.2. Grossing and Weighting

Turnover from the Annual Services Inquiry is used to create the base year weights which are updated with the turnover from the returns each month.

The raw turnover data is aggregated to produce unadjusted value indices. Using price data from the CSO's Consumer Price Index (CPI) and fixed product weights, monthly volume deflators are calculated separately for each RSI Index. The unadjusted value indices are converted into volume indices by using these monthly deflators.

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 (2015). 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 2015. 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) 2015. 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 and July 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 into a set of monthly turnover figures is derived from micro data collected for the RSI in 2015.

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 weeks. 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.

20.6. Adjustment

20.6.1. Seasonal Adjustment

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 2010 to the current period.

Seasonal adjustment for the Retail Sales series is complicated by the complex calendar effects induced by the Retail Sales Inquiry's use of the 4-4-5 standardised reporting period. Each year each standardised month changes its position relative to the calendar month. The twelve standard periods total to 52 weeks or 364 days compared to 365 days in a year (or 366 in a leap year). Consequently each year the standardised months used by the Retail Sales slip back one (or two days) every year. Every five or six years an extra week is added to February to cater for this slippage.

The slippage of the standardised months relative to the corresponding calendar months operates on a cyclical basis. The cycle should have a cycle of seven years but because of leap years the actual cycle is 28 years.

Each individual Retail Sales series or sub-index is seasonally adjusted separately using the model that best fits the characteristics of that series. Individual series models will be reviewed once every 12 months and series models and parameters are adjusted if required.

The revised series are published on the CSO web – www.cso.ie. Distinct seasonal factors are calculated for each Business Group and each Combined Group. This reflects the different seasonal patterns exhibited by different Business Groups and Combined Groups. For example, sales in the Motor Trades are low in December, contrasting with sales of Food Beverages & Tobacco, which usually increase in the lead up to Christmas. Separate factors are also calculated for the value and volume series.

The adjustments are completed by applying the X-13-ARIMA model, developed by the U.S. Census 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.

Please look at https://www.census.gov/srd/www/x13as/ for additional information on the X-13-ARIMA software.

Identifying and Treating Outliers, Temporary Changes and Level Shifts
Outliers, temporary changes and level shifts are abrupt changes in the underlying series that can affect the quality of the seasonal adjustment if not treated correctly. The X-13-Arima seasonal adjustment program identifies any outliers, temporary changes or level changes and removes them from the original series before the seasonal adjustment factors are calculated. Once the seasonal adjustment factors are calculated these outliers, temporary changes and level shifts are then re-introduced so they are present in the final seasonally adjusted series.

Estimating Calendar Effect
The calendar effects induced in the series by the 4, 4, 5, recording period can be estimated and removed using the X-13-Arima seasonal adjustment program.

In retail sales the following calendar (regression) effects are adjusted for:

1. The phase shift effect resulting from year to year movement of the standard recording periods.
2. Easter effects, resulting from the Easter holiday moving between the Retail Sales' standardised 'March' and 'April' periods.
3. An October Bank Holiday effect resulting from the holiday moving between the Retail Sales' standardised 'October' and 'November' periods.

In order to estimate these regression effects 16 separate regressors were included initially in the regression model for each series. There are 12 phase shift regressors, 3 Easter regressors and 1 October Bank Holiday regressors. For each series 10 of the phase shift regressors ('January' – 'September' and 'December') are formally tested for statistical significance using the standard t-test. The 'November ', 'October' and October Bank Holiday regressors are jointly tested using the log likelihood ratio test. The 3 Easter regressors are similarly jointly tested. Only regressors that are proven to be statistically significant are included in the final regression model.

Once the calendar effects are adjusted for the seasonal factors are then calculated the X-13-Arima seasonal adjustment program.

21. Comment

COVID 19 pandemic had a huge impact on the Retail Sales Sector in Ireland. Non-essential shops were closed for some of March, May and October and all of April and November.

- Highest monthly volume decrease occurred in April 2020 (-35.7%)
- Highest monthly volume increase recorded in June 2020 (+41.4%) following the first lockdown
- The impact of COVID-19 restrictions on the Retail Sector in November 2020 (-12.3%) and January 2021 (-21.8%) were not as severe as the first lockdown
- Highest percentage of turnover transacted online occurred in April 2020 at 15.3%
- Comparing February 2020 to December of that year, some of the largest increases in retail sales were in Hardware, Paints & Glass (+30.0%) and Motor Trades (+21.5%)
- Comparing February 2020 to December of that year, the largest decrease in retail sales was in Bars (-62.4%) and Books, Newspapers and Stationery (-10.8%)

The percentage of online sales in Irish registered enterprises remained stable since records began in 2018 at between 2.5% to 4% prior to the impact of COVID-19. In April the percentage transacted online increased to 15.3%. While overall retail sales fell in April, the closure of non-essential shops and outlets saw many consumers move online to purchase goods. As traditional shopping re-opened, the proportion of transactions online fell.

The impact of COVID-19 on 2020 retail sales had different impacts depending on the retail sectors. Seasonally adjusted volume of sales in December 2020 were lower than February 2020 in:

- *Bars (-62.4%)*
- *Books, Newspapers and Stationery (-10.8%)*
- *Department Stores (-4.4%)*

All other sectors had sales greater than they had in February 2020. The sectors with the highest increases when December is compared to February were:

- *Hardware, Paints & Glass (+30.0%)*
- *Motor Trades (+21.5%)*
- *Food, Beverages & Tobacco (Specialised Stores) (+19.8%)*
- *Furniture & Lighting (+16.6%)*

The sale of Food in Supermarkets (Non-Specialised stores) and in Specialised Stores grew substantially in 2020 compared to the same time the previous year.

Seasonally adjusting the data was difficult and the Methodology Division looked at the models each month and made changes where required. This is normally only done on an annual basis.
Where it was known that a company was closed and did not have internet sales a turnover of 0 was put in by DCU instead of sending a form to a company. It was more difficult to contact respondents even where they enterprises were still in operation as the office staff were working from home.