

Economic Survey of Manufacturing: March 2013 quarter

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Key facts

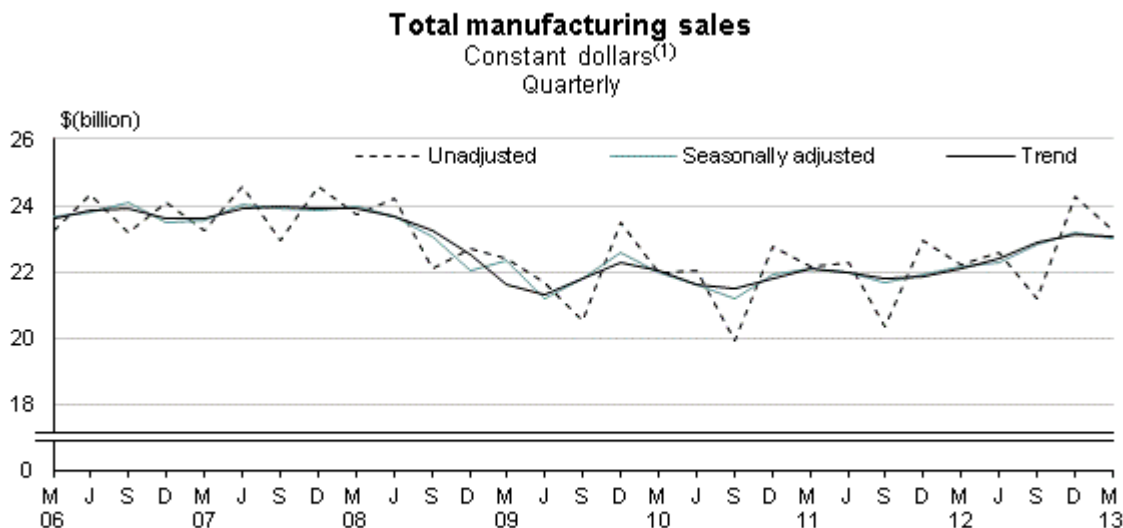
Sales (seasonally adjusted) for the March 2013 quarter compared with the December 2012 quarter.

Volumes

- Total manufacturing **fell** 0.6 percent.
- Excluding meat and dairy product manufacturing, sales **fell** 0.8 percent.
- Meat and dairy product manufacturing **rose** 0.5 percent.

Values

- Total manufacturing **rose** 0.2 percent.
- Excluding meat and dairy product manufacturing, sales **fell** 0.7 percent.
- Meat and dairy product manufacturing **rose** 1.5 percent.



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

Source: Statistics New Zealand

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Commentary

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

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

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

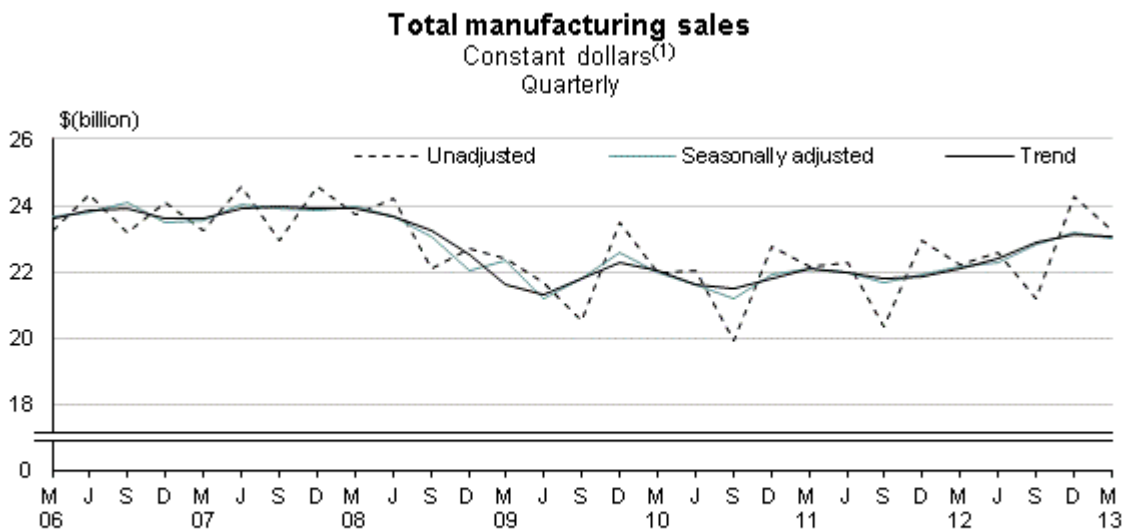
Manufacturing sales volume falls

The **volume of manufacturing sales** fell 0.6 percent in the March 2013 quarter, after a 1.4 percent rise in the December 2012 quarter. The fall follows five quarters of increases and occurred despite a 0.5 percent increase in the sales volume for meat and dairy product manufacturing. Of the 13 manufacturing industries, six fell. The largest movements this quarter were:

- metal product manufacturing, **down** 6.2 percent
- transport equipment; machinery and equipment manufacturing, **down** 4.2 percent.
- petroleum and coal product manufacturing, **up** 5.9 percent.

The **trend** for the manufacturing sales volume, which gives a longer-term picture of movements, has been rising since late 2011 but now appears to be flattening.

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

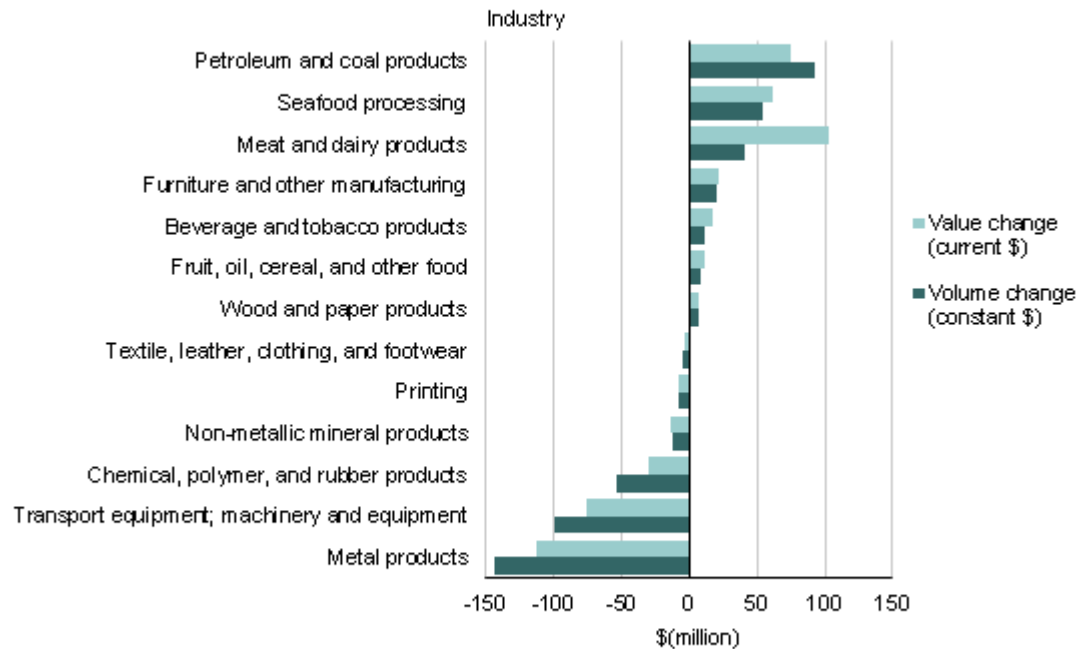
In current prices, the manufacturing **sales value** rose 0.2 percent (\$49 million) in the March 2013 quarter, after a 0.1 percent fall (\$16 million) in the December 2012 quarter. The main value movements for this quarter were:

- metal product manufacturing, **down** 4.9 percent (\$113 million)
- meat and dairy product manufacturing, **up** 1.5 percent (\$103 million)
- transport equipment; machinery and equipment manufacturing, **down** 3.2 percent (\$76 million).

Changes in seasonally adjusted manufacturing sales

Current and constant dollars⁽¹⁾

December 2012 quarter to March 2013 quarter



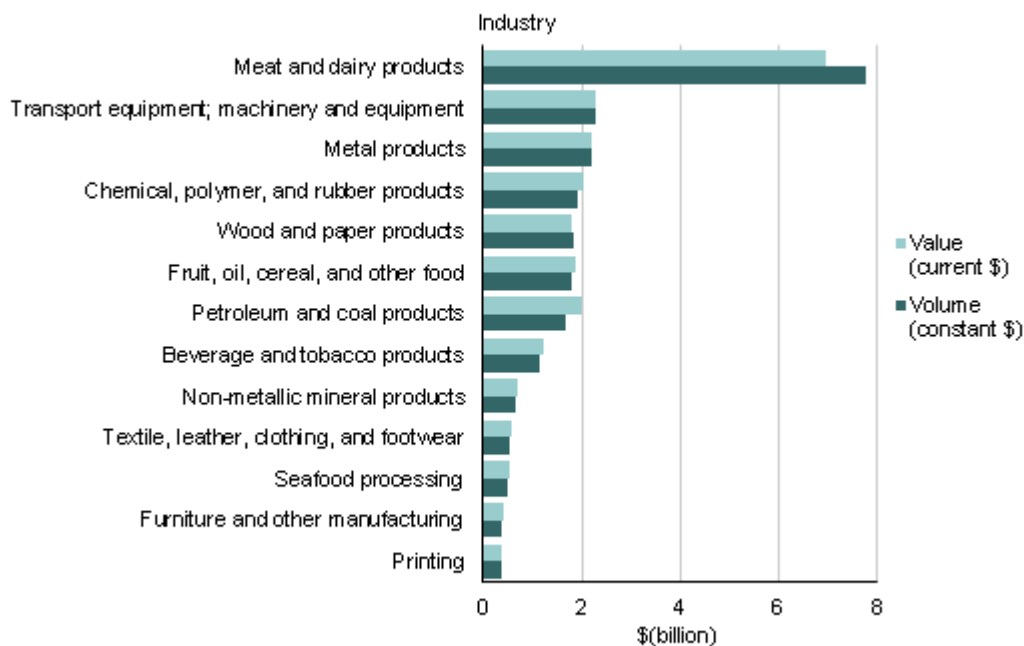
1. Constant dollar series (volumes) is at September 2010 quarter prices.

Source: Statistics New Zealand

Seasonally adjusted manufacturing sales

Current and constant dollars⁽¹⁾

March 2013 quarter



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

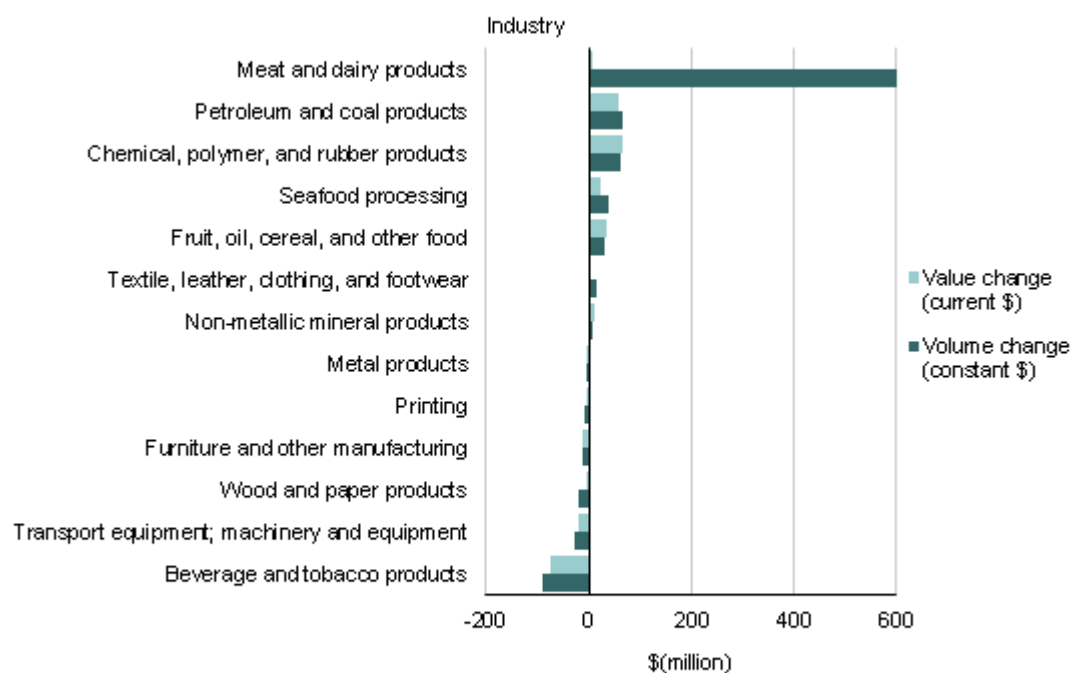
Source: Statistics New Zealand

The **volume of finished goods stocks** (which is not seasonally adjusted) is 6.1 percent higher than in the March 2012 quarter. This rise was mainly due to an increase in the volume of meat and dairy product stocks (up 12 percent). See the [meat and dairy product manufacturing section](#) in this commentary for more information.

Changes in manufacturing stocks⁽¹⁾

Current and constant dollars⁽²⁾

March 2012 quarter to March 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 falls

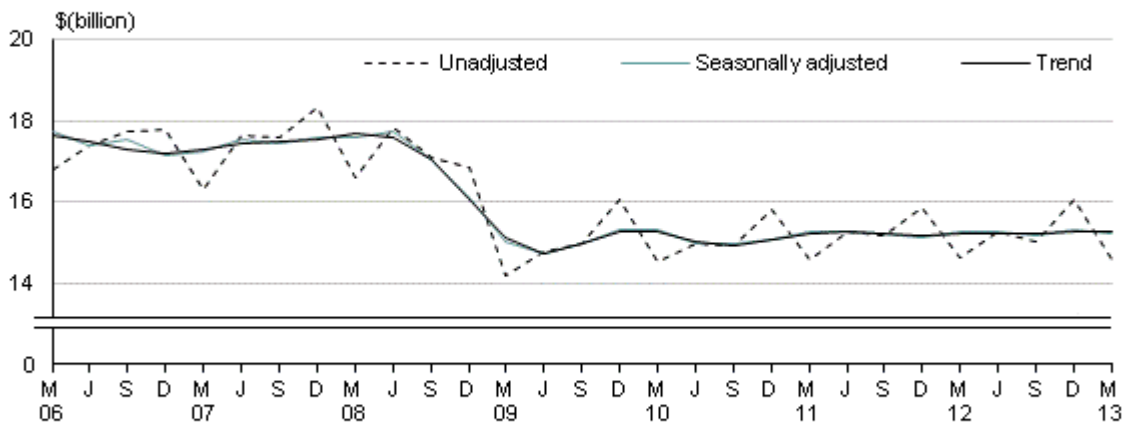
The **volume of sales**, excluding meat and dairy product manufacturing, fell 0.8 percent in the March 2013 quarter. This fall follows a rise of 1.1 percent in the December 2012 quarter. Six of the 12 industries that make up this group recorded decreases. The main movements this quarter were:

- metal product manufacturing, **down** 6.2 percent
- transport equipment; machinery and equipment manufacturing, **down** 4.2 percent.

In current prices, the **sales value** also fell, down 0.7 percent (\$118 million) in the March 2013 quarter. Six of the 12 industries fell.

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 three years and is well below the levels seen before mid-2008.

The **volume of finished goods stocks** (which is not seasonally adjusted) is 1.0 percent higher than in the March 2012 quarter.

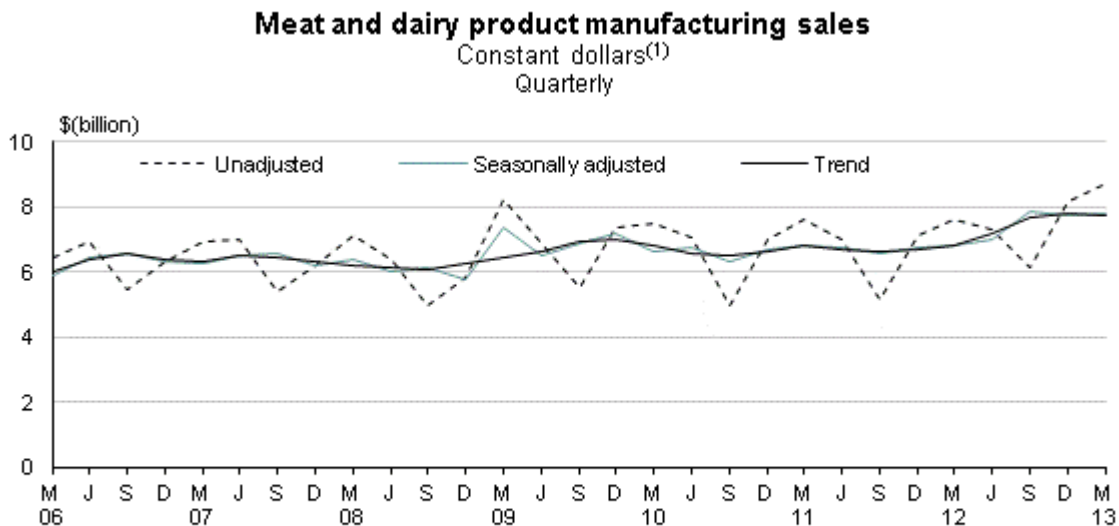
Meat and dairy product manufacturing volume rises

The **volume of sales** for the meat and dairy product manufacturing industry rose 0.5 percent in the March 2013 quarter, after a fall of 1.3 percent in the December 2012 quarter. An increase in meat exports (up 5.3 percent) reflected the rise in sales (see [Overseas Trade Indexes \(Volumes\): March 2013 quarter \(provisional\)](#)).

The **value of sales** also increased, up 1.5 percent (\$103 million), after a fall of 4.0 percent in the December 2012 quarter.

Prices varied across the industry during the quarter. [Producers Price Index: March 2013 quarter](#) reported a 5.7 percent increase in prices for dairy product manufacturing outputs. In contrast, meat product manufacturing output prices fell 1.4 percent.

The **trend** indicates that the volume of meat and dairy product manufacturing has risen over the last year but now appears to be flattening.



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 12 percent higher than in the March 2012 quarter.

Drought conditions prevailed across the North Island and parts of the South Island during the March 2013 quarter. As a result, higher sheep slaughter numbers were noted in [Producers Price Index: March 2013 quarter](#).

Metal product manufacturing volume falls

The **volume of sales** for the metal product manufacturing industry fell 6.2 percent in the March 2013 quarter, after a 5.6 percent rise in the December 2012 quarter.

The **sales value** also fell, down 4.9 percent (\$113 million). Export values of aluminium and aluminium articles were down 13 percent (unadjusted) in the March 2013 quarter compared with the December 2012 quarter as reported in Overseas Merchandise Trade: March 2013.

The **trend** for the sales volume has fallen over the last year, down 7.8 percent since March 2012.



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 1.1 percent lower than in the March 2012 quarter.

Transport equipment; machinery and equipment manufacturing volume falls

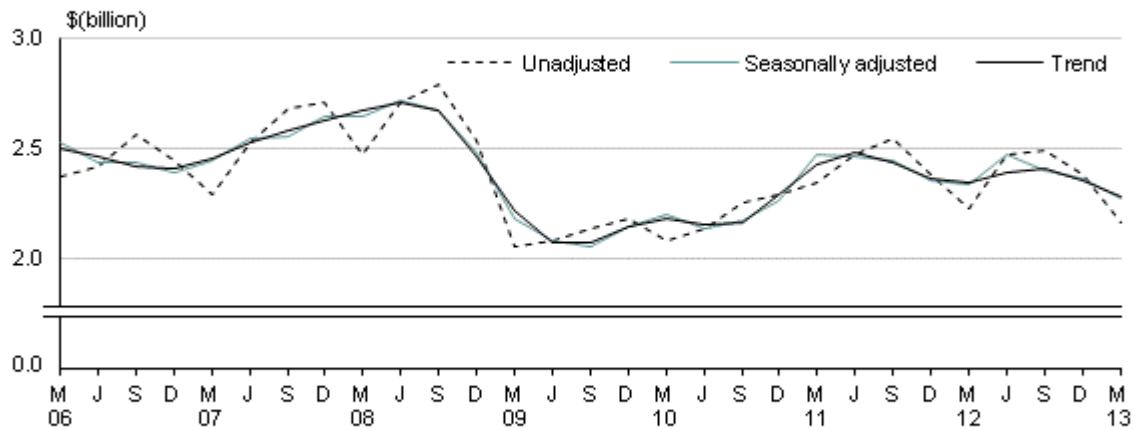
The **volume of sales** for the transport equipment; machinery and equipment manufacturing industry fell 4.2 percent in the March 2013 quarter. This decrease follows falls in the previous two quarters and was spread across the industry.

The **sales value** also fell, down 3.2 percent (\$76 million).

The **trend** indicates that the sales volume for the transport equipment; machinery and equipment manufacturing industry has been fluctuating since early 2011.

Transport equipment; machinery and equipment 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 3.7 percent lower than in the March 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: June 2013 quarter* will be released on 9 September 2013.

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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 March 2013 quarter](#)
- [Imputation for March 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 March 2013 quarter

Sample errors for sales in the March 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	4.2	2.0
Beverage and tobacco product manufacturing	0.0	0.0
Textile, leather, clothing, and footwear manufacturing	8.9	5.2
Wood and paper product manufacturing	2.2	0.8
Printing	11.0	6.9
Petroleum and coal product manufacturing	0.0	0.0
Chemical, polymer, and rubber product manufacturing	2.3	0.8
Non-metallic mineral product manufacturing	5.9	2.1
Metal manufacturing	7.7	3.2
Transport equipment; machinery and equipment manufacturing	3.5	3.2
Furniture and other manufacturing	7.2	3.3
Total manufacturing	0.9	0.5

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 March 2013 quarter

Imputed values as a percentage of sales in the March 2013 quarter		
Industry	Non-response	Tax modelled
	Percentage of sales	
Meat and dairy product manufacturing	1.2	4.1
Seafood processing	0.0	14.8
Fruit, oil, cereal, and other food manufacturing	13.8	10.2
Beverage and tobacco product manufacturing	1.6	16.4
Textile, leather, clothing, and footwear manufacturing	12.2	13.4
Wood and paper product manufacturing	9.7	10.6
Printing	19.2	15.5
Petroleum and coal product manufacturing	0.0	0.7
Chemical, polymer, and rubber product manufacturing	9.7	8.8
Non-metallic mineral product manufacturing	6.9	11.9
Metal manufacturing	10.1	13.2
Transport equipment; machinery and equipment manufacturing	13.7	14.5
Furniture and other manufacturing	19.8	13.8
Total manufacturing	6.1	8.5

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 March 2013 quarter was 94 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

These revisions were the result of updated information from respondents and cover the following industries.

- Meat and dairy product manufacturing (December 2011 quarter to December 2012 quarter)
- Fruit, oil, cereal, and other food manufacturing (December 2012 quarter)
- Beverage and tobacco product manufacturing (June 2010 quarter to March 2012 quarter)

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

Manufacturing industry	Variable	Series MFGQ.	Period (quarter)	Published	
				8 March 2013\$(million)	10 June 2013\$(million)
Meat and dairy product	Raw material stocks	SA4CA	Dec 2011	408	382
Meat and dairy product	Raw material stocks	SA4CA	Mar 2012	396	368
Meat and dairy product	Raw material stocks	SA4CA	Jun 2012	377	351
Meat and dairy product	Raw material stocks	SA4CA	Sep 2012	399	374
Meat and dairy product	Raw material stocks	SA4CA	Dec 2012	427	398
Meat and dairy product	Finished goods stocks	SA5CA	Dec 2011	4934	4815
Meat and dairy product	Finished goods stocks	SA5CA	Mar 2012	5125	5002
Meat and dairy product	Finished goods stocks	SA5CA	Jun 2012	3885	3770
Meat and dairy product	Finished goods stocks	SA5CA	Sep 2012	3223	3118
Meat and dairy product	Finished goods stocks	SA5CA	Dec 2012	4584	4487
Fruit, oil, cereal, and other food	Raw material stocks	SC4CA	Dec 2012	245	244
Fruit, oil, cereal, and other food	Finished goods stocks	SC5CA	Dec 2012	581	589
Beverage and tobacco product	Sales	SD1CA	Jun 2010	963	982
Beverage and tobacco product	Sales	SD1CA	Sep 2010	954	971
Beverage and tobacco product	Sales	SD1CA	Dec 2010	1321	1350
Beverage and tobacco	Sales	SD1CA	Mar 2011	1035	1055

product					
Beverage and tobacco product	Sales	SD1CA	Jun 2011	1091	1108
Beverage and tobacco product	Sales	SD1CA	Sep 2011	1066	1084
Beverage and tobacco product	Sales	SD1CA	Dec 2011	1338	1365
Beverage and tobacco product	Sales	SD1CA	Mar 2012	1075	1096

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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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