

Economic Survey of Manufacturing: September 2013 quarter

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Key facts

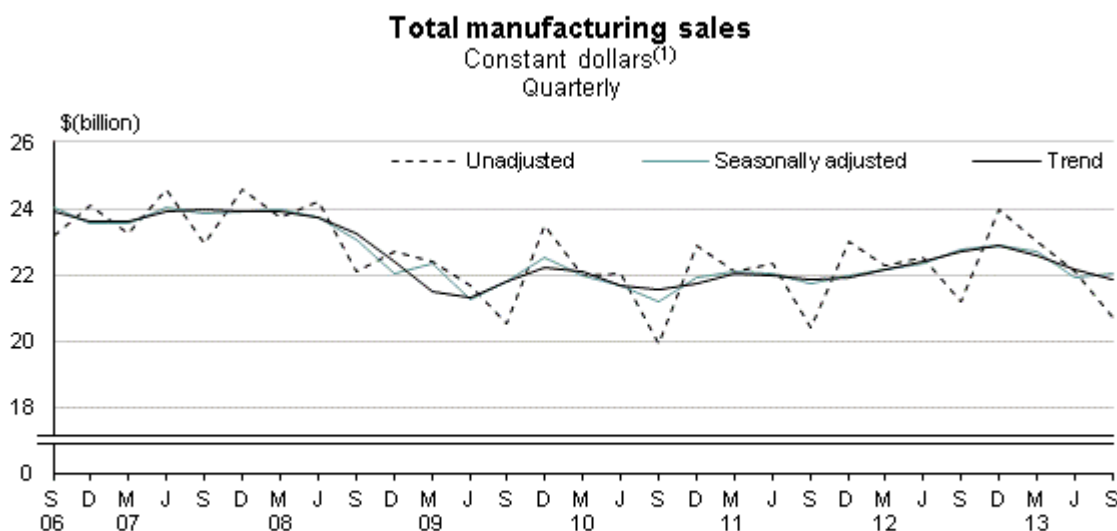
Sales (seasonally adjusted) for the September 2013 quarter compared with the June 2013 quarter.

Volumes

- Total manufacturing **rose** 0.5 percent.
- Excluding meat and dairy product manufacturing, sales **rose** 2.8 percent.
- Meat and dairy product manufacturing **fell** 2.7 percent.

Values

- Total manufacturing **rose** 4.7 percent.
- Excluding meat and dairy product manufacturing, sales **rose** 3.2 percent.
- Meat and dairy product manufacturing **rose** 12 percent.



1. Constant dollar series (volumes) is at September 2010 quarter prices.

Source: Statistics New Zealand

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Commentary

- [Manufacturing sales volume rises](#)
- [Excluding meat and dairy products, manufacturing volume rises](#)
- [Meat and dairy product manufacturing volume falls, but value rises](#)
- [Metal product manufacturing volume rises](#)
- [Construction-related industries on the rise](#)

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

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

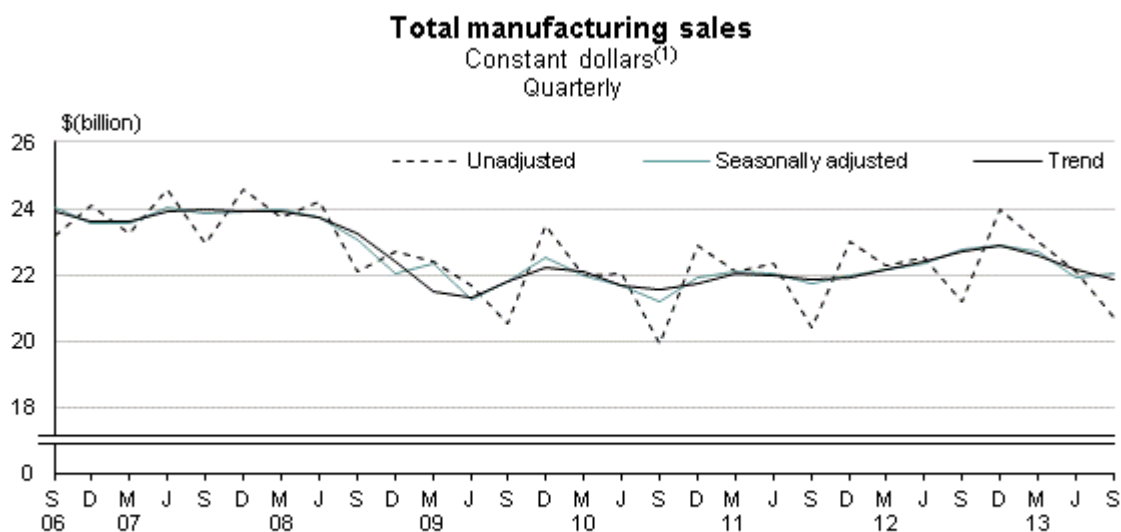
Manufacturing sales volume rises

The **volume of manufacturing sales** rose 0.5 percent in the September 2013 quarter, after a 3.5 percent fall in the June 2013 quarter. This rise was despite a fall in meat and dairy product manufacturing (down 2.7 percent), with most other industries recording rises. Other main volume movements this quarter were:

- metal product manufacturing, **up** 6.6 percent
- petroleum and coal product manufacturing (not seasonally adjusted), **up** 8.0 percent.

The **trend** for the manufacturing sales volume, which gives a longer-term picture of movements, has fallen this year, after rising during 2012.

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



1. Constant dollar series (volumes) is at September 2010 quarter prices.

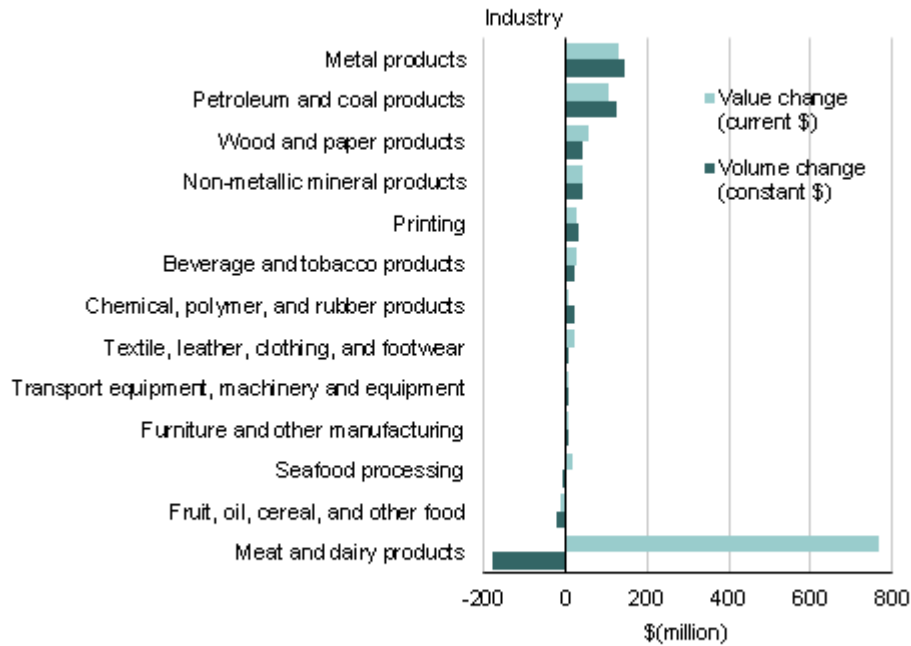
Source: Statistics New Zealand

In current prices, the **value of manufacturing sales** rose 4.7 percent (\$1.1 billion) in the September 2013 quarter, after a 1.2 percent fall in the June 2013 quarter. Meat and dairy product manufacturing, up 12 percent (\$768 million), drove the increase. Prices for dairy product manufacturing outputs increased significantly during the September 2013 quarter. Other main value movements for this quarter were:

- metal product manufacturing, **up** 5.9 percent (\$129 million)
- petroleum and coal product manufacturing, **up** 5.6 percent (\$103 million).

Changes in seasonally adjusted manufacturing sales

Current and constant dollars⁽¹⁾
June 2013 quarter to September 2013 quarter

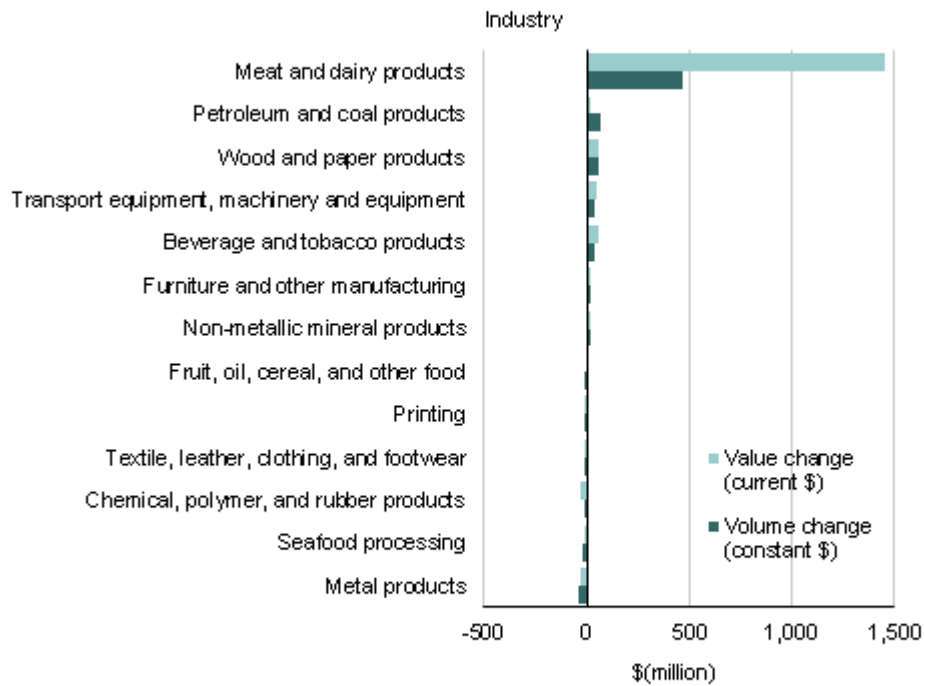


1. Constant dollar series (volumes) is at September 2010 quarter prices.

Source: Statistics New Zealand

The **volume of finished goods stocks** (which is not seasonally adjusted) is 6.7 percent higher than in the September 2012 quarter. This rise is mainly due to an increase in the volume of meat and dairy product manufacturing stocks (up 13 percent).

Changes in manufacturing stocks⁽¹⁾
 Current and constant dollars⁽²⁾
 September 2012 quarter to September 2013 quarter



1. Closing stocks of finished goods.
2. Constant dollar series (volumes) is at September 2010 quarter prices.

Source: Statistics New Zealand

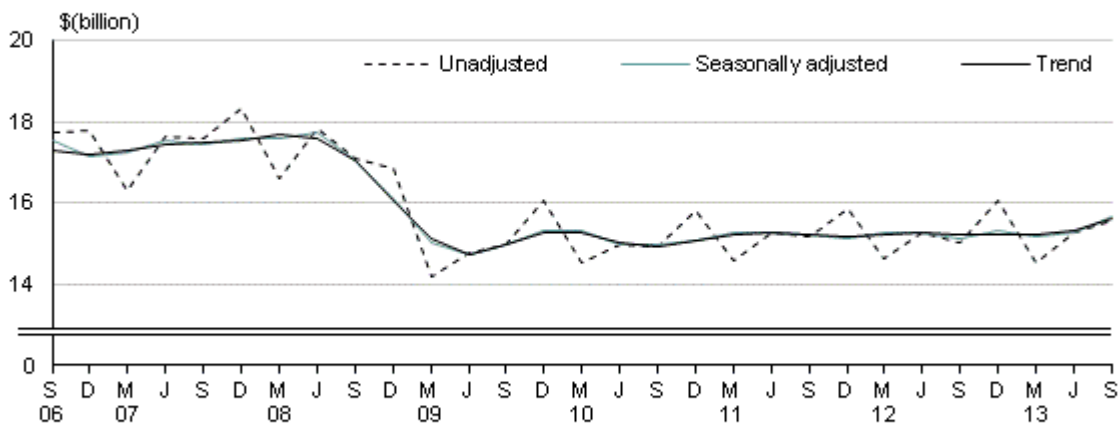
Excluding meat and dairy products, manufacturing volume rises

The **volume of sales**, excluding meat and dairy product manufacturing, rose 2.8 percent in the September 2013 quarter, the largest rise since June 2002. This follows a rise of 0.5 percent in the June 2013 quarter. The latest increase was broad-based, with 10 of the 12 industries that make up this group recording increases. The main movements this quarter were:

- metal product manufacturing, **up** 6.6 percent
- petroleum and coal product manufacturing, **up** 8.0 percent.

In current prices, the **sales value** rose 3.2 percent (\$501 million) in the September 2013 quarter. Eleven of the 12 industries rose.

Manufacturing sales excluding meat and dairy product manufacturing sales
Constant dollars⁽¹⁾
Quarterly



1. Constant dollar series (volumes) is at September 2010 quarter prices.

Source: Statistics New Zealand

The **trend** for the sales volume has been relatively flat for the last four years, but has risen in recent quarters.

The **volume of finished goods stocks** (which is not seasonally adjusted) is 2.8 percent higher than in the September 2012 quarter.

Meat and dairy product manufacturing volume falls, but value rises

The **volume of sales** for the meat and dairy product manufacturing industry fell 2.7 percent in the September 2013 quarter. This follows a large fall of 11 percent in the June 2013 quarter.

This latest fall reflects decreases in the volume of meat and dairy products exported as reported in Overseas Trade Indexes (Volumes): September 2013 quarter (provisional), where dairy exports fell 2.7 percent and meat exports fell 0.9 percent.

While sales volumes fell, meat and dairy manufacturing stocks are very high for the end of a September quarter. The **volume of finished goods stocks** (which is not seasonally adjusted) is 13 percent higher than in the September 2012 quarter, and is at the highest-ever level for a September quarter.

The **trend** indicates that the volume of meat and dairy product manufacturing sales is falling, after rising throughout 2012.



1. Constant dollar series (volumes) is at September 2010 quarter prices.

Source: Statistics New Zealand

The **value of sales** rose strongly, up 12 percent (\$768 million), after a fall of 4.7 percent in the June 2013 quarter.

Prices rose across the industry during the quarter. Producers Price Index: September 2013 quarter reported a 14 percent increase in prices for dairy product manufacturing outputs. Meat product manufacturing output prices rose 5.0 percent.

Note: Volumes data for the meat and dairy manufacturing industry has been revised for the June 2010 to June 2013 quarters inclusive. See revisions for more information.

Metal product manufacturing volume rises

The volume of sales for the metal product manufacturing industry rose 6.6 percent in the September 2013 quarter. This increase follows a 0.8 percent rise in the June 2013 quarter. The recent growth has been in 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 5.9 percent (\$129 million).

The **trend** for the sales volume had been falling since a high point in March 2012, but now appears to be rising.



1. Constant dollar series (volumes) is at September 2010 quarter prices.

Source: Statistics New Zealand

The **volume of finished goods stocks** (which is not seasonally adjusted) is 7.9 percent lower than in the September 2012 quarter.

Construction-related industries on the rise

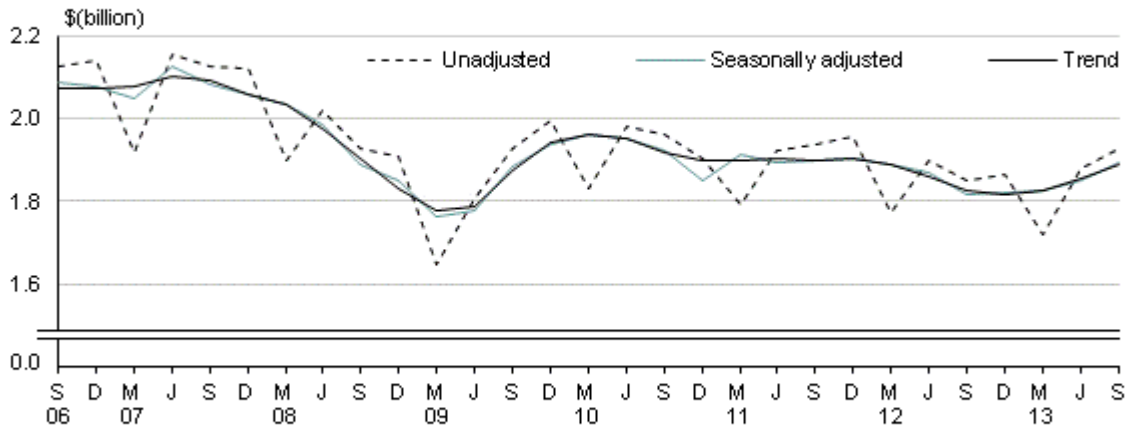
Two other industries supporting the construction sector had sales volume increases in the September 2013 quarter. Wood and paper product manufacturing rose 2.3 percent, while non-metallic mineral product manufacturing (which includes glass, cement, and concrete product manufacturing) rose 6.1 percent.

Domestic construction has been increasing over the last two years, with the trend for the volume of building activity 22 percent higher than in September 2011 as reported in [Value of Building Work Put in Place: September 2013 quarter](#).

Sales values in both industries also rose, with wood and paper product manufacturing up 3.2 percent (\$58 million), and non-metallic mineral product manufacturing up 6.3 percent (\$43 million).

Wood and paper product manufacturing sales

Constant dollars⁽¹⁾
Quarterly



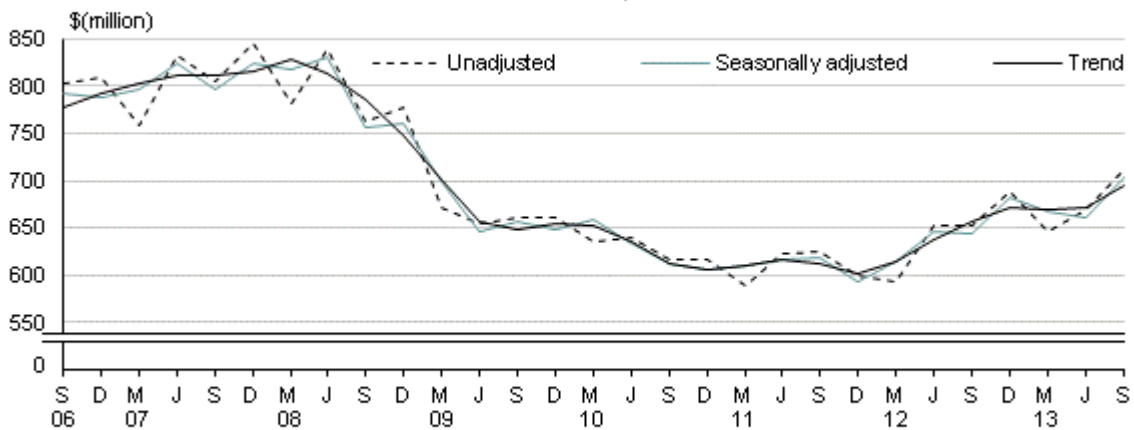
1. Constant dollar series (volumes) is at September 2010 quarter prices.

Source: Statistics New Zealand

The **trend** for the sales volume in wood and paper product manufacturing has increased this year after falling during 2012. The trend for the sales volume in non-metallic mineral product manufacturing has mostly increased over the last two years, up 15 percent since a low point in December 2011.

Non-metallic mineral product manufacturing sales

Constant dollars⁽¹⁾
Quarterly



1. Constant dollar series (volumes) is at September 2010 quarter prices.

Source: Statistics New Zealand

The **volume of finished goods stocks** (which is not seasonally adjusted) is around 8 percent higher in both industries than in the September 2012 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. Collection of data for this variable ceased 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. Collection of data for this variable ceased 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

Upcoming releases

The *Economic Survey of Manufacturing: December 2013 quarter* will be released on 10 March 2014.

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

Past releases

[Economic Survey of Manufacturing – information releases](#) 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 2013 quarter](#)
- [Imputation for September 2013 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 2013 quarter

Sample errors for sales in the September 2013 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	4.5	3.5
Beverage and tobacco product manufacturing	0.0	0.0
Textile, leather, clothing, and footwear manufacturing	8.4	6.1
Wood and paper product manufacturing	3.0	1.0
Printing	14.3	28.7
Petroleum and coal product manufacturing	0.0	0.0
Chemical, polymer, and rubber product manufacturing	2.3	1.8
Non-metallic mineral product manufacturing	5.6	1.1
Metal manufacturing	7.5	2.4
Transport equipment; machinery and equipment manufacturing	3.9	4.3
Furniture and other manufacturing	5.9	3.9
Total manufacturing	1.1	0.7

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 from Inland Revenue.

Imputation for September 2013 quarter

Imputed values as a percentage of sales in the September 2013 quarter		
Industry	Non-response	Tax modelled
	Percentage of sales	
Meat and dairy product manufacturing	2.6	5.5
Seafood processing	6.6	12.3
Fruit, oil, cereal, and other food manufacturing	10.0	10.2
Beverage and tobacco product manufacturing	7.5	15.4
Textile, leather, clothing, and footwear manufacturing	10.9	13.1
Wood and paper product manufacturing	10.1	10.7
Printing	7.7	14.6
Petroleum and coal product manufacturing	0.0	0.9
Chemical, polymer, and rubber product manufacturing	11.7	8.8
Non-metallic mineral product manufacturing	13.7	11.1
Metal manufacturing	7.2	14.3
Transport equipment; machinery and equipment manufacturing	13.6	14.7
Furniture and other manufacturing	17.2	13.2
Total manufacturing	7.3	9.6

Response rate

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

The response rate achieved for the September 2013 quarter was 93 percent.

General information

Measurement errors

The ESM applies imputation methods for estimating values for small firms and non-response. Like all statistical surveys, it 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. Their variables are instead modelled from administrative data from Inland Revenue. Ratios calculated from the postal sample responses are applied to the administrative data to provide estimated values.

Non-response imputation

Although attempts are made to achieve a 100 percent response rate, in practice this does not occur. Values for non-responding businesses are estimated 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.

Seasonally adjusted and trend values are re-estimated quarterly when each new quarter's data becomes available. Figures are therefore revised, with the largest changes normally occurring in the latest quarters. Estimates are produced by the X-12-ARIMA seasonal adjustment program, developed at 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, the calculation method for total sales was changed from direct to indirect (whereby component industries are individually adjusted before being summed). Direct and indirect adjustment methods are both used, according to appropriateness.

Components are seasonally adjusted using the following methods:

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, data for most dairy values were calculated 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, Statistics NZ publishes 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 are calculated from ESM sales and finished good stock changes (deflated by sub-indexes of the [producers price index](#)).

ESM volumes are supplemented 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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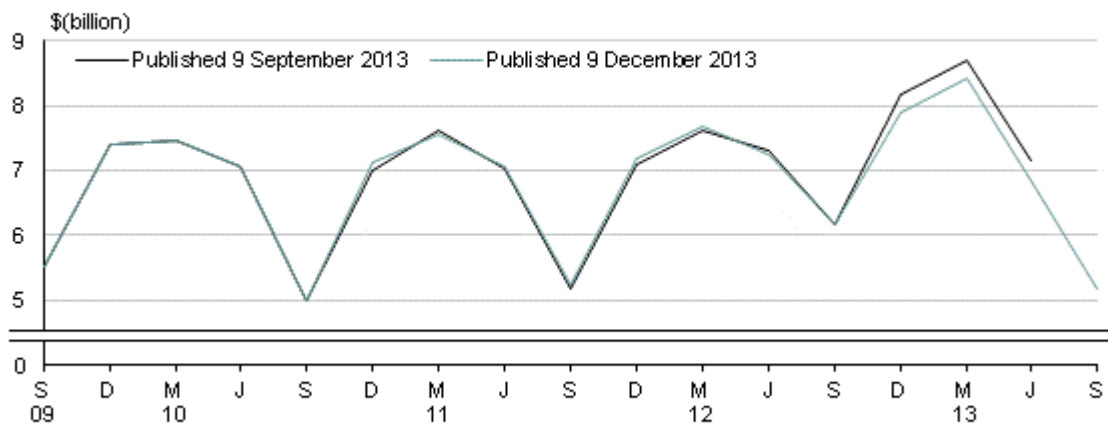
Revisions

We have revised the meat and dairy product manufacturing sales volume series from the June 2010 quarter to the June 2013 quarter. This revision was made because we updated the price deflator used for this industry.

These revisions also affect the volume of closing stocks of finished goods.

The graphs below show how the new sales volumes and finished goods closing stock volumes compare with previously published data for meat and dairy product manufacturing.

Meat and dairy product manufacturing sales volumes
Quarterly



Source: Statistics New Zealand

Meat and dairy product manufacturing — finished goods closing stock volumes
Quarterly



Source: Statistics New Zealand

Data for all manufacturing (volumes and finished goods closing stocks) is also revised to reflect these changes. The change has no impact on the all manufacturing excluding meat and dairy series.

As an example, the table below shows changes for the June 2013 quarter.

Revisions to June 2013 quarter sales volume movements and closing stocks of finished goods volume movements				
Variable	Industry	Series MFGQ.	Published	
			9 September 2013	9 December 2013
			% change from same quarter previous year	
Sales volume	Meat and dairy product manufacturing	SA1KA	-2.0	-5.5
	All manufacturing	SZ1KA	-0.8	-1.9
Closing stocks of finished goods volume	Meat and dairy product manufacturing	SA5KA	-1.0	-5.2
	All manufacturing	SZ5KA	3.1	1.3

This revision will have no effect on the upcoming *Gross Domestic Product: September 2013 quarter* release. Production data (livestock slaughter numbers and milk production) is used in compiling that release rather than sales volumes from the Economic Survey of Manufacturing.

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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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