

Embargoed until 10:45am – 12 March 2010

## Retail Trade Survey: January 2010

### Highlights

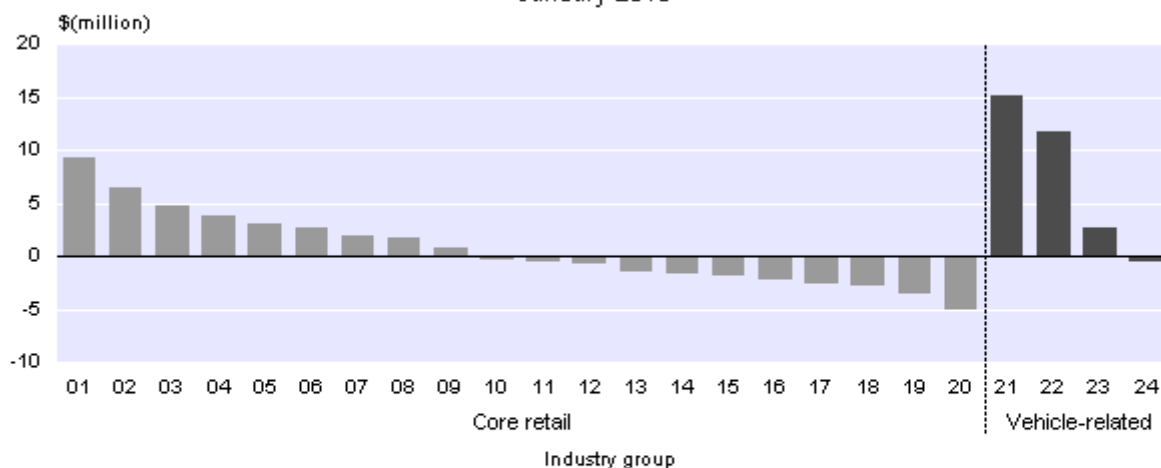
For January 2010 compared with December 2009 (on a seasonally adjusted basis):

- Total retail sales rose 0.8 percent (\$42 million).
- Core retail sales rose 0.3 percent (\$12 million).
- The four vehicle-related industries had a 2.1 percent (\$29 million) combined sales increase.
- Eighteen of the 20 core retail industries moved up or down by \$5 million or less.

The total retail sales trend has continued to rise, and has increased 3.3 percent since February 2009.

### Retail Industry Contributions to the Change in Seasonally Adjusted Sales

Change from previous month  
January 2010



01 Recreational goods retailing

02 Accommodation

03 Takeaway food retailing

04 Other food retailing

05 Furniture and floor coverings retailing

06 Appliance retailing

07 Supermarket and grocery stores

08 Department stores

09 Footwear retailing

10 Personal and household goods hiring

11 Bars and clubs

12 Other personal services

13 Chemist retailing

14 Fresh produce retailing

15 Household equipment repair services

16 Clothing and softgoods retailing

17 Liquor retailing

18 Cafes and restaurants

19 Hardware retailing

20 Other retailing

21 Automotive fuel retailing

22 Motor vehicle retailing

23 Automotive repair and services nec

24 Automotive electrical, smash repair, tyres

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# Commentary

All references to sales movements are to seasonally adjusted series unless otherwise stated.

## January 2010

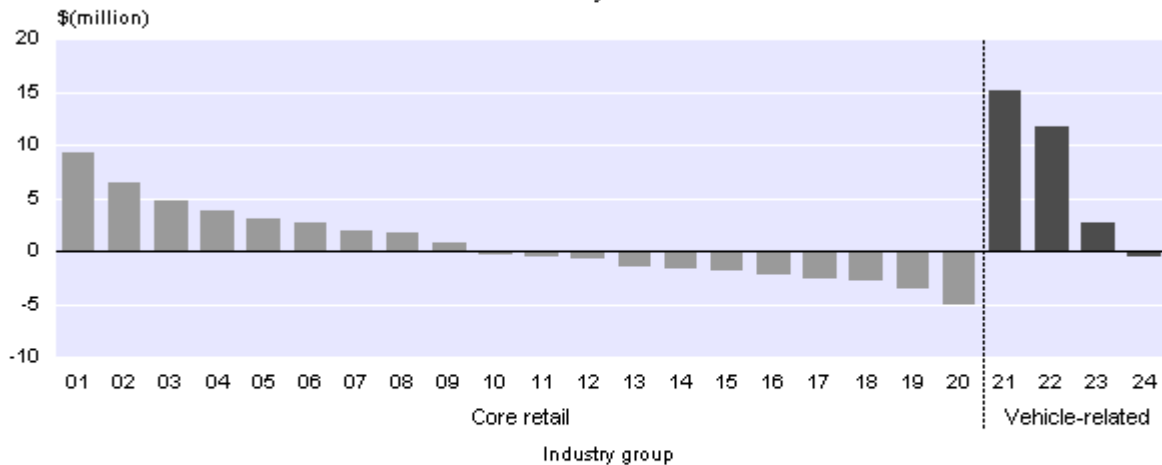
Total retail sales rose 0.8 percent (\$42 million) in January 2010, following a 0.4 percent fall in December 2009. The increase in sales was led by the vehicle-related industries (up 2.1 percent or \$29 million), with a lesser rise in core retailing.

Core retail sales (which exclude the four vehicle-related industries) rose 0.3 percent (\$12 million), following a 2.0 percent fall in December 2009. The increase in core retailing was led by recreational goods retailing and accommodation; these were the only two industries in core retailing with movements exceeding \$5 million.

### Retail Industry Contributions to the Change in Seasonally Adjusted Sales

*Change from previous month*

January 2010



|  |  |   |
|--|--|---|
| 01 Recreational goods retailing            | 09 Footwear retailing                  | 17 Liquor retailing                           |
| 02 Accommodation                           | 10 Personal and household goods hiring | 18 Cafes and restaurants                      |
| 03 Takeaway food retailing                 | 11 Bars and clubs                      | 19 Hardware retailing                         |
| 04 Other food retailing                    | 12 Other personal services             | 20 Other retailing                            |
| 05 Furniture and floor coverings retailing | 13 Chemist retailing                   | 21 Automotive fuel retailing                  |
| 06 Appliance retailing                     | 14 Fresh produce retailing             | 22 Motor vehicle retailing                    |
| 07 Supermarket and grocery stores          | 15 Household equipment repair services | 23 Automotive repair and services nec         |
| 08 Department stores                       | 16 Clothing and softgoods retailing    | 24 Automotive electrical, smash repair, tyres |

By industry, the largest increases were:

- automotive fuel retailing – up 2.8 percent (\$15 million)
- motor vehicle retailing – up 2.0 percent (\$12 million)
- recreational goods retailing – up 4.8 percent (\$9 million)
- accommodation – up 3.0 percent (\$6 million).

The largest decreases were:

- other retailing – down 2.0 percent (\$5 million)

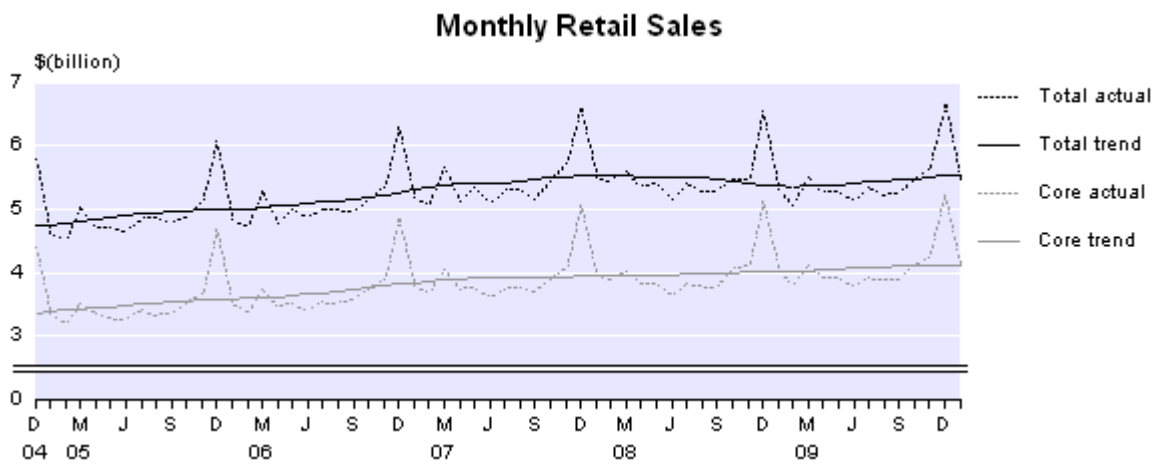
- hardware retailing – down 2.8 percent (\$3 million)
- cafes and restaurants – down 0.8 percent (\$3 million)
- liquor retailing – down 2.6 percent (\$3 million).

Eighteen of the 20 core retail industries moved up or down by \$5 million or less.

## Sales trend

The total retail sales trend has continued to rise, and has increased 3.3 percent since February 2009. The trend is now at a similar level to February 2008, before the decline between February 2008 and February 2009.

Having been mostly flat between mid-2007 and early 2009, the core retail sales trend strengthened slightly in mid-2009. However, the sales trend has eased again since then, and is now flat.



## Vehicle-related industries

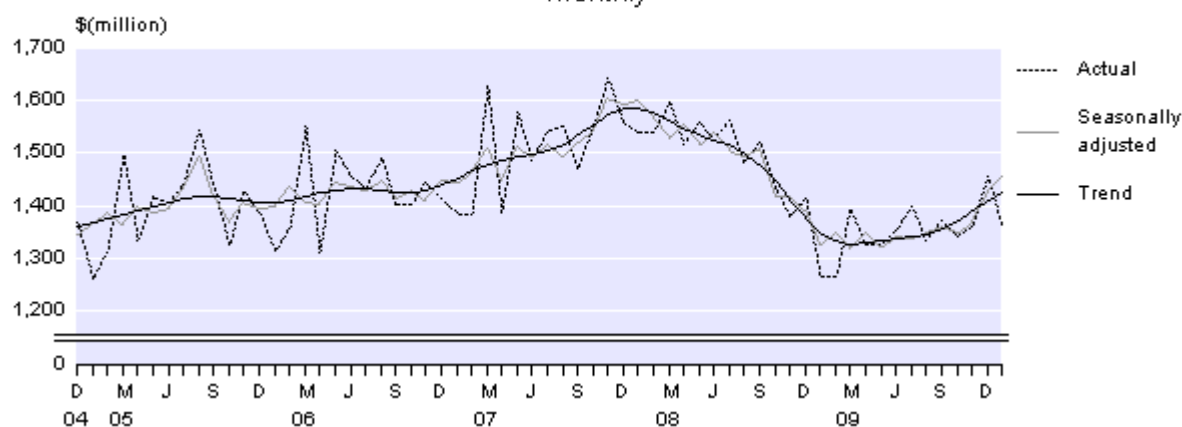
For the second consecutive month, the vehicle-related industries had the biggest increase in total retail sales, with a \$29 million combined sales increase in January 2010. The two largest contributors to the overall increase in retail sales were:

- automotive fuel retailing, with sales up 2.8 percent (\$15 million); both petrol and diesel prices increased over the course of the month
- motor vehicle retailing, with sales up 2.0 percent (\$12 million).

Automotive fuel retailing and motor vehicle retailing are the second and third largest industries in the Retail Trade Survey (behind supermarket and grocery stores).

## Vehicle-related Industries Sales

### Monthly



Sales trends for these two industries were:

- automotive fuel retailing – the trend has been rising since July 2009, up 8.4 percent; the rate of increase has been strong and consistent and has averaged 1.4 percent per month
- motor vehicle retailing – the trend has been rising since March 2009, up 10.6 percent; the monthly rate of increase averaged 0.7 percent between April and September 2009, and has risen to 1.5 percent since September 2009.

## Core industries

Core retail sales had a 0.3 percent (\$12 million) increase in January 2010. The main movements in the core retail industries were:

- recreational goods retailing – sales were up 4.8 percent (\$9 million), following a 4.9 percent fall in December 2009
- accommodation – sales were up 3.0 percent (\$6 million)
- other retailing – sales were down 2.0 percent (\$5 million).

All other core retail industries had movements of less than \$5 million.

Core industries with notable trend movements include:

- department stores – up 2.7 percent since June 2009
- recreational goods retailing – the trend has been rising since August 2008, up 8.1 percent; the trend is at its highest level since May 1995 when the series began
- supermarket and grocery stores – down 2.3 percent since August 2009
- liquor retailing – down 3.3 percent since May 2009; this is the longest sustained period of decline since the May 1999–April 2000 fall.

## Regional estimates

In January 2010, the value of seasonally adjusted sales was up in the North Island (up 1.5 percent) and was flat in the South Island (down just 0.2 percent). The only region with a sales decrease was Canterbury, down 0.9 percent.

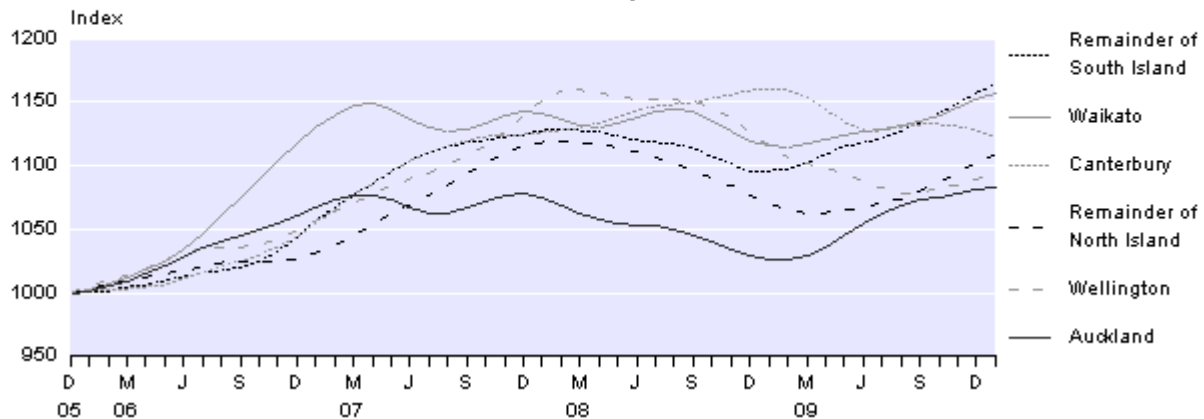
The sales trend has been rising in the North Island since February 2009 (up 3.9 percent), and in the South Island since June 2009 (up 1.8 percent). Whilst the trend in the North Island has been

increasing steadily at an average monthly rate of 0.4 percent since March 2009, the rate of increase in the South Island trend has been slowing in the latest months.

### Indexed Retail Sales Trend by Geographical Region

Base: December 2005 (=1000)

Monthly



Illustrated in the graph above, the regional sales trends are as follows:

- Auckland – the trend has been rising, up 5.6 percent since January 2009. However, the rate of increase has slowed, averaging 0.2 percent in the last four months.
- Waikato – the trend has been rising, up 3.8 percent since February 2009. The rate of increase has been strengthening in recent months, averaging 0.5 percent.
- Wellington – the trend has been rising, up 1.5 percent since September 2009.
- Remainder of the North Island – the trend has been rising, up 4.4 percent since April 2009.
- Canterbury – the trend appears to have reached a turning point in October 2009, and has been falling, down 0.8 percent since then. Initial trend estimates should be used with caution as they may be revised as more data points become available.
- Remainder of the South Island – the trend has been rising since January 2009, up 6.3 percent.

## Revisions

As a result of updated respondent information, revisions have been made to the actual sales series for automotive fuel retailing for the December 2009 month, and for the actual stock series for the December 2009 quarter. Consequently total and regional sales figures have been revised. Corresponding revisions have also been made to the seasonally adjusted and trend series.

Quarterly sales values, sales volumes, and stocks have also been revised for the December 2009 quarter, at the industry and regional levels. They can be found on Infoshare or are available on request.

The main changes are as follows:

| <b>December 2009 Month</b> |                           |                                  |                               |
|----------------------------|---------------------------|----------------------------------|-------------------------------|
| Industry / Region          | Series reference:<br>RTNM | Published on 12<br>February 2010 | Published on 12<br>March 2010 |
| <b>Sales</b>               |                           | \$ (million)                     | \$ (million)                  |
| Automotive fuel retailing  | S1AQC                     | 601                              | 579                           |
| Total                      | S1A9C                     | 6,704                            | 6,682                         |
| Total North Island         | S1ARG9C                   | 5,023                            | 5,007                         |
| Total South Island         | S1ARH9C                   | 1,680                            | 1,675                         |

| <b>December 2009 Quarter</b> |                           |                                  |                               |
|------------------------------|---------------------------|----------------------------------|-------------------------------|
| Industry / Region            | Series reference:<br>RTNQ | Published on 12<br>February 2010 | Published on 12<br>March 2010 |
| <b>Sales</b>                 |                           | \$ (million)                     | \$ (million)                  |
| Automotive fuel retailing    | S1AQC                     | 1,644                            | 1,622                         |
| Total                        | S1A9C                     | 17,790                           | 17,768                        |
| Total North Island           | S1ARG9C                   | 13,314                           | 13,297                        |
| Total South Island           | S1ARH9C                   | 4,475                            | 4,470                         |

| <b>December 2009 Quarter</b> |                           |                                  |                               |
|------------------------------|---------------------------|----------------------------------|-------------------------------|
| Industry                     | Series reference:<br>RTNQ | Published on 12<br>February 2010 | Published on 12<br>March 2010 |
| <b>Stocks</b>                |                           | \$ (million)                     | \$ (million)                  |
| Automotive fuel retailing    | S2AQC                     | 90                               | 89                            |
| Total                        | S2A9C                     | 5,502                            | 5,501                         |

## Comparison statistics

For January 2010 compared with December 2009:

- The food price index rose 2.1 percent.
- New registrations of cars and station wagons (including vehicles previously registered overseas) rose 7.4 percent.
- Seasonally adjusted short-term overseas visitor arrivals fell 2.4 percent.
- As first published (on 10 February 2010), the seasonally adjusted value of the retail Electronic Card Transaction (ECT) series rose 0.5 percent, and the seasonally adjusted value of the core retail ECT series were flat (down 0.1 percent).

Other:

- The Reserve Bank of New Zealand's Official Cash Rate was unchanged at 2.50 percent throughout January 2010.

## **Measurement errors**

All statistical estimates are subject to measurement errors. These include both sample errors and non-sample errors. In addition, the survey applies imputation methodologies to cope with small firms and non-response. These measurement errors should be considered when analysing the results from the survey. For more information on measurement errors, please refer to the 'Technical notes' of this release.

## **Sample errors**

The postal survey was designed to give statistics at the following levels of accuracy (at the 95 percent confidence interval limit):

- 2 percent for sales at the total national retail trade level
- 10 percent for sales at the published national retail industry level.

This means, for example, that there is a 95 percent chance that the true value of total retail trade sales lies within 2 percent of the published estimate.

At the industry level, the following sample errors occurred in the January 2010 month (at the 95 percent confidence interval limit):

| <b>Retail Trade Survey: January 2010 Month Sample Errors by Industry</b><br><i>At the 95 percent confidence interval limit</i> |                                     |  |
|--|-------------------------------------|--|
| <b>Retail industry</b>   | <b>Level<br/>(relative percent)</b> | <b>Movement<br/>(absolute percent)</b> |
| Supermarket and grocery stores   | 3.5                                 | 4.0                                    |
| Fresh meat, fish, poultry, fruit, and vegetables   | 7.5                                 | 5.1                                    |
| Liquor retailing   | 8.1                                 | 6.9                                    |
| Other food retailing   | 10.2                                | 10.0                                   |
| Takeaway food retailing  | 6.2                                 | 4.9                                    |
| Department stores  | 0.0                                 | 0.0                                    |
| Furniture and floor coverings  | 8.4                                 | 8.2                                    |
| Hardware   | 4.9                                 | 5.0                                    |
| Appliance retailing  | 8.3                                 | 2.9                                    |
| Recreational goods   | 7.7                                 | 8.1                                    |
| Clothing and softgoods   | 6.2                                 | 6.4                                    |
| Footwear   | 9.7                                 | 3.3                                    |
| Chemist  | 5.7                                 | 2.9                                    |
| Household equipment repair services  | 12.9                                | 7.9                                    |
| Other retailing  | 8.1                                 | 8.9                                    |
| Motor vehicle retailing  | 10.1                                | 8.1                                    |
| Automotive fuel retailing  | 4.2                                 | 1.9                                    |
| Automotive electrical services, smash repairing, tyre retailing  | 5.6                                 | 5.0                                    |
| Automotive repair and services, nec  | 8.1                                 | 8.5                                    |
| Accommodation  | 4.7                                 | 4.3                                    |
| Bars and clubs   | 9.4                                 | 6.0                                    |
| Cafes and restaurants  | 6.3                                 | 6.0                                    |
| Personal and household goods hiring  | 12.3                                | 17.4                                   |
| Other personal services  | 6.4                                 | 4.0                                    |
| Total retail trade   | 1.6                                 | 1.0                                    |
| <b>Note:</b> nec = not elsewhere classified  |                                     |  |

Industries with zero sample error are full-coverage industries. In these industries, all large firms are surveyed and all small to medium-sized firms are modelled using administrative data sourced from Inland Revenue.

| <b>Retail Trade Survey: January 2010 Month Sample Errors by Region</b><br><i>At the 95 percent confidence interval limit</i> |                                     |  |
|--|-------------------------------------|--|
| <b>Region</b>  | <b>Level<br/>(relative percent)</b> | <b>Movement<br/>(absolute percent)</b> |
| Auckland   | 4.2                                 | 3.0                                    |
| Waikato  | 9.3                                 | 7.5                                    |
| Wellington   | 5.2                                 | 7.1                                    |
| Remainder of the North Island  | 6.1                                 | 2.9                                    |
| Canterbury   | 5.4                                 | 8.4                                    |
| Remainder of the South Island  | 6.7                                 | 4.6                                    |

## **Imputation**

### **Small firms**

Small- to medium-sized firms are generally not surveyed. Their variables are instead modelled from administrative data (GST) sourced from Inland Revenue. Ratios calculated from the postal sample units are applied to the administrative data to provide an estimate of their variables.

### **Non-response imputation**

Although every attempt is made to achieve a 100 percent response rate, in practice this does not occur. Values for non-responding businesses are estimated by a number of methods, including:

- regression imputation
- historic imputation
- mean imputation.

Regression imputation involves estimating sales from the unit's administrative data (GST sales) based on the relationship shown by similar businesses. Historic imputation involves multiplying their response in the previous period by a non-response factor. The non-response factor is the average movement of similar businesses over the month. Mean imputation involves estimating a value for a unit by using the average value for a set of similar businesses.

### **Postal response rate**

The response rate describes the proportion of geographic units that provided survey responses. Note that the calculation of this response rate relates only to data for the postal sample. The Retail Trade Survey has a target response rate of 85 percent. The response rate achieved for the January 2010 survey was 90 percent.

The table below indicates the percentage of sales imputed in the January 2010 month:

| <b>Sales Imputed in the January 2010 Month</b>                  |                     |                     |
|---|---------------------|---------------------|
| <b>Retail industry</b>  | <b>Tax modelled</b> | <b>Non-response</b> |
|   | Percentage of sales |                     |
| Supermarket and grocery stores                                  | 5.6                 | 4.5                 |
| Fresh meat, fish, poultry, fruit, and vegetables                | 7.7                 | 15.4                |
| Liquor retailing  | 10.4                | 13.7                |
| Other food retailing  | 10.0                | 11.3                |
| Takeaway food retailing   | 7.9                 | 15.4                |
| Department stores   | 0.0                 | 0.0                 |
| Furniture and floor coverings                                   | 13.7                | 8.8                 |
| Hardware  | 6.2                 | 4.4                 |
| Appliance retailing   | 6.5                 | 3.8                 |
| Recreational goods  | 8.7                 | 10.2                |
| Clothing and softgoods  | 9.8                 | 8.9                 |
| Footwear  | 9.3                 | 5.9                 |
| Chemist   | 5.0                 | 14.6                |
| Household equipment repair services                             | 10.6                | 13.8                |
| Other retailing   | 12.0                | 15.0                |
| Motor vehicle retailing   | 12.5                | 9.9                 |
| Automotive fuel retailing                                       | 3.0                 | 3.7                 |
| Automotive electrical services, smash repairing, tyre retailing | 10.2                | 15.4                |
| Automotive repair and services, nec                             | 9.7                 | 15.8                |
| Accommodation   | 10.6                | 15.1                |
| Bars and clubs  | 10.1                | 14.3                |
| Cafes and restaurants   | 9.8                 | 16.8                |
| Personal and household goods hiring                             | 11.6                | 12.3                |
| Other personal services   | 15.1                | 15.4                |
| Total retail trade  | 7.8                 | 8.8                 |
| <b>Note:</b> nec = not elsewhere classified                     |                     |                     |

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**Next release ...**

*Retail Trade Survey: February 2010* will be released on 14 April 2010.

## Technical notes

### Background to the survey

The Retail Trade Survey (RTS) is designed to provide short-term economic indicators of the retail trade sector. In addition, the data is used for the compilation of the retail trade sector component of quarterly national accounts (on the production side) and in the compilation of household consumption expenditure (on the expenditure side). The survey was last redesigned for the September 2003 quarter. For more details about the redesign refer to [Retail Trade Survey – Redesign: September 2003](#) and the [Retail Trade Survey – Survey design](#) information paper.

### Population

The target population for this survey is all geographic units (GEOs) operating in New Zealand that are classified on Statistics New Zealand's Business Frame to the Australian and New Zealand Standard Industrial Classifications (ANZSIC) below:

- Retail Trade (ANZSIC division G)
- Accommodation, Cafes and Restaurants (ANZSIC division H)
- Personal Services (ANZSIC subdivision 95 of division Q).

Only enterprises with a turnover of \$30,000 or more are eligible for selection.

### Industry descriptions

A geographic unit is included in an industry based on its predominant activity in terms of sales. For example, a footwear store will sell shoes and boots, but it may also sell bags and other accessories. The store will be classified to the footwear industry if most of its sales income comes from the sale of shoes and boots. The 24 industries are defined as follows:

| <b>Retail Trade Survey Industry Descriptions</b>               |   |
|--|---|
| <b>Industry</b>  | <b>ANZSIC96 code</b>                            |
| G0111 Supermarket and grocery stores                           | G511010 Supermarkets                            |
|  | G511020 Groceries and dairies                   |
| G0121 Fresh meat, fish, poultry, fruit and vegetable retailing | G512100 Fresh meat, fish, and poultry retailing |
|  | G512200 Fruit and vegetable retailing           |
| G0122 Liquor retailing   | G512300 Liquor retailing                        |
| G0123 Other food retailing                                     | G512400 Bread and cake retailing                |
|  | G512600 Milk vending                            |
|  | G512900 Specialised food retailing nec          |

| <b>Industry</b>                               | <b>ANZSIC96 code</b>  |
|---|---|
| G0124 Takeaway food retailing                 | G512510 Fish and chips, hamburger, and ethnic food takeaway stores          |
|   | G512520 Chicken takeaway stores   |
|   | G512530 Ice-cream parlours and mobile ice-cream vendors                     |
|   | G512540 Pizza takeaway stores   |
|   | G512590 Other takeaway food stores (including sandwiches and savouries) nec |
| G0131 Department stores                       | G521000 Department stores   |
| G0141 Furniture and floor coverings retailing | G523100 Furniture retailing   |
|   | G523200 Floor covering retailing  |
| G0142 Hardware retailing                      | G523300 Domestic hardware and houseware retailing                           |
| G0143 Appliance retailing                     | G523400 Domestic appliance retailing  |
|   | G523500 Recorded music retailing  |
| G0144 Recreational goods retailing            | G524100 Sport and camping equipment retailing                               |
|   | G524200 Toy and game retailing  |
|   | G524300 Newspaper, book, and stationery retailing                           |
|   | G524400 Photographic equipment retailing                                    |
|   | G524500 Marine equipment retailing  |
| G0151 Clothing and softgoods retailing        | G522100 Clothing retailing  |
|   | G522300 Fabrics and other soft good retailing                               |
| G0152 Footwear retailing                      | G522200 Footwear retailing  |
| G0153 Chemist retailing                       | G525100 Pharmaceutical, cosmetic, and toiletry retailing                    |
| G0154 Household equipment repair services     | G526100 Household equipment repair services (electrical)                    |
|   | G526900 Household equipment repair services nec                             |
| G0159 Other retailing                         | G525200 Antique and used good retailing                                     |
|   | G525300 Garden supplies retailing   |
|   | G525400 Flower retailing  |
|   | G525500 Watch and jewellery retailing                                       |
|   | G525900 Retailing nec   |

| <b>Industry</b>   | <b>ANZSIC96 code</b>                                  |
|---|---|
| G0161 Motor vehicle retailing   | G531100 Car retailing                                 |
|   | G531200 Motor cycle dealing                           |
|   | G531300 Trailer and caravan dealing                   |
| G0162 Automotive fuel retailing   | G532100 Automotive fuel retailing                     |
| G0163 Automotive electrical services, smash repairing, and tyre retailing | G532200 Automotive electrical services                |
|   | G532300 Smash repairing                               |
|   | G532400 Tyre retailing                                |
| G0164 Automotive repair and services nec                                  | G532900 Automotive repair and services nec            |
| H0111 Accommodation   | H571010 Hotels (accommodation)                        |
|   | H571020 Motels and motor inns                         |
|   | H571030 Hosted accommodation                          |
|   | H571040 Backpacker and youth hostels                  |
|   | H571050 Caravan parks and camping grounds             |
|   | H571090 Accommodation nec                             |
| H0121 Bars and clubs  | H572000 Pubs, taverns and bars                        |
|   | H574000 Clubs (hospitality)                           |
| H0122 Cafes and restaurants   | H573000 Cafes and restaurants                         |
| Q0111 Personal and household goods hiring                                 | Q951100 Video hire outlets                            |
|   | Q951900 Personal and household goods hiring nec       |
| Q0112 Other personal services   | Q952100 Laundries and dry-cleaners                    |
|   | Q952200 Photographic film processing                  |
|   | Q952300 Photographic studios                          |
|   | Q952400 Funeral directors, crematoria, and cemeteries |
|   | Q952500 Gardening services                            |
|   | Q952600 Hairdressing and beauty salons                |
|   | Q952900 Personal services nec                         |
| <b>Note:</b> nec = not elsewhere classified                               |   |

## Sample design

The survey population is stratified according to:

- industries defined by the ANZSIC-based ANZIND classification at the inter-industry level
- size (in terms of rolling-mean employment)
- turnover (annualised GST sales).

Each ANZIND inter-industry contains between two and four substrata. Because of the contribution that large units make to the economic activity within each industry, they are all included in the sample. A portion of the remaining medium-to-large units is also included in the sample. In addition, small- to medium-sized businesses have their data modelled from administrative data (GST) sourced from Inland Revenue. The Inland Revenue data have been forecast two to three months ahead. All retailing GEOs belonging to a selected 'enterprise' are included.

There are approximately 70,000 retail outlets in New Zealand. Around 3,500 enterprises (between 9,000 and 10,000 GEOs) have been selected in the RTS postal sample. The postal sample is supplemented by GST data representing smaller retailers, approximately 36,200 enterprises (36,600 GEOs).

## Sample maintenance

Sample maintenance is the process that maintains the sample over time, to reflect births, deaths, and other structural changes identified on the Business Frame. The information for Business Frame changes can be from a variety of sources, including GST registrations and respondent contact.

New enterprises are identified when they register for GST. Once a month, the new enterprises are selected into the sample using the same criteria as for the original sample. These are referred to as births. When an enterprise ceases trading, its retailing GEOs are removed from the survey. These are referred to as deaths.

Enterprises can also enter or leave the survey sample if they are reclassified to a different industry. Reclassifications occur when an enterprise changes its main form of activity (eg from wholesale trade to retailing). These are usually identified in the Annual Frame Update Survey conducted in February of each year.

## Sample reselection

The sample for the RTS is reselected each month to ensure the sample reflects changes occurring in the retailing population.

## **Measurement errors**

Errors in the survey are divided into two classes:

### **Non-sampling error**

Non-sampling error includes errors arising from biases in the patterns of response and non-response, inaccuracies in reporting by respondents, and errors in the recording and coding of data. The size of these errors is difficult to quantify. Statistics may be revised if significant errors are detected in subsequent quarters.

### **Sampling error**

Sampling error is a measure of the variability that occurs by chance because a sample, rather than an entire population, is surveyed.

## **Definitions**

### **ANZSIC96**

Australian and New Zealand Standard Industrial Classification system – NZ Version 1996.

### **ANZIND**

An ANZSIC-based classification used to group industries for publication.

### **Business Frame**

A register of all economically significant businesses operating in New Zealand. The population of the RTS is drawn from the Business Frame.

### **Enterprise**

A business entity operating in New Zealand, either as a legally constituted body such as a company, partnership, trust, local or central government trading organisation, or a self-employed individual.

### **Geographic unit**

A geographic unit is a subdivision of an enterprise. It is a separate operating unit engaged in New Zealand in one, or predominantly one, kind of economic activity from a single physical location or base.

## **Seasonally adjusted series**

The X-12-ARIMA package has been used to produce the seasonally adjusted estimates and trend estimates for sales in all subdivisions. Seasonal adjustment aims to eliminate the impact of regular seasonal events (such as annual cycles in agricultural production, winter, or annual holidays) on time series. This makes the data for adjacent months more comparable.

All seasonally adjusted figures are subject to revision each month. This enables the seasonal component to be better estimated and removed from the series.

## **Estimated trend**

For any series, the survey estimates can be broken down into three components: trend, seasonal, and irregular. While seasonally adjusted series have had the seasonal component removed, trend series have had both the seasonal and the irregular components removed. Trend estimates reveal the underlying direction of movement in a series, and are likely to indicate turning points more accurately than are seasonally adjusted estimates.

The trend series are calculated using the X-12-ARIMA seasonal adjustment package. They are based on a five-term or a seven-term moving average of the seasonally adjusted series, with an adjustment for outlying values.

Trend estimates towards the end of the series incorporate new data as they become available and can therefore change as more observations are added to the series. Revisions can be particularly large if an observation is treated as an outlier in one month, but is found to be part of the underlying trend as further observations are added to the series. Typically, only the estimates for the most recent month will be subject to substantial revisions.

## **Regional estimates**

In the October 2003 month, the RTS sample of geographic units changed. Data prior to the October 2003 month is an analytical back series, which has been derived to preserve industry movements at the national level. However, previously published regional movements may not have been preserved. Care should be taken when interpreting movements of regional series around the period of the redesign.

## **More information**

For more information, follow the [link](#) from the technical notes of this release on the Statistics NZ website.

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## Tables

The following tables are printed with this Hot Off the Press and can also be downloaded from the Statistics New Zealand website in Excel format. If you do not have access to Excel, you may use the [Excel file viewer](#) to view, print, and export the contents of the file.

1. Actual retail sales by month, by industry
2. Seasonally adjusted retail sales by month, by industry
3. Retail sales trend by month, by industry
4. Actual retail sales by geographical region
5. Actual retail sales by geographical region, excluding motor vehicle retailing
6. Seasonally adjusted retail sales by geographical region
7. Retail sales trend by geographical region