

Economic Survey of Manufacturing: September 2014 quarter

Embargoed until 10:45am – 08 December 2014

Key facts

Sales (seasonally adjusted) for the September 2014 quarter compared with the June 2014 quarter.

Volumes

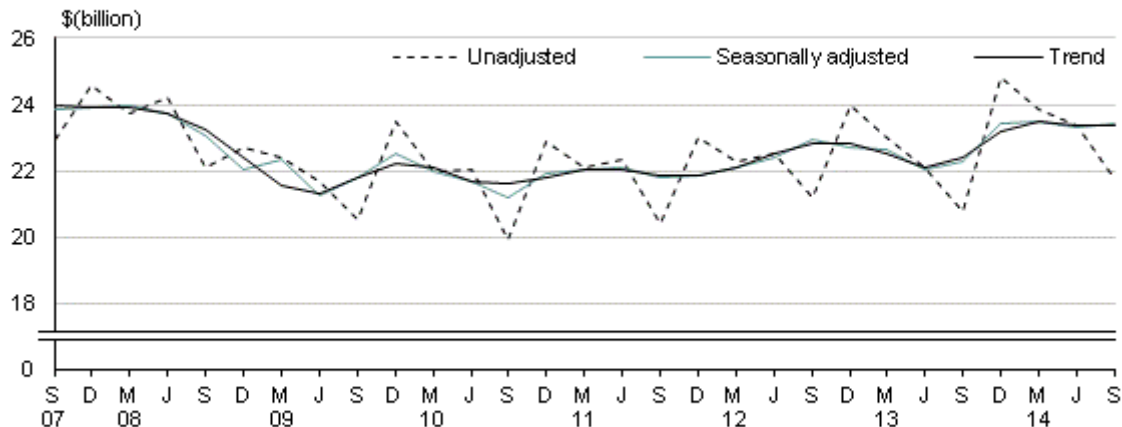
- Total manufacturing **rose** 0.4 percent.
- Excluding meat and dairy product manufacturing, sales **rose** 0.9 percent.
- Meat and dairy product manufacturing **fell** 1.4 percent.

Values

- Total manufacturing **fell** 1.2 percent.
- Excluding meat and dairy product manufacturing, sales **rose** 0.4 percent.
- Meat and dairy product manufacturing **fell** 4.8 percent.

Total manufacturing sales

Volumes⁽¹⁾
Quarterly



1. Volumes (constant dollar series) are at September 2010 quarter prices.

Source: Statistics New Zealand

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Commentary

- Manufacturing sales volume rises
- Excluding meat and dairy products, manufacturing sales volume rises
- Meat and dairy product manufacturing sales volume falls
- Metal product manufacturing sales volume rises
- Transport equipment, machinery and equipment manufacturing sales volume rises
- Petroleum and coal product manufacturing sales volume down

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

See [data quality](#) for more information about seasonal adjustment.

Manufacturing sales volume rises

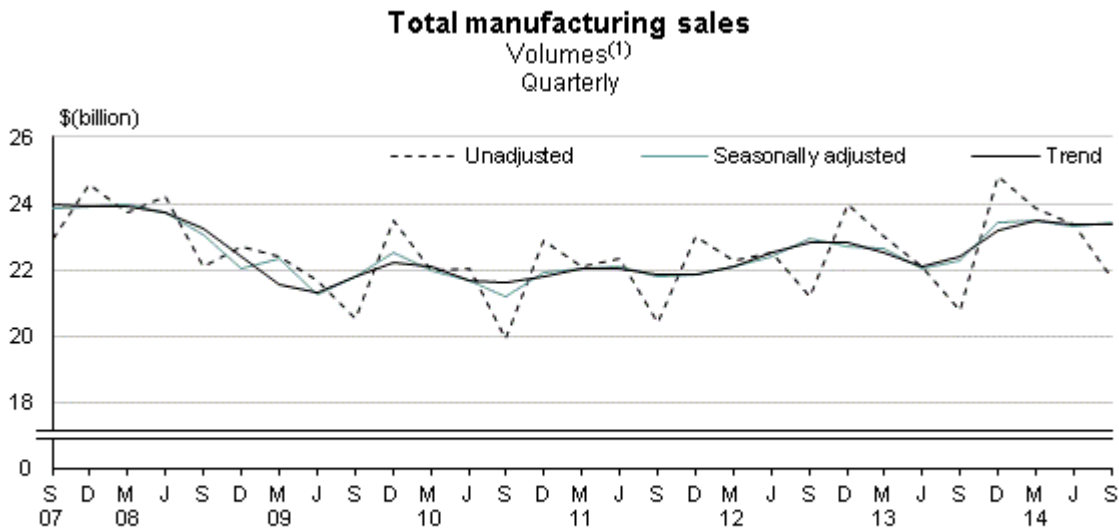
The **volume of manufacturing sales** rose 0.4 percent in the September 2014 quarter, after a 0.6 percent fall in the June 2014 quarter. Metal product manufacturing (up 5.1 percent) led the increase, while meat and dairy product manufacturing fell 1.4 percent. Of the 13 manufacturing industries, seven increased and six decreased in the September 2014 quarter.

Other main volume movements this quarter were:

- transport equipment, machinery and equipment manufacturing, **up** 3.5 percent
- petroleum and coal product manufacturing, **down** 4.5 percent.

The **trend** for the manufacturing sales volume, which gives a longer-term picture of movements, has flattened after recent rises.

Volumes are calculated by removing the effect of price changes from sales values.



1. Volumes (constant dollar series) are at September 2010 quarter prices.

Source: Statistics New Zealand

In current prices, the **value of manufacturing sales** fell 1.2 percent (\$290 million) in the September 2014 quarter, after a 2.3 percent (\$589 million) fall in the June 2014 quarter. The

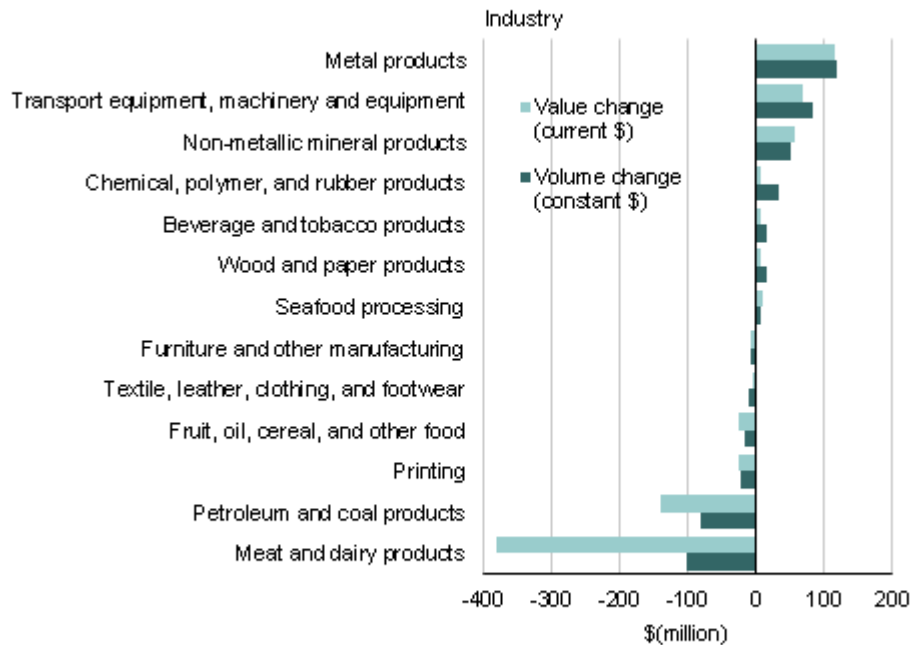
latest quarter's fall was mainly due to a 4.8 percent (\$383 million) fall in meat and dairy product manufacturing sales.

The other main value movements this quarter were:

- petroleum and coal product manufacturing, **down** 7.0 percent (\$141 million)
- metal product manufacturing, **up** 5.1 percent (\$115 million).

Changes in seasonally adjusted manufacturing sales

Values and volumes⁽¹⁾
June 2014 quarter to September 2014 quarter



1. Volumes (constant dollar series) are at September 2010 quarter prices.

Source: Statistics New Zealand

The **volume of finished goods stocks** (which is not seasonally adjusted) was 3.4 percent lower than in the September 2013 quarter. The latest fall was due to a decrease in the volume of stocks for meat and dairy products (down 14 percent). In 2013, meat and dairy product stocks were at high levels for a September quarter.

We revised manufacturing stocks for some industries.

See [revisions](#) for more information.



1. Closing stocks of finished goods.

2. Volumes (constant dollar series) are at September 2010 quarter prices.

Source: Statistics New Zealand

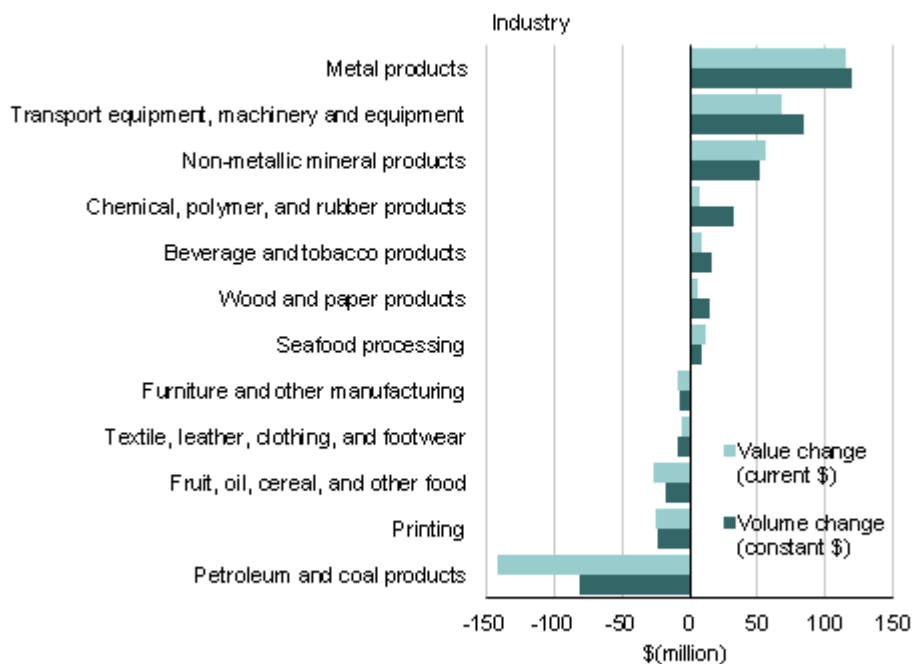
Excluding meat and dairy products, manufacturing sales volume rises

The **volume of manufacturing sales**, excluding meat and dairy product manufacturing, rose 0.9 percent in the September 2014 quarter. This follows a 0.2 percent rise in the June 2014 quarter. The latest quarter's increase was led by a 5.1 percent rise in metal product manufacturing. Seven of the 12 industries in this group had rises. Other main movements this quarter were:

- transport equipment, machinery and equipment manufacturing, **up** 3.5 percent
- petroleum and coal product manufacturing, **down** 4.5 percent.

Changes in seasonally adjusted manufacturing sales (excluding meat and dairy product manufacturing)

Values and volumes⁽¹⁾
June 2014 quarter to September 2014 quarter

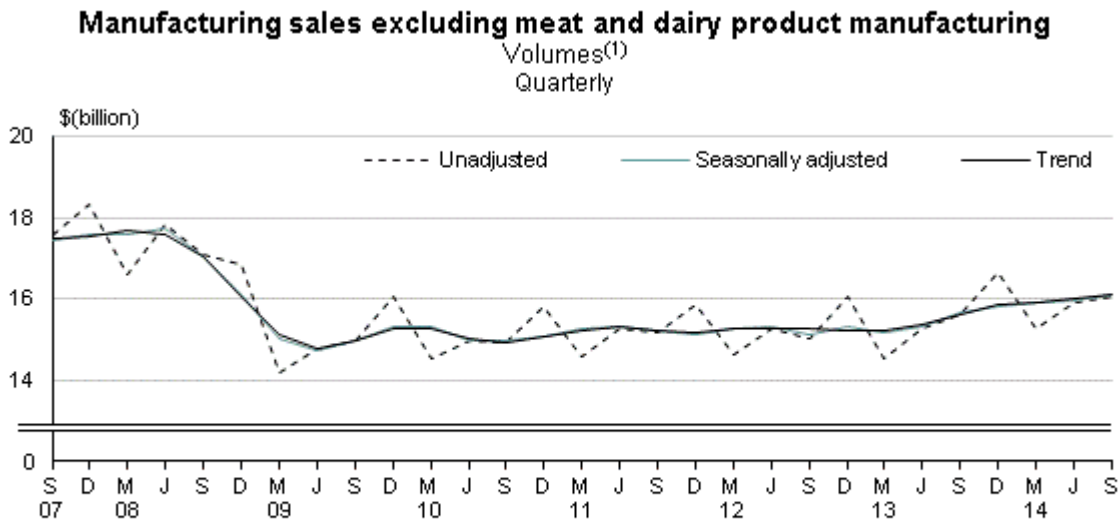


1. Volumes (constant dollar series) are at September 2010 quarter prices.

Source: Statistics New Zealand

In current prices, the **sales value** rose 0.4 percent (\$67 million) in the September 2014 quarter when meat and dairy product manufacturing is excluded. Seven of the 12 industries had rises.

The **trend** for the **sales volume** has been rising for over a year, following a lengthy flat period.



1. Volumes (constant dollar series) are at September 2010 quarter prices.

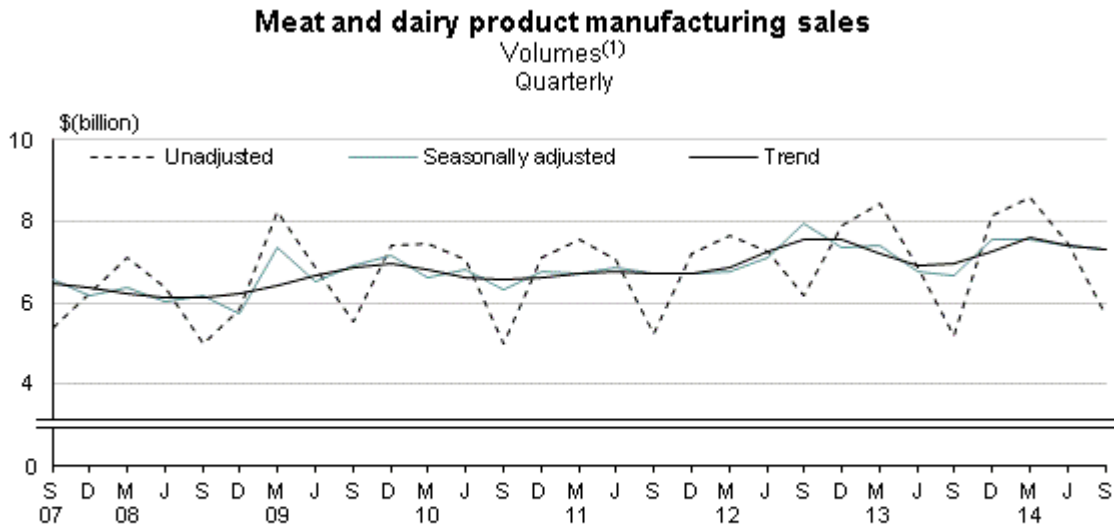
Source: Statistics New Zealand

The **volume of finished goods stocks** (which is not seasonally adjusted) was 3.5 percent higher than in the September 2013 quarter.

Meat and dairy product manufacturing sales volume falls

The **volume of sales** for the meat and dairy product manufacturing industry fell 1.4 percent in the September 2014 quarter. This follows a 1.5 percent fall in the June 2014 quarter.

The **trend** for the volume of meat and dairy product manufacturing sales is falling after rising since mid-2013.



1. Volumes (constant dollar series) are at September 2010 quarter prices.

Source: Statistics New Zealand

The **value of sales** fell in the September 2014 quarter, down 4.8 percent (\$383 million), after a 5.9 percent (\$504 million) fall in the June 2014 quarter.

Producers Price Index: September 2014 quarter reported an 8.7 percent decrease in prices for dairy product manufacturing outputs. Meat product manufacturing output prices increased 2.8 percent during the September 2014 quarter.

The **volume of finished goods stocks** (which is not seasonally adjusted) was 14 percent lower than in the September 2013 quarter. In 2013, meat and dairy product stocks were at high levels for the end of a September quarter.

Metal product manufacturing sales volume rises

The **volume of sales** for the metal product manufacturing industry rose 5.1 percent in the September 2014 quarter. This rise follows a 0.9 percent fall in the June 2014 quarter. The latest growth was due to fabricated metal product manufacturing, which includes some construction-related manufacturing products such as structural steel, architectural aluminium, and metal roofing products.

The **sales value** also rose, up 5.1 percent (\$115 million).

The **trend** for the sales volume has been mainly rising since a low point in the March 2013 quarter.



1. Volumes (constant dollar series) is at September 2010 quarter prices.

Source: Statistics New Zealand

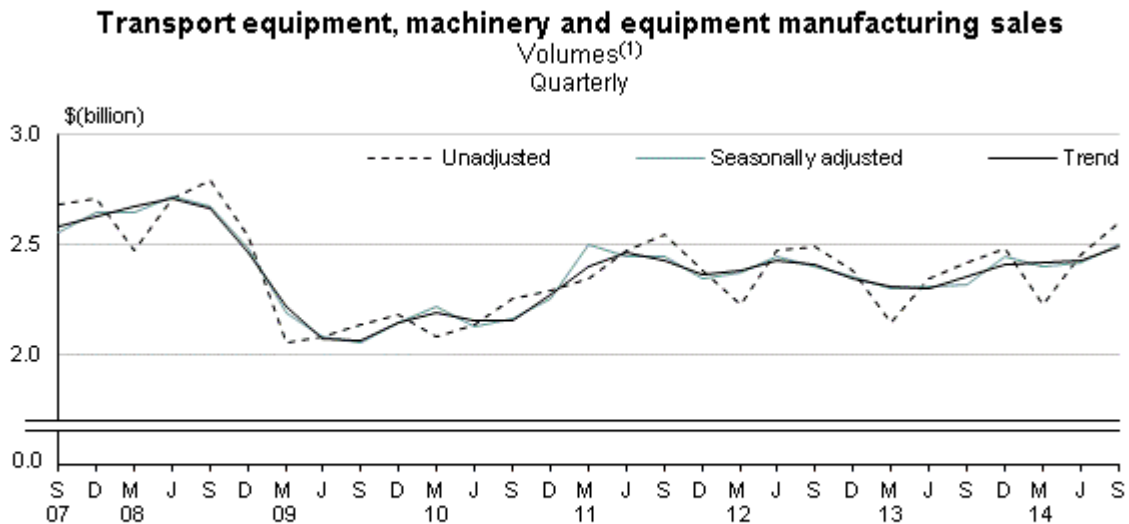
The **volume of finished goods stocks** (which is not seasonally adjusted) was 6.2 percent higher than in the September 2013 quarter.

Transport equipment, machinery and equipment manufacturing sales volume rises

The **volume of sales** for the transport equipment, machinery and equipment manufacturing industry rose 3.5 percent in the September 2014 quarter. This follows a 0.9 percent rise in the June 2014 quarter.

The **sales value** also rose, up 2.8 percent (\$68 million).

The **trend** for the sales volume has been rising since a low point in the June 2013 quarter.



1. Volumes (constant dollar series) is at September 2010 quarter prices.

Source: Statistics New Zealand

The **volume of finished goods stocks** (which is not seasonally adjusted) was 1.3 percent higher than in the September 2013 quarter.

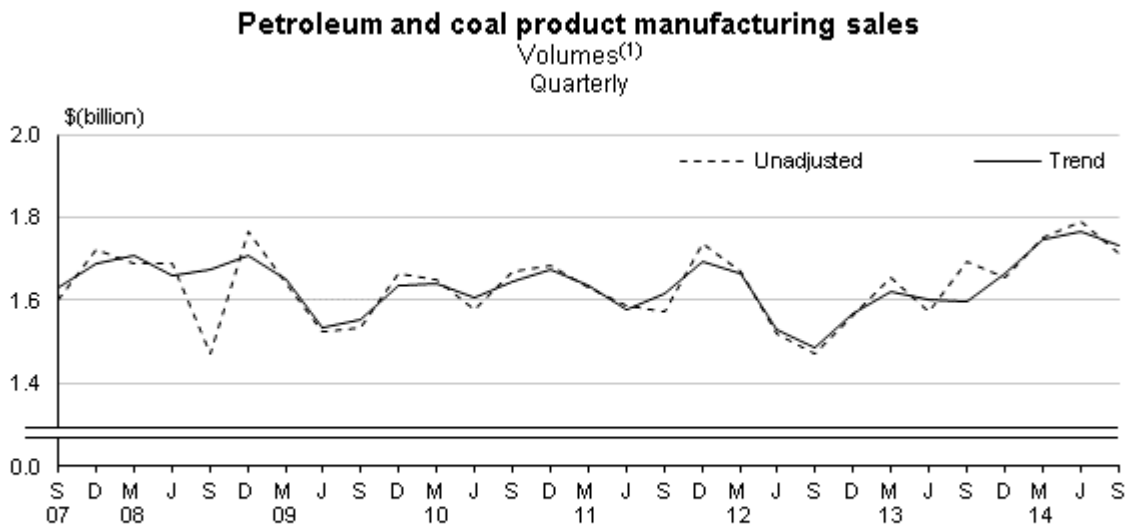
Petroleum and coal product manufacturing sales volume down

The **volume of sales** for the petroleum and coal product manufacturing industry fell 4.5 percent in the September 2014 quarter. This follows rises in the two previous quarters.

The series is not seasonally adjusted as it does not have a stable seasonal pattern. It is not unusual for this industry to show large movements from quarter to quarter.

The **sales value** also fell, down 7.0 percent (\$141 million).

The **trend** for the sales volume is 17 percent higher than a low point in the September 2012 quarter.



1. Volumes (constant dollar series) are at September 2010 quarter prices.

Source: Statistics New Zealand

The **volume of finished goods stocks** (which is not seasonally adjusted) was 5.4 percent higher than in the September 2013 quarter.

For more detailed data see the Excel tables in the 'Downloads' box.

Definitions

About the Economic Survey of Manufacturing

The Economic Survey of Manufacturing (ESM) provides short-term economic indicators for the manufacturing sector. The data is also used to compile the manufacturing sector component of the quarterly national accounts. Published values exclude GST.

More definitions

Additions to fixed assets: purchases of fixed assets (including land) plus capital works by own employees. Revaluations are excluded. We stopped collecting data for this variable from the December 2012 quarter.

ANZSIC: Australian and New Zealand Standard Industrial Classification.

Business Frame: a register of all economically significant businesses that operate in New Zealand. The population of the ESM is drawn from the Business Frame.

Disposals of fixed assets: sales of fixed assets (including land) at selling prices. Devaluations are excluded. We stopped collecting data for this variable from the December 2012 quarter.

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

NZSIOC: New Zealand Standard Industry Output Classification. An ANZSIC-based classification that groups industries for publication.

Purchases and operating expenditure: something obtained, especially for a price in money or its equivalent.

The following are included:

- purchases of goods, fuels, and materials (whether for production or resale)
- general expenses (eg advertising, freight, insurance, motor vehicle, rates, rent, repairs, utilities)
- management fees and payments to other businesses or divisions
- payments to welfare and superannuation schemes (eg ACC, KiwiSaver)
- royalties and patent fees.

While these are excluded:

- interest, dividends, donations, and bad debts
- excise duty, fringe benefit tax, and road-user charges
- extraordinary items (eg exchange-rate losses, losses on sales of fixed assets)
- depreciation.

Rolling mean employment: a 12-month moving average of the monthly employee count.

Salaries and wages: includes gross salaries, wages, bonuses, and redundancy payments to employees. Excludes drawings, salaries, and wages paid to working proprietors and payments to welfare and superannuation schemes (eg ACC, KiwiSaver).

Sales and other operating income: the transfer of ownership of and title to goods or services from one person or entity to another for a price.

The following are included:

- sales of goods (whether manufactured, processed, or traded)
- sales of services (including repair services)
- manufacturing, processing, and management fees
- rental and leasing income
- royalties and patent fees.

While these are excluded:

- interest, dividends, donations, bad debts, and insurance claims
- excise duty, government grants, and subsidies
- extraordinary items (eg exchange-rate gains, gains on sales of fixed assets).

Stocks of raw materials: crude or processed material that can be converted by manufacture, processing, or combination into a new product. Stocks include materials, fuels, and livestock.

Stocks of finished goods: goods ready for sale without further transformation. Stocks includes work in progress.

Volume series: are value series that are adjusted (divided by price indexes) to remove the effect of price changes. They provide a measure of quantity change and are currently expressed in September 2010 quarter dollars. The price indexes used are from the producers price index and are available on Infoshare.

Related links

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The *Economic Survey of Manufacturing: December 2014 quarter* will be released on 9 March 2015.

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[The release calendar](#) lists all our upcoming information releases by date of release.

Past releases

[Economic Survey of Manufacturing](#) has links to past releases.

Related information

[Producers price index](#) outputs index measures changes in prices received by producers.

Data quality

Period-specific information

This section contains data information that has changed since the last release.

- [Sample errors for September 2014 quarter](#)
- [Imputation for September 2014 quarter](#)
- [Response rate](#)

General information

This section contains information that does not change between releases.

- [Measurement errors](#)
- [Non-response imputation](#)
- [Seasonally adjusted and trend series](#)
- [Standardising dairy industry quarters](#)
- [Use in national accounts](#)
- [More information](#)

Period-specific information

Sample errors for September 2014 quarter

Sample errors for sales in the September 2014 quarter		
Industry	Sample error for sales value	Sample error for change in sales
	Percent	
Meat and dairy product manufacturing	0.0	0.0
Seafood processing	0.0	0.0
Fruit, oil, cereal, and other food manufacturing	4.4	1.5
Beverage and tobacco product manufacturing	0.0	0.0
Textile, leather, clothing, and footwear manufacturing	8.2	7.7
Wood and paper product manufacturing	3.9	1.9
Printing	17.8	11.4
Petroleum and coal product manufacturing	0.0	0.0
Chemical, polymer, and rubber product manufacturing	2.8	1.5
Non-metallic mineral product manufacturing	6.7	2.0
Metal manufacturing	10.6	2.1
Transport equipment, machinery and equipment manufacturing	4.2	3.3
Furniture and other manufacturing	6.7	4.8
Total manufacturing	1.4	0.4

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

Imputation for September 2014 quarter

Imputed values as a percentage of sales in the September 2014 quarter		
Industry	Non-response	Tax modelled
	Percentage of sales	
Meat and dairy product manufacturing	3.3	5.1
Seafood processing	0.0	10.7
Fruit, oil, cereal, and other food manufacturing	10.2	10.8
Beverage and tobacco product manufacturing	8.8	14.9
Textile, leather, clothing, and footwear manufacturing	8.8	12.4
Wood and paper product manufacturing	8.7	9.8
Printing	15.9	13.7
Petroleum and coal product manufacturing	0.0	0.7
Chemical, polymer, and rubber product manufacturing	12.6	7.9
Non-metallic mineral product manufacturing	16.0	9.6
Metal manufacturing	6.6	12.6
Transport equipment, machinery and equipment manufacturing	18.1	12.6
Furniture and other manufacturing	20.8	13.4
Total manufacturing	8.2	8.8

Response rate

The response rate applies to the postal sample and gives the proportion of sales obtained from survey responses (rather than being imputed). The Economic Survey of Manufacturing (ESM) has a target response rate of 85 percent.

The response rate achieved for the September 2014 quarter was 92 percent.

General information

Measurement errors

The ESM applies imputation methods for estimating values for small firms and non-response. Like all statistical surveys, the ESM is subject to measurement errors, including sample errors and non-sample errors. These measurement errors affect the accuracy of the published statistics.

Sample errors

The ESM is primarily a postal survey and is designed to give statistics at the following levels of accuracy (at the 95 percent confidence interval limit):

- 5 percent for sales, salaries and wages, and value added at the total manufacturing level
- 10 percent for sales, salaries and wages, and value added at the published industry level, where value added is calculated as follows:
value added = sales – purchases + stock change

This means, for example, that there is a 95 percent chance that the true value of total manufacturing sales lies within 5 percent of the published estimate.

Sample errors, at the 95 percent confidence interval limit, are calculated each quarter for absolute values and for changes in value from the previous quarter.

Small firms

Small to medium-sized firms are generally not surveyed. Instead, we model their variables from administrative data from Inland Revenue. We apply ratios calculated from the postal sample responses to the administrative data to provide estimated values.

Non-response imputation

Although we attempt to achieve a 100 percent response rate, in practice this does not occur. We estimate values for non-responding businesses using a range 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 for similar businesses.

Mean imputation involves estimating a value for a unit by using the average value for a set of similar businesses.

Seasonally adjusted and trend series

For any series, the survey estimates can be broken down into three components: trend, seasonal, and irregular. While seasonally adjusted series have the seasonal component removed, trend series have both the seasonal and irregular components removed. This reveals turning points and the underlying direction of quarterly movement.

We re-estimate seasonally adjusted and trend values quarterly when each new quarter's data becomes available. Figures are therefore revised, with the largest changes normally occurring in the latest quarters. The seasonally adjusted and trend series are produced using the X-13ARIMA-SEATS package developed by the U.S. Census Bureau.

See [seasonal adjustment within Statistics NZ](#) for more information.

Seasonally adjusted series

Seasonal adjustment removes the estimated impact of regular seasonal events, such as annual cycles in agricultural production, pre-Christmas shopping, and summer holidays, from statistical series. This makes figures for adjacent periods more comparable.

For the ESM, removing the purchasing monopoly in the dairy industry in mid-2002 caused an abrupt change to seasonal variation in the meat and dairy industry. In response, we changed the calculation method for total sales from direct to indirect (whereby component industries are individually adjusted before being summed). We use both direct and indirect adjustment methods, according to appropriateness.

We use the following methods to seasonally adjust components:

Component	Method
Sales volumes	
Total manufacturing	Indirect
Excluding meat and dairy product manufacturing	Direct
Meat and dairy product manufacturing	Direct
Sales values	
Total manufacturing	Direct
Excluding meat and dairy product manufacturing	Direct
Meat and dairy product manufacturing	Direct

Trend series

Trend estimation removes the estimated impact of regular seasonal events and irregular short-term variation from statistical series. 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.

Standardising dairy industry quarters

Before December 2008, we calculated data for most dairy values on a non-standard quarter. This meant that the June quarter, for example, included dairy values for the months of March, April, and May, while the standard June quarter includes April, May, and June. From the June 2011 quarter onwards, we publish standard quarter data, revising previously published data back to December 2008.

Use in national accounts

A key use of the ESM is in the quarterly gross domestic product (GDP) for calculating manufacturing 'value added' (value of output after the cost of input materials and services has been deducted). GDP base-year manufacturing value added is moved forward using volume indexes that we calculate from ESM sales and finished-goods stock changes (deflated by sub-indexes of the [producers price index](#)).

We supplement ESM volumes with quantity production data for the following industries:

- meat and dairy product manufacturing
- petroleum and industrial chemical manufacturing
- basic metal manufacturing.

The ESM is also used in the expenditure measure of GDP for compiling stock-change values at current and constant prices.

More information

See [Economic Survey of Manufacturing](#) for more information.

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Revisions

We made revisions to these industry components during the September 2014 quarter:

- purchases – meat and dairy product manufacturing for the June 2014 quarter
- raw materials and finished goods stocks – a number of industries for the March 2004 quarter to the June 2014 quarter.

Purchases revision

This revision was the result of updated information from respondents and covers the meat and dairy product manufacturing industry for the June 2014 quarter.

Users of manufacturing series should note these revisions also affected the corresponding volume and total series.

Manufacturing industry	Variable	Series MFGQ	Period (quarter)	Published	
Meat and dairy products	Purchases and operating expenditure	SA2CA	Jun 2014	8 Sep 2014	8 Dec 2014
				\$(million)	
				7,140	7,119

Stocks revision

We revised the raw materials and finished goods stocks series from the March 2004 quarter to the June 2014 quarter for these industries:

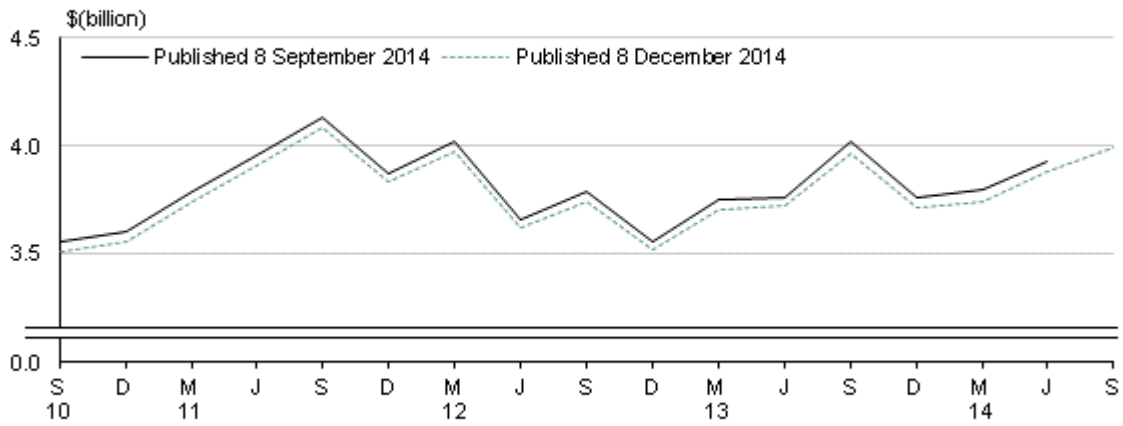
- meat and dairy product manufacturing
- seafood processing
- beverage and tobacco product manufacturing
- petroleum and coal product manufacturing

We made these revisions because we updated the method of modelling the tax component of these variables from administrative data received from Inland Revenue. These revisions also affect the volume of closing stocks of finished goods for these industries.

We also revised data for all manufacturing (raw materials values, and finished goods stocks values and volumes) to reflect these changes, as with the relevant all manufacturing excluding meat and dairy series.

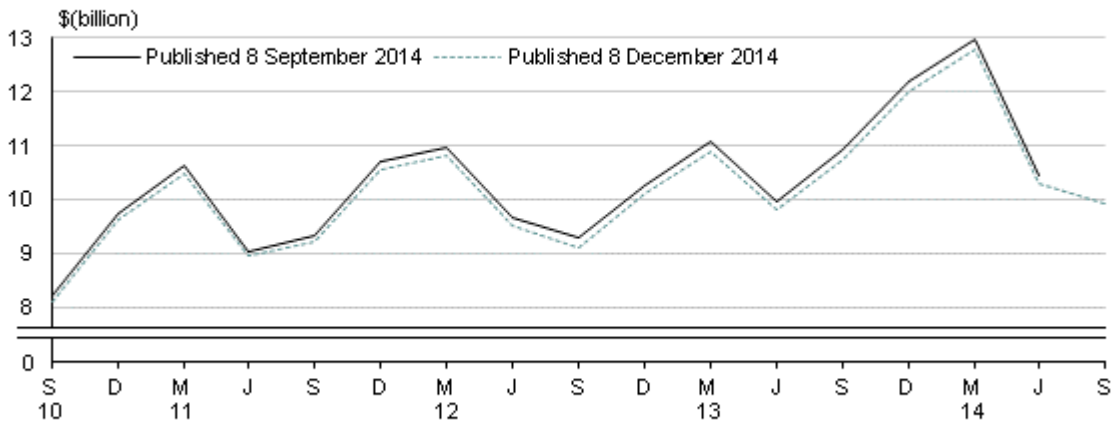
The graphs below show how the new raw materials values and finished goods stocks values and volumes compare with previously published data at the all industry level.

All manufacturing – raw materials stocks values
Quarterly



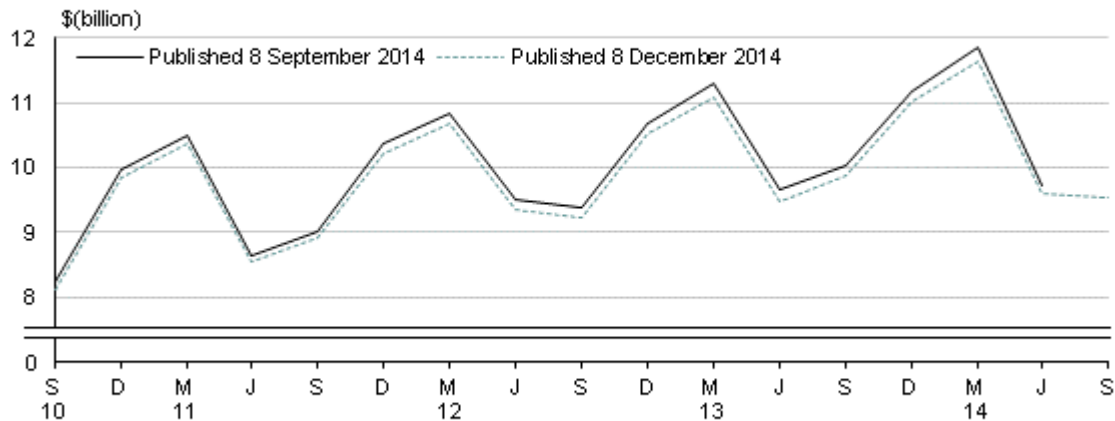
Source: Statistics New Zealand

All manufacturing – finished goods stocks values
Quarterly



Source: Statistics New Zealand

All manufacturing – finished goods stocks volumes
Quarterly



Source: Statistics New Zealand

As an example, the table below shows changes for the June 2014 quarter.

Industry	Variable	Series MFGQ	Period (quarter)	Published		Change % (on unrounded data)
				8 Sep 2014	8 Dec 2014	
				\$(million)		
Meat and dairy product manufacturing	Raw materials	SA4CA	June 2014	451	440	-2.5
Meat and dairy product manufacturing	Finished goods	SA5CA	June 2014	4,277	4,221	-1.3
Meat and dairy product manufacturing	Finished goods (volume)	SA5KA	June 2014	3,857	3,806	-1.3
Seafood processing	Raw materials	SB4CA	June 2014	83	76	-8.3
Seafood processing	Finished goods	SB5CA	June 2014	299	277	-7.4
Seafood processing	Finished goods (volume)	SB5KA	June 2014	249	231	-7.4
Beverage and tobacco product manufacturing	Raw materials	SD4CA	June 2014	286	267	-6.6
Beverage and tobacco product manufacturing	Finished goods	SD5CA	June 2014	1,081	1,013	-6.3
Beverage and tobacco product manufacturing	Finished goods (volume)	SD5KA	June 2014	1,009	945	-6.3
Petroleum and coal product manufacturing	Raw materials	SH4CA	June 2014	581	579	-0.4
Petroleum and coal product manufacturing	Finished goods	SH5CA	June 2014	891	888	-0.3

Petroleum and coal product manufacturing	Finished goods (volume)	SH5KA	June 2014	790	787	-0.3
All manufacturing excluding meat and dairy product	Raw materials	SY4CA	June 2014	3,474	3,445	-0.8
All manufacturing excluding meat and dairy product	Finished goods	SY5CA	June 2014	6,159	6,065	-1.5
All manufacturing excluding meat and dairy product	Finished goods (volume)	SY5KA	June 2014	5,869	5,784	-1.4
All manufacturing	Raw materials	SZ4CA	June 2014	3,925	3,885	-1.0
All manufacturing	Finished goods	SZ5CA	June 2014	10,436	10,287	-1.4
All manufacturing	Finished goods (volume)	SZ5KA	June 2014	9,727	9,590	-1.4

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Tables

The following tables are available in Excel format from the 'Downloads' box. If you have problems viewing the files, see [opening files and PDFs](#).

1. All manufacturing
2. All manufacturing excluding meat and dairy
3. Meat and dairy product manufacturing
4. Seafood processing
5. Fruit, oil, cereal, and other food manufacturing
6. Beverage and tobacco product manufacturing
7. Textile, leather, clothing, and footwear manufacturing
8. Wood and paper product manufacturing
9. Printing
10. Petroleum and coal product manufacturing
11. Chemical, polymer, and rubber product manufacturing
12. Non-metallic mineral product manufacturing
13. Metal product manufacturing
14. Transport equipment, machinery and equipment manufacturing
15. Furniture and other manufacturing
16. Purchases and operating expenditure
17. Salaries and wages

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Group: Manufacturing Survey (ANZSIC06) - **MFG**