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## Wholesale Trade Survey: September 2009 quarter

### Highlights

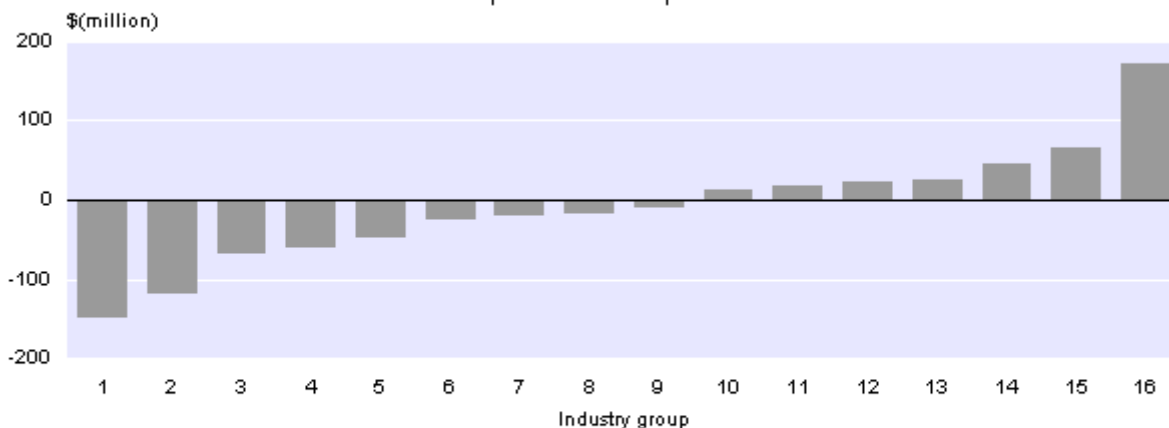
For the September 2009 quarter compared with the June 2009 quarter (on a seasonally adjusted basis):

- Total wholesale trade sales fell 0.8 percent (\$154 million).
- Total wholesale trade stocks fell a record 5.1 percent (\$545 million).
- The wholesale trade sales trend remains low, falling 10.4 percent since the June 2008 quarter.

### Industry Contribution to the Change in Seasonally Adjusted Sales

*Change from previous quarter*

September 2009 quarter



1 Primary product food	6 Electrical and electronic equipment	12 Textile, clothing, and footwear
2 Farm, construction machinery, and professional business equipment	7 Books and paper products	13 Metal and mineral
3 Motor vehicle	8 Chemical	14 Builders' supplies
4 Wholesale trade nec	9 Household good	15 Petroleum products
5 Unprocessed primary products	10 Machinery and equipment nec	16 Food and grocery products
	11 Pharmaceutical and toiletry	

Geoff Bascand  
Government Statistician

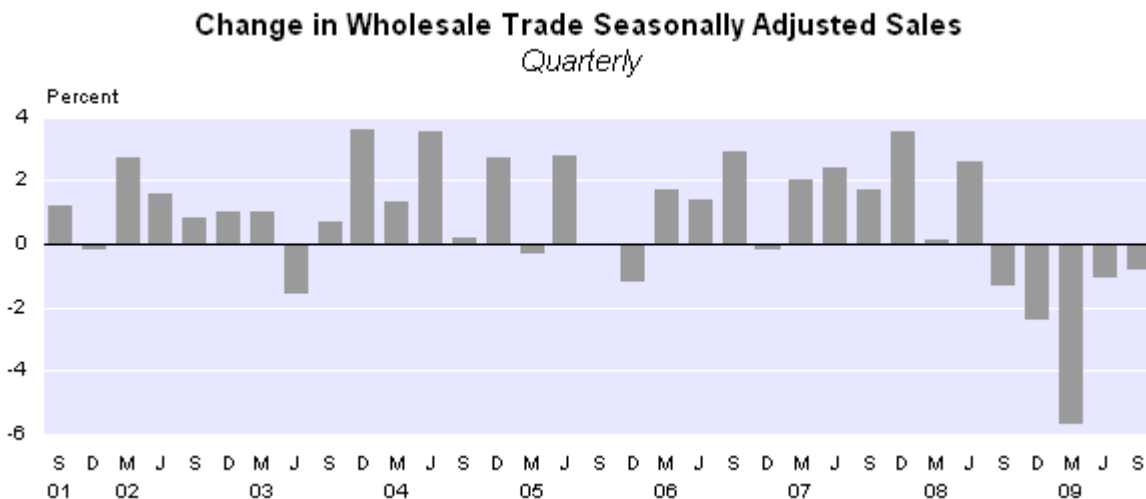
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## Commentary

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

## Sales

Total wholesale trade sales have fallen for a fifth consecutive quarter, down 0.8 percent (\$154 million) in the September 2009 quarter. Before the current fall total wholesale trade sales had never fallen for longer than two quarters. This recent fall in sales brings the total value to \$20.2 billion, a level last seen nearly three years ago.



The overall picture across the 16 wholesaling industries was mixed, with nine industries falling and seven increasing. The largest decreases for the September 2009 quarter were in the following industries:

- primary product food wholesaling, down 8.4 percent (\$148 million)
- farm, construction machinery, and professional business equipment wholesaling, down 6.6 percent (\$119 million)
- motor vehicle wholesaling, down 5.1 percent (\$69 million)
- wholesale trade not elsewhere classified (nec), down 5.7 percent (\$61 million).

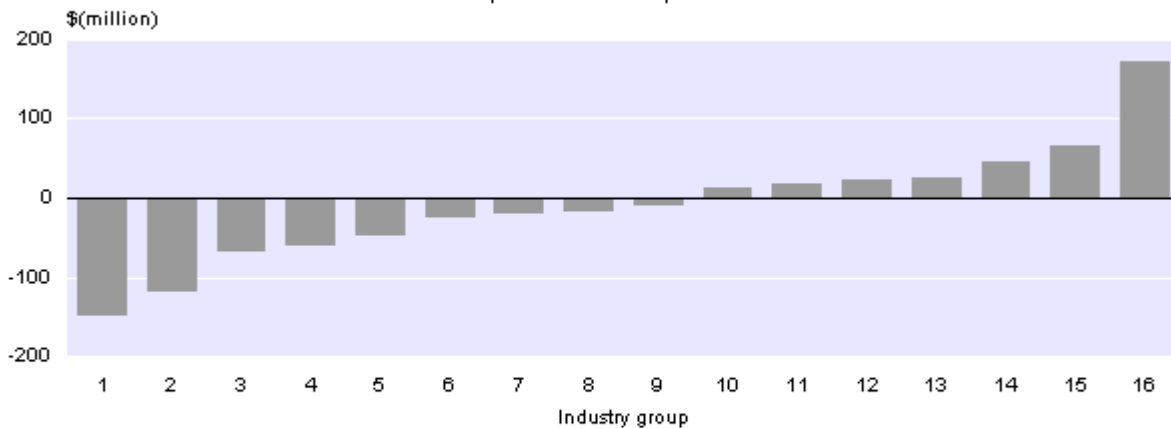
These falls were partly offset by increases in the following industries:

- food and grocery wholesaling, up 4.1 percent (\$172 million)
- petroleum product wholesaling, up 4.2 percent (\$66 million), (sales in this industry are not seasonally adjusted).

The remaining industries moved, up or down, by less than \$50 million.

## Industry Contribution to the Change in Seasonally Adjusted Sales

Change from previous quarter  
September 2009 quarter



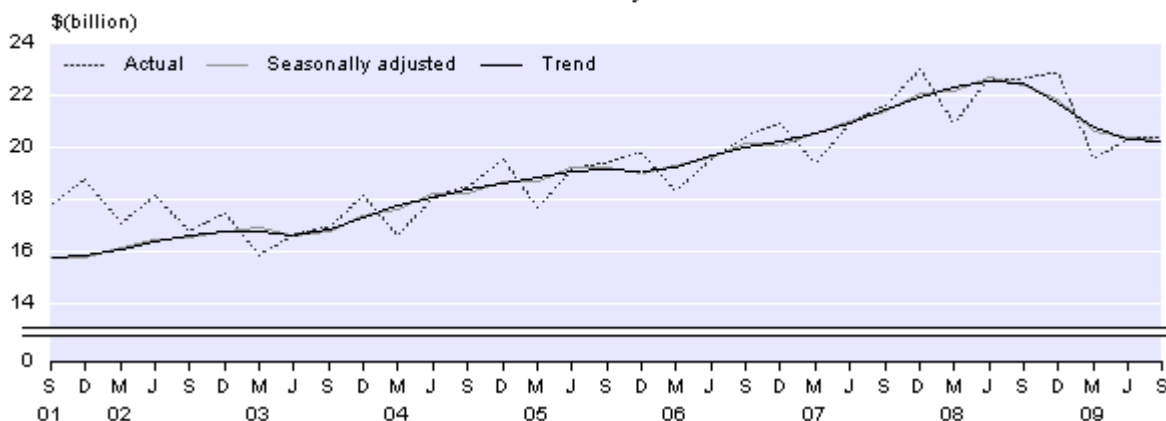
1 Primary product food	6 Electrical and electronic equipment	12 Textile, clothing, and footwear
2 Farm, construction machinery, and professional business equipment	7 Books and paper products	13 Metal and mineral
3 Motor vehicle	8 Chemical	14 Builders' supplies
4 Wholesale trade nec	9 Household good	15 Petroleum products
5 Unprocessed primary products	10 Machinery and equipment nec	16 Food and grocery products
	11 Pharmaceutical and toiletry	

## Sales trend

The total sales trend has also decreased for five consecutive quarters, falling 10.4 percent since the peak in June 2008. This far surpasses the previous largest fall in the trend (a drop of 1.1 percent over three quarters of 1996), but follows a two-and-a-half-year period of increase, up 18.1 percent since the December 2005 quarter. Latest data suggest the rate of fall has slowed.

## Wholesale Trade Total Sales

Quarterly



The main contributors to the decline in the overall sales trend are as follows:

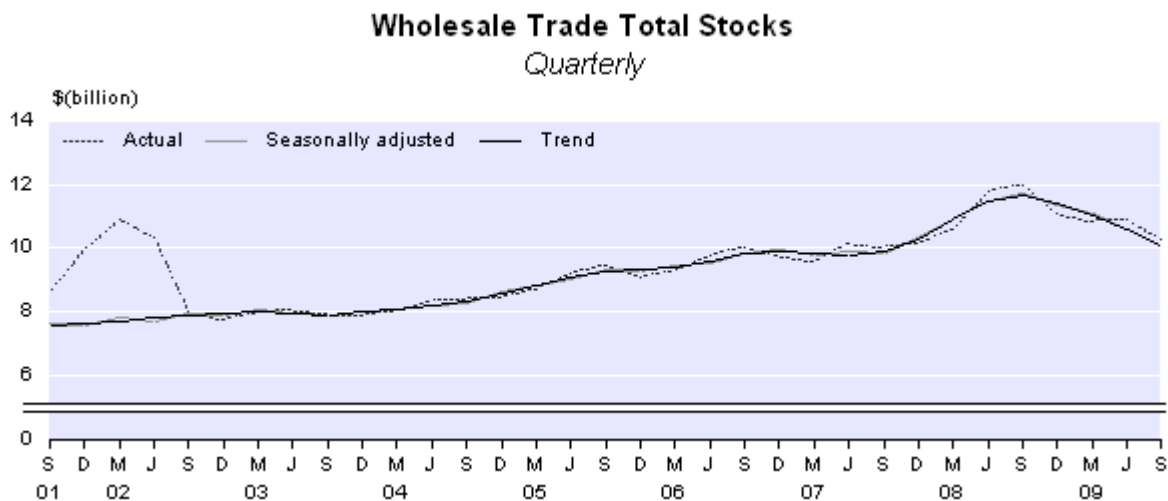
- Petroleum product wholesaling sales are down 26.5 percent since September 2008, but the rate of fall has eased considerably in the last two quarters.

- Primary product food wholesaling sales continue to fall, down 21.0 percent since March 2008. Part of the decrease in the December 2008 and March 2009 quarters was due to the reclassification of some activity from primary product food wholesaling to manufacturing.
- Metal and mineral wholesaling sales fell 39.2 percent between the September 2008 and June 2009 quarters, but may have stopped falling. Latest figures may be revised, and should be used with caution.
- Motor vehicle wholesaling sales have fallen 28.6 percent since September 2007. The rate of fall has eased in the last two quarters.
- Machinery and equipment nec wholesaling have fallen 19.9 percent since March 2008. The rate of fall has eased in the last two quarters.

Food and grocery products, and pharmaceutical and toiletry wholesaling are the only industries where the sales trend in September 2009 is higher than June 2008, up 6.1 percent and 3.7 percent, respectively.

## Stocks

Total wholesale trade stocks fell 5.1 percent (\$545 million) in the September 2009 quarter, the largest quarterly fall since the series began in March 1995. The latest result exceeds last quarter's record fall of 4.4 percent (\$493 million), and extends the longest and fastest period of decline in stocks since the series began in March 1995. The total value of stocks in the September 2009 quarter was \$10.1 billion.



Stocks decreased in 12 of the 16 wholesale industries in the September 2009 quarter. The largest decreases were in these industries:

- petroleum product wholesaling – down 23.8 percent (\$374 million) following a rise of 22.4 percent (\$288 million) last quarter (stocks in this industry are not seasonally adjusted)
- unprocessed primary products wholesaling – down 8.3 percent (\$69 million)
- wholesale trade nec – down 10.0 percent (\$68 million), (stocks in this industry are not seasonally adjusted).

Only four industries recorded increases, all of which were relatively small. The biggest was in metal and mineral wholesaling, up 10.0 percent (\$35 million).

In the September 2002 quarter, restructuring in the dairy industry affected the sales and stocks series. To maintain the consistency of the seasonally adjusted and trend series, the discontinuity has been removed before seasonal adjustment, as shown in the graph above.

## Revisions

Amended information for the June 2009 quarter has resulted in revisions to the actual sales series for electrical and electronic wholesaling and pharmaceutical and toiletry wholesaling, plus revisions to the actual stock series for unprocessed primary products wholesaling.

Corresponding revisions have also been made to the seasonally adjusted, trend, and total series.

<b>Wholesale Trade Survey Actual Sales Revisions</b>				
<b>Quarter</b>	<b>Industry</b>	<b>Series ref: WTSQ</b>	<b>Published 7 September 2009</b>	<b>Published 7 December 2009</b>
			\$(million)	\$(million)
June 2009	Electrical and electronic equipment	SNF0142A	1,010	978
	Pharmaceutical and toiletry	SNF0175A	981	963
	Total	SNF0ZZZA	20,374	20,325

<b>Wholesale Trade Survey Actual Stocks Revisions</b>				
<b>Quarter</b>	<b>Industry</b>	<b>Series ref: WTSQ</b>	<b>Published 7 September 2009</b>	<b>Published 7 December 2009</b>
			\$(million)	\$(million)
June 2009	Unprocessed primary products	SNF0111Z	828	858
	Total	SNF0ZZZZ	10,899	10,929

## 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' section.

## Sample errors

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

- 5 percent for operating income and stocks at the total wholesale trade level
- 10 percent for operating income and stocks at the published industry level.

This means, for example, that there is a 95 percent chance that the true value of total wholesale trade operating income lies within 5 percent of the published estimate.

At the industry level, the following sample errors were recorded in the September 2009 quarter at the 95 percent confidence interval limit.

<b>Wholesale Trade Survey Sample Errors</b> September 2009 quarter		
<b>Industry group</b>	<b>Level (relative percent)</b>	<b>Movement (absolute percent)</b>
	<b>Operating income</b>	
Unprocessed primary products wholesaling	4.2	3.7
Petroleum product wholesaling	0.0	0.0
Metal and mineral wholesaling	0.0	0.0
Chemical wholesaling	0.0	0.0
Builders' supplies wholesaling	5.8	3.9
Farm, construction machinery, and professional business equipment wholesaling	9.1	5.9
Electrical and electronic equipment wholesaling	5.7	4.4
Machinery and equipment nec wholesaling	14.7	5.6
Motor vehicle wholesaling	5.2	4.4
Primary product food wholesaling	0.0	0.0
Food and grocery products wholesaling	1.9	2.8
Textile, clothing, and footwear wholesaling	4.7	2.6
Household good wholesaling	1.8	2.7
Wholesale trade nec	3.5	3.1
Books and paper product wholesaling	2.5	2.1
Pharmaceutical and toiletry wholesaling	0.0	0.0
<b>Total wholesale trade</b>	<b>1.3</b>	<b>0.9</b>

**Note:** 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.

## **Imputation**

### **Small firms**

Small to medium-sized firms are generally not surveyed. Their variables are instead modelled from administrative data (GST and EMS) 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 the variable of interest 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 over the quarter of similar businesses. Mean imputation involves estimating a value for a unit by using the average value for a set of similar businesses.

<b>Wholesale Trade Survey Operating Income Imputed</b> September 2009 quarter		
<b>Industry group</b>	<b>Tax modelled</b>	<b>Non-response</b>
	<b>Percentage of operating income</b>	
Unprocessed primary products wholesaling	10.1	8.1
Petroleum product wholesaling	1.2	1.6
Metal and mineral wholesaling	7.0	5.3
Chemical wholesaling	17.5	2.2
Builders' supplies wholesaling	11.3	6.5
Farm, construction machinery, and professional business equipment wholesaling	10.6	8.5
Electrical and electronic equipment wholesaling	13.4	8.8
Machinery and equipment nec wholesaling	14.6	15.4
Motor vehicle wholesaling	14.5	8.4
Primary product food wholesaling	11.4	5.5
Food and grocery products wholesaling	3.1	4.0
Textile, clothing, and footwear wholesaling	14.7	13.1
Household good wholesaling	11.7	13.7
Wholesale trade nec	23.6	12.0
Books and paper product wholesaling	6.6	10.3
Pharmaceutical and toiletry wholesaling	14.8	6.3
<b>Total wholesale trade</b>	<b>9.9</b>	<b>7.0</b>

**Note:** nec = not elsewhere classified

## **Postal response rate**

The response rate describes the proportion of operating income that was provided by actual survey responses. Note that the calculation of this response rate relates only to data for the postal sample. The Wholesale Trade Survey has a target response rate of 85 percent. The response rate achieved for the September 2009 quarter was 92 percent.

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## **Next release ...**

*Wholesale Trade Survey: December 2009 quarter* will be released on 5 March 2010.

## Technical notes

### Background to the survey

The Wholesale Trade Survey (WTS) is designed to provide short-term economic indicators for the wholesale trade sector. In addition, the survey data is used to compile the wholesale trade sector component of quarterly national accounts.

The survey was last redesigned in the September 2002 quarter. For more detail about the redesign, refer to Wholesale Trade Survey – Redesign: September 2002, available on the Statistics New Zealand website. As a result of the redesign, a split between raw materials and finished goods stocks is now available. The analytical back series for each stock type has been calculated based on the ratio of raw materials to finished goods stocks collected in the September 2002 quarter.

### Population

The target population for this survey is all kind-of-activity units (KAUs) operating in New Zealand that are classified as Wholesale Trade (Australian and New Zealand Standard Industrial Classification Division F) on Statistics NZ's Business Frame.

### 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 the rolling mean employment number)
- turnover (annualised GST sales).

Each ANZIND inter-industry classification contains between two and four substrata. Because of the contribution large units make to the economic activity within each industry group, 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 and EMS) sourced from Inland Revenue. All wholesaling KAUs belonging to a selected 'enterprise' are included.

About 1,300 units have been selected from the entire population for the postal sample, and the data for approximately 13,500 units is modelled from tax data

### 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 quarter, 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 wholesaling KAUs are removed from the survey. These are referred to as deaths.

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

## Sample reselection

The sample for the WTS is reselected each quarter to ensure that the sample reflects changes occurring in the wholesale trade 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. Data is subject to revision 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.

## Industry descriptions

An activity unit is included in an industry based on its predominant activity in terms of operating income.

The 16 industries are defined as follows:

### ANZSIC Class

#### Unprocessed primary products

Wool wholesaling 4511

Cereal grain wholesaling 4512

Farm produce and supplies wholesaling nec 4519

#### Petroleum product

Petroleum product wholesaling 4521

#### Metal and mineral

Metal and mineral wholesaling 4522

#### Chemical

Chemical wholesaling 4523

#### Builders' supplies

Timber wholesaling 4531

Building supplies wholesaling nec	4539
<b>Farm, construction machinery, and professional business equipment</b>	
Farm and construction machinery wholesaling	4611
Professional equipment wholesaling	4612
Computer wholesaling	4613
Business machine wholesaling nec	4614
<b>Electrical and electronic equipment</b>	
Electrical and electronic equipment wholesaling nec	4615
<b>Machinery and equipment nec</b>	
Machinery and equipment wholesaling nec	4619
<b>Motor vehicle</b>	
Car wholesaling	4621
Commercial vehicle wholesaling	4622
Motor vehicle new part dealing	4623
Motor vehicle dismantling and used part dealing	4624
<b>Primary product food</b>	
Meat wholesaling	4711
Poultry and smallgood wholesaling	4712
Dairy produce wholesaling	4713
Fish wholesaling	4714
Fruit and vegetable wholesaling	4715
<b>Food and grocery products</b>	
Confectionery and soft drink wholesaling	4716
Liquor wholesaling	4717
Tobacco product wholesaling	4718
Grocery wholesaling nec	4719
<b>Textile, clothing and footwear</b>	
Textile product wholesaling	4721
Clothing wholesaling	4722
Footwear wholesaling	4723
<b>Household good</b>	
Household appliance wholesaling	4731
Furniture wholesaling	4732
Floor covering wholesaling	4733
Household good wholesaling nec	4739
<b>Wholesale trade nec</b>	
Photographic equipment wholesaling	4791
Jewellery and watch wholesaling	4792

Toy and sporting good wholesaling	4793
Wholesaling nec	4799
<b>Books and paper product</b>	
Book and magazine wholesaling	4794
Paper product wholesaling	4795
<b>Pharmaceutical and toiletry</b>	
Pharmaceutical and toiletry wholesaling	4796

## Definitions

### ANZSIC

Australian and New Zealand Standard Industrial Classification system.

### 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 WTS population 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 as a self-employed individual.

### Kind-of-activity unit (KAU)

A subdivision of an enterprise engaged in predominantly one activity and for which a single set of accounting records is available.

### Rolling mean employment (RME)

RME is a 12-month moving average of the monthly employee count (EC) figure, which replaces the numbers of full-time and part-time employees.

## **Operating income**

Income from total sales. This includes:

- sales of processed goods
- sales of goods purchased for resale
- sales of services
- repair services
- processing fees
- management fees
- rental income
- leasing income
- royalties
- patent fees.

Operating income excludes:

- interest/dividends received
- donations
- insurance claims
- subsidies
- government grants
- exchange rate gains
- extraordinary items
- gains on sales of fixed assets
- excise duties
- bad debts.

## **Total stocks**

Closing stocks of raw materials for use in production, plus the closing stocks of finished goods, work in progress and trading stocks.

## **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 quarters more comparable.

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

Restructuring within the dairy industry has affected the primary product food industry series in the September 2002 quarter. In order to maintain the long-term continuity of the seasonally adjusted and trend series for primary product food and total wholesaling, the actual series is adjusted prior to the seasonal adjustment program being run. This adjustment to the actual series removes the discontinuity in the series.

The X-12-ARIMA seasonal adjustment package is very robust. However, problems occur when there has been an abrupt change in the seasonal variation, as with other seasonal adjustment packages.

## **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 seasonally adjusted estimates.

The trend series are calculated using the X-12-ARIMA seasonal adjustment package. They are based on a five-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 it becomes 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 quarter, 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 quarter will be subject to substantial revisions.

## **More information**

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

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## **Timing**

Timed statistical releases are delivered using postal and electronic services provided by third parties. Delivery of these releases may be delayed by circumstances outside the control of Statistics NZ. Statistics NZ accepts no responsibility for any such delays.

## 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. Wholesale trade, ANZSIC Division F
2. Wholesale sales, by quarter and industry
3. Seasonally adjusted wholesale sales, by quarter and industry
4. Wholesale sales trend, by quarter and industry
5. Wholesale stocks, by quarter and industry
6. Seasonally adjusted wholesale stocks, by quarter and industry
7. Wholesale stocks trend, by quarter and industry