

Commentary

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CPI falls 0.2 percent in December 2012 quarter

The consumers price index (CPI) fell 0.2 percent in the December 2012 quarter. This follows 0.3 percent rises in both the September and June 2012 quarters.

Five groups had price falls in the December 2012 quarter. The food group (down 1.8 percent) made the main downward contribution. Lower prices were also recorded for the household contents and services (down 1.8 percent) and communication (down 2.0 percent) groups.

The key individual downward contribution came from seasonally lower vegetable prices (down 1.6 percent), largely influenced by tomatoes (down 5.3 percent). Prices for lettuce (down 4.9 percent) and capsicums (down 4.4 percent) also decreased.

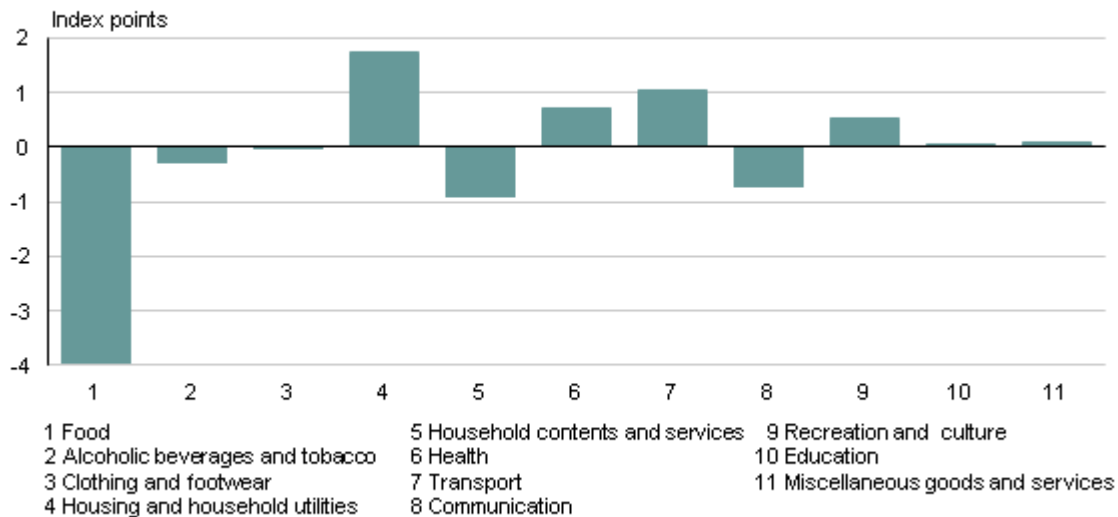
Other key downward contributions came from:

- furniture and furnishings (down 6.2 percent)
- telecommunication services (down 1.7 percent)
- petrol (down 0.8 percent).

Six groups rose in price. The housing and household utilities group (up 0.6 percent) made the main upward contribution. Higher prices were also recorded for the transport (up 0.6 percent), health (up 1.1 percent), and recreation and culture (up 0.5 percent) groups.

A seasonal increase in international air fares (up 9.8 percent) was the main individual upward contributor. Higher prices were also recorded for property maintenance services (up 2.0 percent) and overseas package holidays (up 6.0 percent).

Index points contribution to consumers price index December 2012 quarter



Source: Statistics New Zealand

CPI shows 0.9 percent annual increase

The CPI increased 0.9 percent in the year to the December 2012 quarter, after increases of 0.8 percent and 1.0 percent in the years to the September 2012 and June 2012 quarters, respectively. Six of the 11 groups in the CPI made upward contributions in the year to the December 2012 quarter.

By group, the main upward contributions came from:

- housing and household utilities (up 3.0 percent)
- alcoholic beverages and tobacco (up 5.3 percent)
- miscellaneous goods and services (up 3.2 percent).

By group, the main downward contributions came from:

- recreation and culture (down 2.3 percent)
- communication (down 6.2 percent)
- food (down 0.5 percent).

Individually, the main upward contributions came from higher prices for cigarettes and tobacco (up 13 percent). Higher prices were also recorded for:

- rentals for housing (up 2.4 percent)
- electricity (up 5.2 percent)
- purchase of newly built houses (up 3.1 percent)
- local authority rates (up 4.3 percent).

The main individual downward contributions came from lower prices for telecommunication services (down 5.7 percent), audio-visual equipment (down 17 percent), and fresh milk (down 9.5 percent).

Food prices down for the quarter due to vegetables

Food prices dropped 1.8 percent in the December 2012 quarter, following rises of 1.1 percent and 0.1 percent in the September 2012 quarter and the June 2012 quarter, respectively.

All five food subgroups made downward contributions in the December 2012 quarter. This is the first quarter in which all five subgroups had fallen since we moved to measuring five subgroups in July 2006.

Vegetable prices (down 16 percent) made the most significant downward contribution, accounting for about 80 percent of the decrease in food prices. If vegetable prices had remained unchanged from the September 2012 quarter, the CPI would have increased 0.1 percent, rather than falling 0.2 percent.

Lower vegetable prices were largely influenced by tomatoes (down 53 percent).

Other significant downward contributions came from seasonally lower prices for lettuce (down 49 percent), strawberries (down 43 percent), capsicums (down 44 percent), and cucumber (down 48 percent).

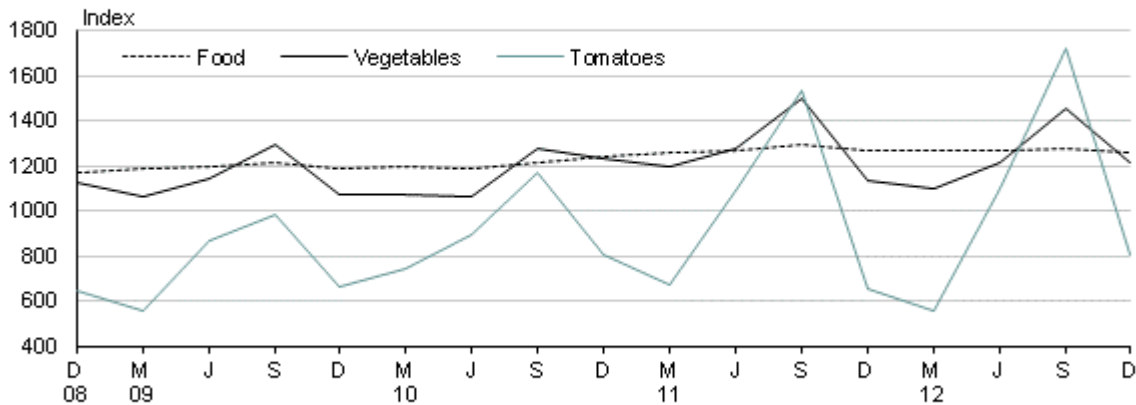
Annual prices

The food group decreased 0.5 percent in the year to the December 2012 quarter. The key contribution came from lower prices for fresh milk (down 9.5 percent). Lower prices were also recorded for lamb (down 17 percent), cheese (down 7.7 percent), and butter (down 24 percent).

Food group – selected indexes

Quarterly indexes

Base: June 2006 quarter (=1000)



Source: Statistics New Zealand

Housing and household utilities up 0.6 percent

The housing and household utilities group rose 0.6 percent in the December 2012 quarter, following rises of 0.8 percent and 1.0 percent in the September and June 2012 quarters, respectively.

Higher prices for property maintenance services (up 2.0 percent) made the most significant upward contribution. This rise was influenced by a seasonal decrease in the total level of subsidies from the Warm Up New Zealand: Heat Smart programme in the December 2012 quarter compared with the September 2012 quarter.

Other key upward contributions came from:

- actual rentals for housing (up 0.3 percent), influenced by rises in Auckland (up 0.6 percent) and Canterbury (up 0.5 percent) and by small falls in Wellington and the Rest of the South Island.
- the purchase of new housing (up 0.5 percent), reflecting rises in Canterbury (up 1.6 percent) and Auckland (up 0.2 percent)
- local authority rates and payments (up 0.7 percent, reflecting the remaining 11 percent of the weight in the sample that was not shown in the September 2012 quarter).

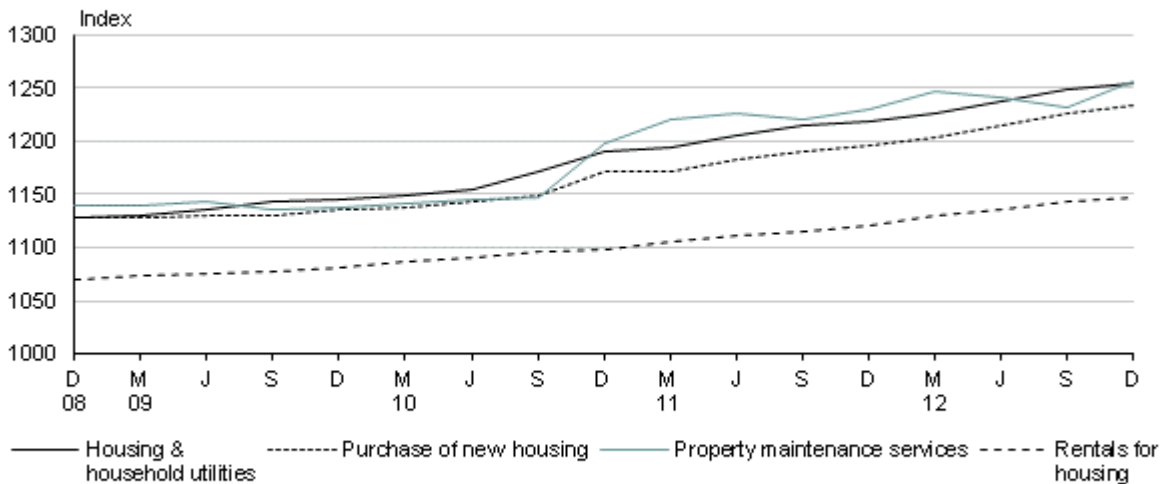
Annual prices

In the year to the December 2012 quarter, the housing and household utilities group increased 3.0 percent. The key contributions were:

- rentals for housing (up 2.4 percent), influenced by Auckland (up 2.9 percent) and Canterbury (up 3.6 percent)
- electricity (up 5.2 percent)
- purchase of newly built houses (up 3.1 percent), with Auckland and Canterbury up 1.5 percent and 10 percent, respectively
- local authority rates (up 4.3 percent)
- property maintenance services (up 2.1 percent).

Housing & household utilities group and selected indexes

Quarterly indexes
Base: June 2006 quarter (=1000)



Source: Statistics New Zealand

Higher international air fares see transport prices rise for the quarter

Transport group prices increased 0.6 percent in the December 2012 quarter. This follows a fall of 1.1 percent in the September 2012 quarter and a rise of 0.2 percent in the June 2012 quarter.

Seasonally higher international air fares (up 9.8 percent) was the most significant upward contributor. Air fares to Australia and Asia were higher. Higher prices were also recorded for:

- road passenger transport (up 2.7 percent), influenced by seasonally higher prices for hiring rental cars
- rail passenger transport (up 7.6 percent)
- second-hand cars (up 0.3 percent).

The main downward contribution came from petrol (down 0.8 percent). Lower prices were also recorded for:

- the purchase of new cars (down 1.8 percent), influenced by quality improvements for some surveyed models
- other private transport services (down 1.3 percent)
- domestic air fares (down 1.5 percent).

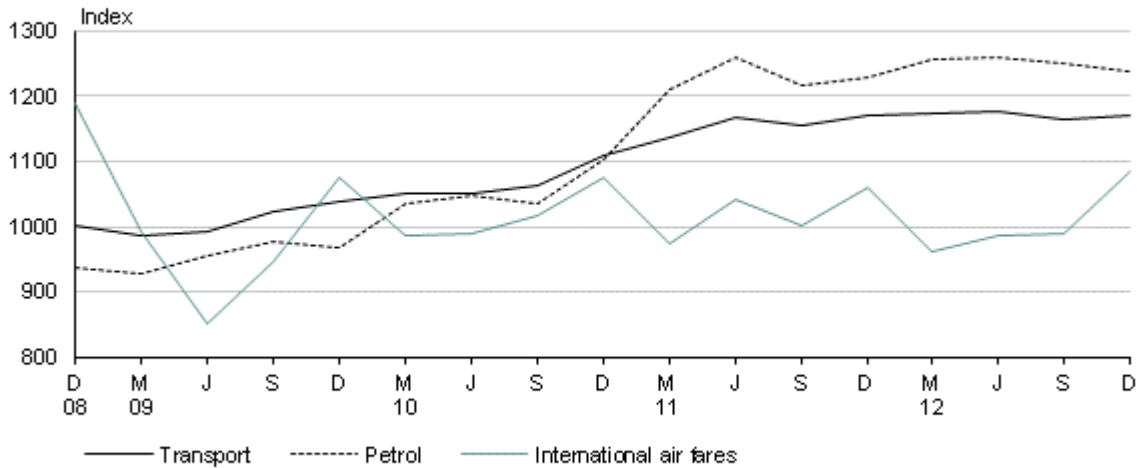
The fall in other private transport services (down 1.3 percent) was due to a fall in vehicle relicensing fees.

Annual prices

For the year to the December 2012 quarter, transport prices remained unchanged. Petrol prices (up 0.9 percent) were offset by price falls for domestic air fares (down 6.0 percent) and the purchase of new cars (down 2.9 percent).

Transport group and selected classes

Quarterly indexes
Base: June 2006 quarter (=1000)



Source: Statistics New Zealand

Summary of other group movements in the CPI

In the December 2012 quarter, the following groups decreased:

- household contents and services (down 1.8 percent)
- communication (down 2.0 percent)
- alcoholic beverages and tobacco (down 0.4 percent)
- clothing and footwear (down 0.1 percent).

Combined, these groups contributed -1.94 index points to the overall CPI decrease of 1.73 index points.

In the December 2012 quarter, the following groups increased:

- health (up 1.1 percent)
- recreation and culture (up 0.5 percent)
- miscellaneous goods and services (up 0.1 percent)
- education (up 0.2 percent).

Combined, these groups contributed 1.37 index points to the overall CPI decrease of 1.73 index points.

The household contents and services group decreased due to lower prices for furniture and furnishings (down 6.2 percent). These were influenced by an increase in the level of discounting. One in four furniture and furnishing prices was discounted in the December 2012 quarter, compared with one in five in the September 2012 quarter.

Within the communication group, the most significant downward contribution came from lower prices for telecommunication services (down 1.7 percent). This fall reflected better-value cellphone service charges and cheaper broadband and national calling rates.

The main contributor to the decrease in the alcoholic beverages and tobacco group came from beer (off licence), with an increase in the level of discounting.

The increase in the health group came from higher prices for medical services (up 1.4 percent), reflecting higher medical specialist fees.

The increase in the recreation and culture group came from seasonally higher prices for overseas package holidays (up 6.0 percent). Book prices (up 9.4 percent) also increased.

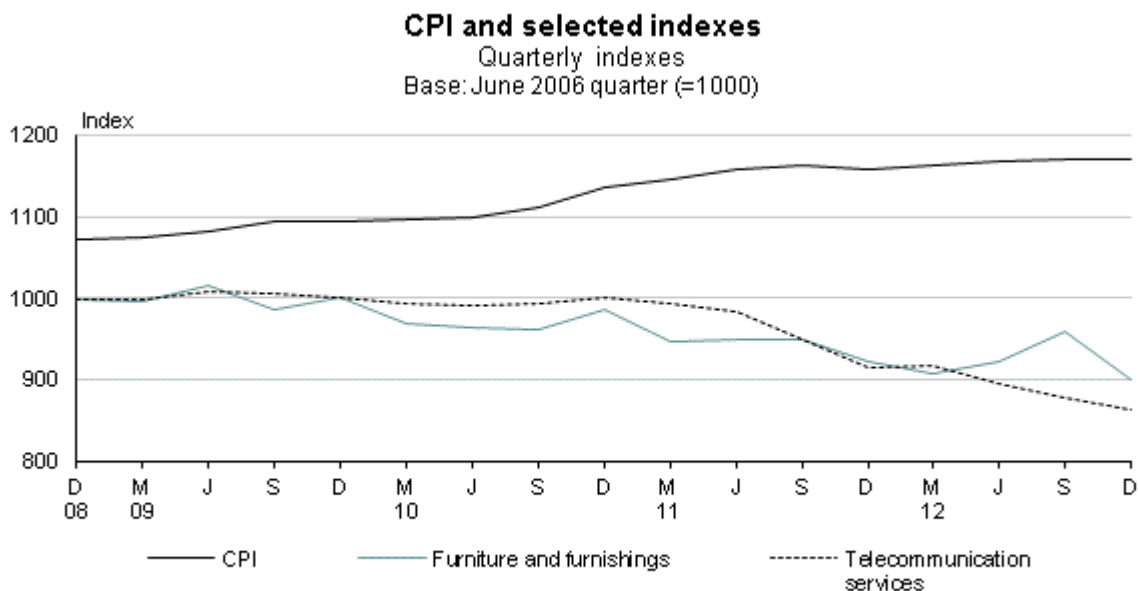
Within the miscellaneous goods and services group, insurance rose 0.6 percent. This rise reflected higher premiums for dwelling insurance (up 3.3 percent).

Annual prices

In the year to the December 2012 quarter, prices increased for:

- cigarettes and tobacco (up 13 percent)
- insurance (up 7.0 percent)
- medical services (up 3.7 percent)
- beer (up 3.2 percent).

Prices fell for telecommunication services (down 5.7 percent) and audio-visual equipment (down 17 percent). The fall for telecommunication services reflected better-value cellphone service and Internet charges.



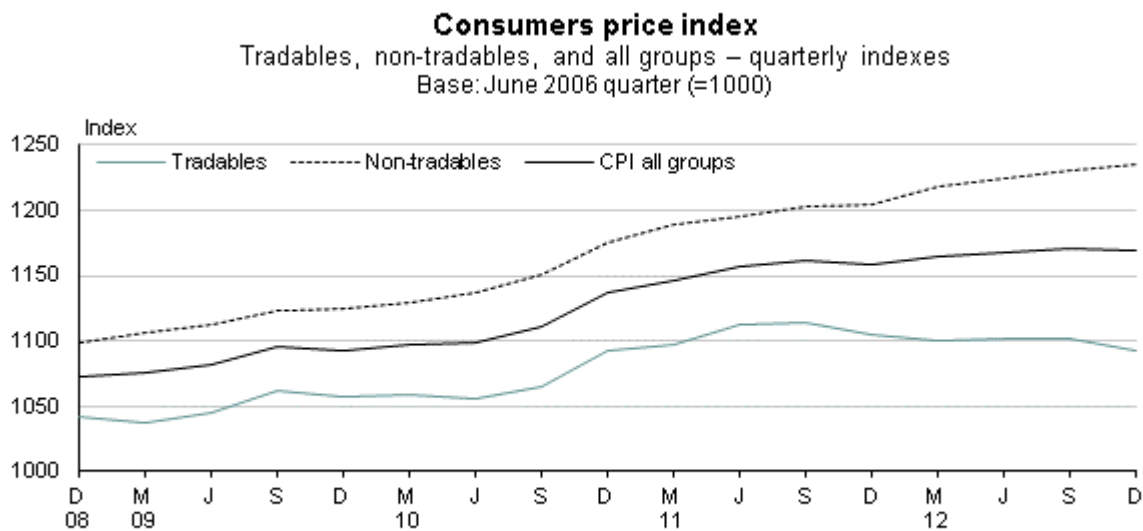
CPI analytical series

In the December 2012 quarter, the tradable component of the CPI fell 0.7 percent and the non-tradable component of the CPI rose 0.3 percent.

The tradable component was influenced by seasonally lower prices for vegetables. Prices for furniture and furnishings, petrol, and dairy products also fell. Seasonally higher international air fares was the main upward contributor. Package holidays, books, and fruit also rose.

The non-tradable component was influenced by higher prices for property maintenance services. Medical services, rentals for housing, and purchase of new housing also rose. Lower prices for telecommunication services was the main individual downward contributor.

For the year to the December 2012 quarter, the tradable component decreased 1.0 percent, reflecting lower prices for dairy products, audio-visual and computing equipment, and telecommunication equipment. Prices for the non-tradable component increased 2.5 percent, reflecting higher prices for cigarettes and tobacco, rentals for housing, and electricity.

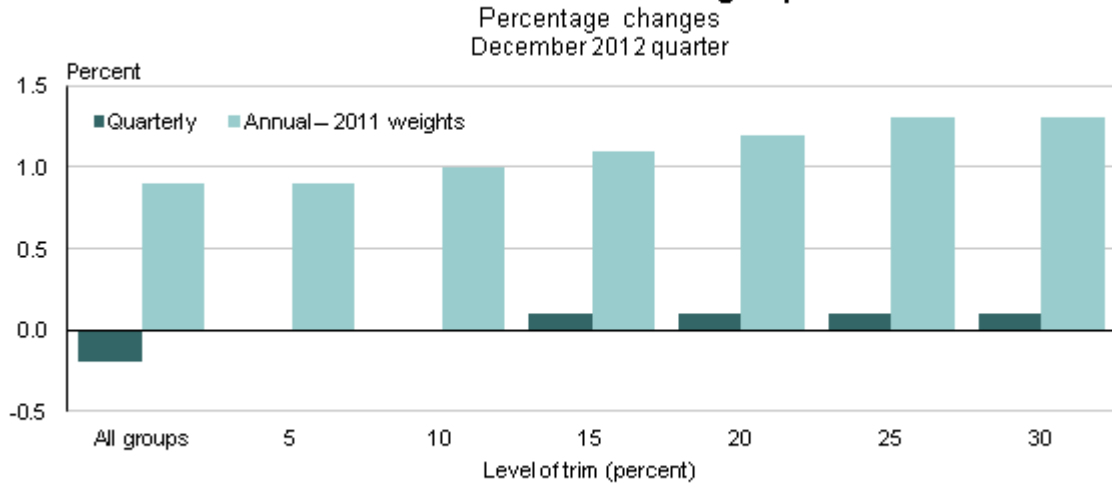


Source: Statistics New Zealand

In the December 2012 quarter, the trimmed mean measures – which exclude extreme price rises and falls – recorded quarterly movements ranging from no change to 0.1 percent. This indicates the underlying price change for the quarter was subdued.

For the December 2012 quarter, the annual trimmed mean measures showed increases of between 0.9 percent and 1.3 percent. This indicates the underlying price change for the year was the same or above the annual rise in the all groups CPI.

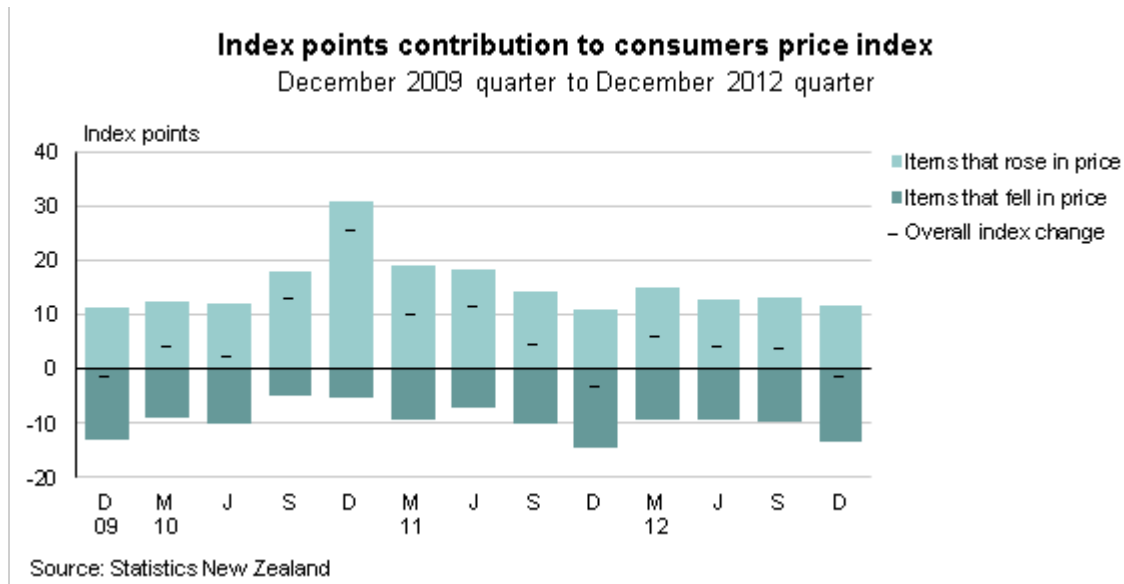
Trimmed means and all groups



Source: Statistics New Zealand

Impact of items that rose and fell in price

The graph below shows the impact of the items that rose and fell in price. Comparing the December 2012 quarter with the September 2012 quarter, the impact of the items that rose in price is smaller, and the impact of items that fell in price is larger. This led to a 0.2 percent fall for the December 2012 quarter CPI, following a 0.3 percent rise in the September 2012 quarter.



Further information is now included in table 13 of the release.

Annual indexation of New Zealand superannuation rates and welfare benefits

Adjustments made to New Zealand superannuation rates and welfare benefits rates at 1 April 2013 will be based on the percentage change in the CPI 'all groups less cigarettes and tobacco subgroup' from the December 2011 quarter to the December 2012 quarter, which is an increase of 0.61 percent.

2013 CPI advisory committee announced

Statistics NZ is convening a consumers price index (CPI) advisory committee. The committee will meet in May 2013 to undertake an independent review of the methods and practices used to compile the CPI, and to advise the Government Statistician on the CPI.

The Government Statistician appointed the following committee members:

- Diana Crossan, former Retirement Commissioner
- Dr Carla Houkamau, University of Auckland Business School
- Dr Kirdan Lees, New Zealand Institute of Economic Research
- Dr John McDermott, Reserve Bank of New Zealand
- Professor Jacques Poot, University of Waikato
- Associate Professor Marco Reale, University of Canterbury
- Dr Bill Rosenberg, New Zealand Council of Trade Unions
- Stephen Summers, Business New Zealand
- Keith Woolford (international expert), formerly of the Australian Bureau of Statistics.

Diana Crossan will chair the committee.

Members were selected to bring professional expertise, different perspectives, and the confidence of the wide range of CPI users to the committee.

Periodically convening independent CPI advisory committees helps to ensure public confidence in the index and is recommended as good practice in the International Labour Organization's resolution on CPIs.

In late February or early March 2013, background and discussion papers prepared by Statistics NZ for the committee will be available to the public on the Statistics NZ website (www.stats.govt.nz). We will call for public submissions at this time.

The committee's recommendations will be included in a report, which will be published in July 2013. These recommendations will inform the next CPI review, scheduled for 2014.

Statistics NZ last convened a CPI advisory committee in 2004, with its recommendations informing the 2006 CPI review. For the papers prepared for the committee, and the committee's report (including 20 recommendations), see [2004 CPI Revision Advisory Committee](#).

For further information on the 2013 CPI advisory committee, please contact:

Peter Campion
Wellington 04 931 4600
Email: info@stats.govt.nz

CPI rolling review of retail outlets

We are busy with our ongoing rolling review of the retail outlets we collect prices from for the CPI. The second group of changes were implemented in this release. See [CPI rolling review of retail outlets](#) in the Data quality section of this release for further details.

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

Definitions

About the consumers price index

The consumers price index (CPI) measures the changing price of a fixed basket of goods and services purchased by New Zealand households. The selection and relative importance of the goods and services in the CPI basket represents the overall expenditure pattern of New Zealand households.

The aim of the CPI is to measure price changes of the same sample of products at each outlet over time. When there is a change in the size or quality of any of the goods or services in the basket, an adjustment is made to ensure that the price change shown in the CPI is not affected by the change in size or quality.

The CPI represents \$88.9 billion spent on goods and services by New Zealand households, at June 2011 quarter prices. This is based on information from the 2009/10 Household Economic Survey and other sources.

The CPI is used to help set monetary policy and for monitoring economic performance. It is used by the government to adjust New Zealand Superannuation and unemployment benefit payments once a year, to help ensure that these payments maintain their purchasing power. Employers and employees use the CPI in wage negotiations.

The CPI is published quarterly. The food group is the only CPI group for which an index is published each month.

A listing of the representative goods and services monitored in the CPI basket is available in the 'Available files' of [Consumers price index review: 2011](#).

The sources and methods used to compile various parts of the CPI basket of goods and services are listed in the [CPI sources and methods articles](#) available on the Statistics NZ website.

More definitions

A **price index** measures the change in price between time periods for a given set of goods and services. It summarises a set of prices for a variety of goods and services collected from a number of outlets.

The **index reference period** is the benchmark to which prices in other periods are compared (eg if the index number in a later period is 1150, prices have increased by 15.0 percent since the index reference period). Prices for later periods can also be compared in similar fashion. The CPI has an index reference period of the June 2006 quarter (=1000).

Upward/downward contributions: items mentioned in this release are often those that made a large contribution to the overall movement in the CPI. An item's contribution is a combination of its weight in the index (ie its relative importance, based on its share of household spending on goods and services covered by the CPI) and the magnitude of price movement. For example, for two items recording the same percentage rise in price, the item with the larger weight in the CPI will make a larger contribution to the overall movement. This contribution is also referred to as points (or index points) contribution.

Tradable and non-tradable component series: the tradable component series contains goods and services that are imported or in competition with foreign goods, either in domestic or foreign markets. Movements in the tradables component (tradable inflation) demonstrate how international price movements and exchange rates are affecting consumer prices.

The non-tradable series contains goods and services that do not face foreign competition. It shows how domestic demand and supply conditions are affecting consumer prices.

Analytical measures of inflation: over the long term, the CPI captures the broad pattern of price change, but can be influenced by one-off events when analysing price change over shorter timeframes. To remove such influences, analytical measures of price change are calculated in an attempt to isolate the more persistent – or underlying – component of general price-level changes. Several analytical measures are constructed to give a good guide to underlying price-level change. These are a range of 'trimmed means' and a range of 'weighted percentiles' including a weighted median. Trimmed means and weighted percentiles are given in table 11 and table 12 of this release.

Trimmed means: exclude the influence of the largest price increases and decreases in the CPI. This is done at the item level of about 700 goods and services in the CPI basket (eg 91 octane petrol or strawberries). The trimmed means progressively remove the influence of the largest increases and decreases.

Weighted percentiles: highlight the movement of lower-level indexes at points in the distribution of price changes for a particular time period.

Related links

Upcoming releases

The *Consumers Price Index: March 2013 quarter* will be released on 17 April 2013.

To [subscribe to our information releases](#), including this one, please complete the online subscription form.

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

Past releases

See [Consumers Price Index – information releases](#) for links to past releases.

Related information

The [food price index](#) measures price change of food goods and services purchased by New Zealand households.

For more information about the basket of goods and services, and the sources and methods used to compile individual components of the CPI, please see the [CPI sources and methods](#) articles page on the Statistics NZ website.

[Electronic Card Transactions](#) measure the number and value of electronic card transactions with New Zealand-based merchants.

The [Retail Trade Survey](#) measures sales of a range of household and personal goods and services.

Data quality

Period-specific information

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

- [Reference period](#)
- [Data influencers](#)
- [Response rates](#)
- [Sample size](#)

General information

This section has information that does not generally change between releases.

- [Imputation](#)
- [Review of the CPI](#)
- [Impact of GST rise on the CPI](#)
- [Care required when using the CPI to adjust monetary values](#)
- [Reference population](#)
- [Expenditure weights](#)
- [Collection methods](#)
- [Pricing frequency](#)
- [Accuracy of the data](#)
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- [Consistency with other periods or datasets](#)
- [Interpreting the data](#)
- [Timing of published data](#)
- [CPI rolling review of retail outlets](#)
- [More information](#)

Period-specific information

Reference period

Prices were collected during the period 1 October to 31 December 2012. Visits by Statistics NZ staff to retail outlets were made during 1–15 November in the 10 smallest consumers price index (CPI) regions and during 1–20 November for the five largest CPI regions. Prices for food and non-food groceries were collected each month, usually between the 8th and 16th of the month. Petrol, fresh fruit, and fresh vegetable prices were collected weekly. Quarterly postal survey prices were collected at 15 November.

Data influencers

Price changes may be influenced by specific events. Factors that affected the December 2012 quarter CPI are listed below.

- Vegetable prices fell strongly due to the arrival of the new season produce. Cheaper prices were recorded for tomatoes, lettuce, capsicums, and cucumber.
- A seasonal decrease in the total level of subsidies from the Warm Up New Zealand: Heat Smart programme saw property maintenance service prices rise for the quarter.

- The rise in international air fares was influenced by seasonally higher fares to Asia and higher fares to Australia.
- An increase in the level of discounting lowered the prices for furniture and furnishings.
- Lower prices for telecommunication services reflected better-value cellphone service charges and cheaper broadband and national calling rates.
- Local authorities usually set their rates annually, and these are normally shown in the September quarter CPI. The movement in local authority rates and payments in the September quarter reflected approximately 89 percent of the weight in the sample, with the remainder included in the December 2012 quarter CPI.

Response rates

Postal

Target: 93 percent
Achieved: 95.4 percent

Field collection

Prices are collected directly from retail outlets by Statistics NZ price collectors.

Sample size

About 120,000 prices were collected from about 3,000 retail outlets and 2,400 other businesses and landlords.

General information

Imputation

Due to unavailability at the time of price collection, on average 1–2 percent of prices (not including seasonal items such as winter clothing) are imputed each quarter. This is often done by carrying forward the previous quarter's price. Other imputation is done by applying the movements of similar categories of items.

Review of the CPI

Reviews of the CPI are undertaken every three years. The latest review was implemented with the publication of the September 2011 quarter CPI. The review involved reselecting the basket of representative goods and services, updating the new national expenditure weights, and updating regional population weights.

See [Consumers price index review: 2011](#) for more information.

Impact of GST rise on the CPI

GST rose from 12.5 percent to 15 percent on 1 October 2010. However, the rise in GST was not immediately reflected in the prices of some seasonally available goods and services in the CPI basket. The rise was reflected when prices for these items were next collected. These items make up about 3 percent of expenditure on goods and services in the CPI. Of this 3 percent, nearly half was reflected in the March 2011 quarter CPI, nearly half in the June 2011 quarter, and the remainder was shown in the September 2011 quarter.

The table below shows what the quarterly and annual percentage changes would have been if prices collected for the December 2010, and March, June, and September 2011 quarters had been processed with GST of 12.5 percent for goods and services that are subject to GST. The CPI would have risen 0.4 percent in the September 2011 quarter, and 2.5 percent for the year to the September 2011 quarter.

CPI processed with GST at 12.5 percent			
Quarter	Percentage change from previous quarter	Percentage change from same quarter of previous year	Adjusted index number
Dec 2010	0.5	2.1	1116
Mar 2011	0.8	2.6	1125
Jun 2011	0.9	3.3	1135
Sept 2011	0.4	2.5	1139

Care required when using the CPI to adjust monetary values

The CPI is used to adjust monetary values, such as those in legislation and contracts. Care is required when using the CPI to adjust monetary values during the year-long period in which the rise in GST is reflected in the CPI. Some goods and services in the CPI are not subject to GST, some are zero-rated for GST purposes (meaning the applicable rate of GST is zero), and the rise in GST was not immediately reflected for all goods and services in the CPI that are subject to GST.

Special care is required when the monetary values being adjusted exclude GST.

It would not be appropriate to adjust prices or monetary values that exclude GST (but which are subject to GST) by the CPI movement during the period in which the increase in GST is reflected in the CPI. This would mean that the GST increase is counted twice. Another common use of the CPI is to adjust housing rentals. Housing rentals are not subject to GST. Using the CPI to adjust rental values during the period in which the increase in GST is reflected in the CPI would mean that the adjustments would include the overall impact of the GST increase on the CPI.

Reference population

The reference population of the CPI covers approximately 98 percent of the usually-resident New Zealand population living in permanent dwellings.

Expenditure weights

Expenditure weights give the relative importance of the goods and services in the CPI basket.

The CPI represents about \$88.9 billion spent on goods and services by New Zealand households, at June 2011 quarter prices. Information on spending is sourced from the Household Economic Survey and other sources.

New Zealand households spent \$83.9 billion on goods and services in the year to June 2010 (which is the latest period available). Once the effect of price change between the year to June 2010 and the June 2011 quarter is taken into account (called 'price updating'), spending on household goods and services measured in the CPI rises to \$88.9 billion.

The relative importance of the CPI subgroups shows that about \$23.55 of every \$100 spent by households on goods and services covered by the CPI is spent on housing and household

utilities. About \$18.79 is spent on food and about \$15.12 is spent on transport. More information on the relative importance of CPI groups, subgroups, and classes is given in table 9 of this release.

Collection methods

Prices used in the CPI are collected through three main methods: visiting retail outlets, postal surveys, and the Internet.

Statistics NZ price collectors personally visit over 3,000 different shops in 15 main centres throughout the country. The types of outlets visited include supermarkets, department stores, and appliance stores. Prices are collected weekly for motor fuels and for fresh fruit and vegetables; monthly for food, non-food groceries, alcoholic beverages, and newspapers; and quarterly for other goods and services.

Prices are surveyed in 15 urban areas: Whangarei, Auckland, Hamilton, Tauranga, Rotorua, Napier-Hastings, New Plymouth, Wanganui, Palmerston North, Wellington, Nelson, Christchurch, Timaru, Dunedin, and Invercargill.

In addition to prices obtained by price collectors, about 70 different postal surveys are sent out each month, quarter, or year. These surveys are used primarily to collect prices for services, such as electricity and bus fares. The surveys are sent directly to service providers. In some cases, for sampling and collection reasons, these prices are aggregated to the national level or to broad regions such as Auckland, Wellington, Canterbury, rest of North Island, and rest of South Island. Items where movements for five broad regions are used include: the purchase of second-hand cars; purchase of new housing; and rentals for housing. In these cases, price movements for the five broad regions are used for the corresponding 15 regions.

Postal surveys are sent to service providers who set prices nationally or with little variation according to location, such as prices for telephone homeline rental.

Prices for products and services (such as digital downloads, package holidays, and air fares) are also collected each month or quarter from the Internet.

Pricing frequency

Prices are collected weekly, monthly, quarterly, or annually, depending on the expected frequency of price changes exhibited by the goods or service.

Accuracy of the data

Elementary aggregate formula

Average prices in the CPI are called elementary aggregates. These elementary aggregates are the first level of the index aggregation. Regional elementary aggregates are calculated for each of the 15 pricing centres where price collection supports regional estimation. In other cases, regional elementary aggregates are calculated for five CPI broad regions (Auckland, Wellington, rest of North Island, Canterbury, rest of South Island) or, where prices do not support regional estimation, directly to a national elementary aggregate. Since the 2006 review of the CPI, the geometric mean, or Jevons, formula has been used to calculate the elementary aggregate indexes for items where outlet substitution is possible (eg for groceries and appliances).

The 'ratio of arithmetic mean prices', or Dutot, formula is used for items where outlet substitution is not possible (eg local authority rates), where prices are subsidised and may fall to zero (eg GPs' fees), for fresh fruit and vegetables (as the first stage of aggregation is across both outlets within each region, and across weeks within each month), and where it is not currently practical to adopt the Jevons formula (eg when prices are aggregated directly to a national elementary aggregate, rather than aggregated to a regional level).

For more information on the Jevons and Dutot formulae see '[Elementary aggregate formula](#)' in [Information about the Consumers Price Index](#).

Method of aggregating monthly collected prices from the monthly to the quarterly level

Prices are collected monthly for the food group and a number of non-food items in the CPI, including electricity, cigarettes and tobacco, alcoholic drinks, and air travel. These prices are averaged over the quarter for inclusion in the CPI.

The method for calculating these averages is to obtain monthly regional average prices for the item by outlet-weighting the prices collected at different outlets within each region. The monthly regional average prices are used to calculate quarterly regional average prices by weighting each monthly regional average price by the number of days in the month in which it was collected. This is called day weighting. All the regions are aggregated to obtain the national quarterly index by weighting together regional price movements from the base (ie June 2011) quarter to the current quarter, using the regional population weights.

Petrol and diesel prices are collected weekly, usually on Fridays. The CPI petrol price index measures price changes of 91 octane petrol and 95/98 octane petrol. Within each CPI region, an average price per 10 litres of each fuel is calculated from the prices surveyed each week from individual service stations. Monthly regional average prices for each fuel are then calculated as simple averages of the averages for the weeks within each month. Quarterly regional average prices for each fuel are then calculated as the day-weighted averages of the averages for the three months within the quarter. Regional price movements from the base (ie June 2011) quarter to the current quarter are then weighted by the regional population-weighted share of the national expenditure weight, to calculate the national petrol and diesel price indexes for the current quarter.

Since petrol and diesel prices are collected either 12 or 13 times within each quarter, a price change that occurs during the quarter is only partly reflected in that quarter, with the remainder being reflected in the following quarter. This is also the case for commodities that are priced monthly, such as cigarettes and tobacco.

Population weights

Population weights are used to allocate the national expenditure weights of goods and services to the CPI pricing centres. For example, the population weights ensure that a price change in Auckland (which has 33.43 percent of the population weight) would have about three times the effect on the national CPI than the same price change in Wellington (which has 11.07 percent of the population weight).

The latest subnational population estimates, which are published annually, are used to calculate the population weights at each CPI review. Estimates at 30 June 2010 were the latest figures available at the time of the 2011 CPI review. This means that any potential population movements following the Christchurch earthquakes are not reflected in these weights. Population weights will be monitored, and if considered necessary, updated to maintain the accuracy of the CPI.

Statistics NZ publishes CPI price indexes for five broad regions based on regional council area boundaries. These indexes are available from [Infoshare](#). These regions are Auckland, Wellington, rest of North Island, Canterbury, and rest of South Island.

For the population weights of each region in the CPI, see table 7 of this release.

Outlet weights

Outlets are given appropriate weights to reflect their relative importance in terms of household spending.

'On special' prices

Items that are 'on special' are included in the CPI at the price levels observed at the time of price collection. Quantity specials (such as a 15-pack of beer at a cheaper shelf price than the 12-pack) are also taken into account where appropriate (as the price per bottle for the special is lower).

Key concepts

Standard and non-standard series

CPI series that contribute to the hierarchical structure of the overall CPI are known as standard series. For example, the clothing index, combined with the footwear index, contributes to the clothing and footwear index, which in turn contributes to the all groups index. Components of this pyramid-like structure are known as standard index series. In addition, a selection of non-standard series is published in the information release tables, and additional series can be accessed free of charge from the online [Infoshare](#) database. Examples of these non-standard series include:

- all groups CPI less each of the 11 CPI groups
- all groups CPI plus interest
- interest.

The CPI is published at the following levels: group, subgroup, and class – all at the national level. Selected sections within the food group are also published.

Tradable and non-tradable non-standard series

The tradable and non-tradable component series that appear in table 1 allow users to

decompose CPI goods and services into two components: one contains goods and services that are imported or in competition with foreign goods, either in domestic or foreign markets (tradables); the other contains goods and services that do not face foreign competition (non-tradables).

Movements in the tradables component (tradable inflation) demonstrate how international price movements and exchange rates are affecting consumer prices. The non-tradables component shows how domestic demand and supply conditions are affecting consumer prices.

The June 2011 quarter expenditure weight of the tradables component is 44.01 percent, compared with 45.78 percent in 2008. The June 2011 quarter weight of non-tradables is 55.99 percent, compared with 54.22 percent in 2008.

The June 2011 quarter tradable/non-tradable weights for each group, subgroup, and class are included in table 5 of the [Consumers price index review: 2011](#).

An information paper on the methodology used to categorise the tradable and non-tradable series, [Consumers Price Index Tradable and Non-tradable Series](#), is available on the Statistics NZ website.

Trend measures of price-level change

Over the long term, the CPI captures the broad pattern of price change, but can be influenced by one-off events when analysing price change over shorter timeframes (such as a supply disturbance affecting petrol prices). To remove such influences, analytical measures of price change are calculated in an attempt to isolate the more persistent – or underlying – component of general price-level changes. Several analytical measures are constructed to give a good guide to underlying price-level change. These are a range of 'trimmed means' and a range of 'weighted percentiles' including a weighted median. Trimmed means and weighted percentiles are given in table 11 and table 12 of this release.

Trimmed means

Trimmed means exclude the influence of the largest increases and decreases in the CPI. This is done at the item level of about 700 goods and services in the CPI basket (eg 91 octane petrol or strawberries). The trimmed means progressively remove the influence of the largest increases and decreases. **Weighted percentiles** highlight the movement of lower-level indexes at points in the distribution of price changes for a particular time period.

For detailed information regarding the methodology and compilation of trimmed means and weighted medians, see [Trend measures of price level change](#).

The **central and local government charges index**, which appears in tables 3.01, 3.02, and 3.03, made up 10.46 percent of the CPI at the June 2011 quarter.

Central and local government charges non-standard series includes items such as:

- Housing New Zealand and local authority rentals
- land transfer registration fees
- local authority rates
- water supply and part of refuse disposal, electricity
- prescription charges and oral contraception, general practitioner fees
- vehicle relicensing fees, road user charges, driver licensing fees
- postage
- State and integrated schools, tertiary education, other education

- cheque duty, and official passports, licences and certificates.

The **goods and services component series** that appear in tables 3.01, 3.02, and 3.03 allow users to decompose the CPI into its goods and services components, respectively. The goods component made up 60.04 percent, and the services component 39.96 percent at the June 2011 quarter.

The **goods component** comprises:

- the food group (except restaurant meals)
- alcoholic beverages and tobacco group
- clothing and footwear group (except clothing services)
- purchase of new housing, property maintenance materials, water supply, and household energy
- household contents and services group (except repair and hire of household appliances, hire of major tools and equipment, and other household services)
- medical products, appliances and equipment; dentures
- purchase of vehicles, vehicle parts and accessories, petrol, other vehicle fuels and lubricants
- telecommunication equipment
- recreation and culture group (except recreational and cultural services, accommodation services, and package holidays)
- miscellaneous goods and services group (except hairdressing and personal grooming services, jewellery and watch repair, insurance, credit services, and other miscellaneous services).

The **services component** comprises all items not included in the goods component.

Consistency with other periods or datasets

Impact of the Christchurch earthquakes on price collection

There was no material impact on CPI movements from the Christchurch earthquakes in 2010 and 2011.

For goods and services prices collected quarterly from shops in February 2011, collection was completed in all regions before the earthquake. In March, food (and non-food grocery) prices were not collected by Statistics NZ staff in Christchurch city. For Christchurch, price movements for the rest of New Zealand were used to calculate the March 2011 food price index, which represents one-third of the food group in the March 2011 quarter CPI. This approach was also taken for non-food grocery prices for the March month.

For goods and services prices collected quarterly by postal survey (and posted in early February 2011), there were lower-than-usual response rates for Canterbury respondents. The overall response rate for quarterly postal surveys was about 96 percent, compared with about 98 percent over the previous eight quarters. For most parts of the basket, the usual treatment for missing prices in the current quarter is to use the last reported price. With the lower response rate in the March 2011 quarter, there was the potential for the higher level of non-response to slightly flatten the quarterly movement. Therefore, price movements for responding businesses were used to bring the Christchurch response rate up to its usual level.

Statistics NZ began collecting prices again in Christchurch in April 2011.

For goods and services prices collected quarterly from shops for the June 2011 quarter, collection was completed in May. While the June monthly collection of food and non-food grocery prices was put on hold for the remainder of the week following the Monday 13 June earthquakes, pricing was completed on Monday 20 and Tuesday 21 June.

For goods and services prices collected quarterly by postal survey (and posted in early May), the overall response rate for quarterly postal surveys was about 98 percent, which compares well with previous quarters.

By November 2011, when quarterly collection was undertaken, almost all outlets that had not been replaced had reopened.

Index reference period

All CPI indexes have an index reference period of the June 2006 quarter (=1000), except where additional indexes were added in subsequent reviews of the CPI.

Additions to the CPI basket at the June 2008 quarter resulted in the publication of two new indexes at the class level of the New Zealand Household Expenditure Classification (NZHEC). These classes are clothing accessories, and other education. Before the 2008 review, expenditure on goods and services within these two classes was allocated to other apparel and education items, respectively. There was also one new subgroup, for other education. As the two classes and one subgroup were new, they are expressed on the June 2008 quarter (=1000). Similarly, other property related services were added to the CPI in 2011. The other property related services class is expressed on the June 2011 quarter (=1000).

Reconciling the FPI and food group of the CPI

When comparing the FPI and the food group of the CPI, strictly speaking, the quarterly food group index number is not the average of the relevant three monthly FPI numbers. There are some technical differences between the monthly FPI indexes and quarterly indexes.

See [Food prices in the consumers price index and food price index](#) for more information.

Treatment of fresh fruit and fresh vegetables – removal of seasonal adjustment

Until the June 2006 quarter, fresh fruit and fresh vegetable items that exhibited a seasonal pattern were adjusted to remove the effect of normal seasonal change. This treatment was used to reduce the influence of normal seasonal price fluctuations. However, the treatment did not completely eliminate the effects of seasonal fluctuations if shifts in seasonal patterns occurred.

From the September 2006 quarter onwards, the CPI incorporates seasonally unadjusted prices for fresh fruit and fresh vegetables. This is in line with a recommendation made by the [2004 CPI Revision Advisory Committee](#).

The ongoing, fully unadjusted CPI is linked at the June 2006 quarter to the previously published CPI, which is partly seasonally adjusted. As such, annual movements calculated over the annual period encompassing the June 2006 quarter are based on fully unadjusted index numbers for the latest quarter, compared with partly adjusted index numbers for the same quarter of the previous year. However, analytical time series provided annual movements on a fully unadjusted basis during the year-long transition of the official CPI. During this time, annual movements were based on fully unadjusted index numbers for the latest quarter, compared with partly adjusted index numbers for the same quarter of the previous year.

Availability of regional indexes

Indexes are published for five broad regions: Auckland, Wellington, Canterbury (encompasses Christchurch and Timaru), rest of North Island, and rest of South Island. These series are considered to be fit for purpose and do not make significant use of national pricing indicators in their compilation.

Until the June 2006 quarter, indexes were published for 15 regions. These series were not considered 'fit for purpose', as price movements from national or broad-region price collection were used to compile them. Series for the 15 regions continue to be calculated and are available only upon request.

Interpreting the data

Rounding of index numbers and calculation of percentage changes

Percentage changes are published to one decimal place and are calculated from index numbers rounded to the nearest index point. For comparisons that cross the index reference period, rounded index numbers (for the later period) should be compared to unrounded index numbers (for the earlier period).

Distribution of item-level index movements table

The Distribution of item-level index movements table in this release gives additional information on the distribution of price movements for the current quarter's CPI. The analytical statistics in the table give an indication of how widespread price changes are, and their relative magnitude when compared with previous quarters.

The weighted average price increase and decrease uses unrounded index numbers for the previous and current periods to calculate item-level price movements from the previous period, and these are weighted using previous period expenditure weights. The previous period expenditure weight for an item is calculated by updating base-period expenditure weights, using the price change for the item from the base period to the previous period.

Movements based on unrounded index numbers are used to determine whether items have increased, showed no change, or decreased in price. Previous period expenditure weights are used to indicate the proportion of the expenditure weight that has increased, showed no change, or decreased.

Detailed contribution information tables

Tables 8.01 and 8.02 include supplementary analytical information for group, subgroup, and class contributions to the overall change in the all groups CPI. The contribution information is given as index points, percentage points, and percentage contributions from the previous quarter and from the same quarter of the previous year. These tables are included to provide a broader perspective of the categories contributing to the movement in the all groups CPI. Where there is only one class within a subgroup, the class is omitted to avoid unnecessary duplication.

The index points, percentage points, and percentage contribution information in tables 8.01 and 8.02 is calculated from unrounded index numbers. Percentage changes are calculated from index numbers rounded to the nearest index point (see 'Rounding of index numbers and calculation of percentage changes', above). As such, the sum of each of the group, subgroup, or

class percentage point contributions may differ from the overall percentage change in the CPI all groups.

Weighted average retail prices of selected food items

A selection of average retail prices for the current and previous quarter is included in table 5 of this release. The weighted average prices are calculated by applying index movements to weighted average prices for the June 2006 quarter CPI. They are not statistically accurate measures of average transaction price levels, but do provide a reliable indicator of percentage changes in prices.

Determining the effect of a specified change in a lower-level index

As the CPI and FPI were reweighted at the June 2011 quarter, but continue to be published on an index reference period of June 2006 quarter (=1000), the method used to determine the effect that a specified change in a lower-level index would have on a higher-level index to which it contributes has been modified for the September 2011 quarter and subsequent quarters.

The index points effect and percentage contribution on a higher-level index of a specified percentage change in a lower-level index that contributes to the higher-level index can be determined by:

1. Adjusting the lower-level index for the previous period ($I_{n-1,low}$) by the specified percentage change ($PC_{n,low}$) to derive the index number for the current period:

$$I_{n,low} = I_{n-1,low} \times \left(1 + \left(\frac{PC_{n,low}}{100} \right) \right)$$

2. Calculating the index points effect on the higher-level index of the specified change in the lower-level index:

$$PE_{low-on-high} = \left(\frac{I_{Jun11,high}}{I_{Jun11,low}} \right) \times \left(\frac{W_{Jun11,low}}{W_{Jun11,high}} \right) \times (I_{n,low} - I_{n-1,low})$$

3. Calculating the percentage change in the higher-level index that would be caused by the specified change in the lower-level index:

$$PC_{n,high} = \left(\left(\frac{I_{n-1,high} + PE_{low-on-high}}{I_{n-1,high}} \right) - 1 \right) \times 100$$

I : index

n : period n, where n is the September 2011 quarter or a subsequent quarter (CPI), or the July 2011 month or a subsequent month (FPI)

n-1 : period n-1

Jun11 : June 2011 quarter (CPI) or June 2011 month (FPI)

low : lower-level index

high : higher-level index

W : expenditure weight, expressed as a percentage of the all groups (CPI) or group (FPI) index

PC : percentage change

PE : index points effect

low-on-high : lower-level index on higher-level index

Example:

The effect that a 5.0 percent increase in the petrol index (which has a weight of 5.27 percent in the CPI) from the June 2011 quarter to the September 2011 quarter would have on the all groups CPI index can be calculated by:

1. Increasing the petrol index for the June 2011 quarter by 5.0 percent to derive the index number for the September 2011 quarter:

$$\begin{aligned} I_{Sept11,low} &= I_{Jun11,low} \times \left(1 + \left(\frac{PC_{Sept11,low}}{100} \right) \right) \\ &= 1259 \times \left(1 + \left(\frac{5.0}{100} \right) \right) \\ &= 1321.95 \end{aligned}$$

2. Calculating the index points effect on the all groups CPI index of the 5.0 percent increase in the petrol index:

$$\begin{aligned} PE_{low-on-high} &= \left(\frac{I_{Jun11,high}}{I_{Jun11,low}} \right) \times \left(\frac{W_{Jun11,low}}{W_{Jun11,high}} \right) \times (I_{n,low} - I_{n-1,low}) \\ &= \left(\frac{1157}{1259} \right) \times \left(\frac{5.27}{100} \right) \times (1321.95 - 1259) \\ &= 3.05 \end{aligned}$$

3. Calculating the percentage change in the all groups CPI index that would be caused by a 5.0 percent change in the petrol index:

$$\begin{aligned} PC_{n,high} &= \left(\left(\frac{I_{n-1,high} + PE_{low-on-high}}{I_{n-1,high}} \right) - 1 \right) \times 100 \\ &= \left(\left(\frac{1157 + 3.05}{1157} \right) - 1 \right) \times 100 \\ &= 0.3 \text{ percent} \end{aligned}$$

Timing of published data

The CPI is published 12 working days after the reference quarter.

CPI rolling review of retail outlets

We are busy with our ongoing rolling review of the retail outlets we visit to collect prices from for the consumers price index (CPI).

The [July 2012 issue of Price Index News](#) has more information on the scope of the review.

We implemented the changes made to the first review group (clothing, footwear, and furniture) in [Consumers Price Index: September 2012 quarter](#).

Changes made to the second review group (services, vehicles, and personal goods) were implemented in this release.

For the second review group, we reviewed the outlets visited for services, vehicles, and personal goods (eg jewellery and cosmetics). The sample of retail outlets we visit has been reallocated for the following items tracked in the CPI:

- plastic storage containers – we are now visiting more supermarkets to better reflect the mix of outlets people buy these items from
- vehicle parts and accessories – we are now visiting more non-chain retailers to better reflect market shares
- cosmetics, toiletries, suitcases, and handbags – we are now visiting more specialist stores.

Price collection for DVD movie hire has also been expanded to include Blu-ray movie hire.

Changes to the third review group (sports equipment and stationery) will be implemented in *Consumers Price Index: March 2013 quarter*, to be released in April 2013.

For more information on the review, please contact:

Nick Martelli
Wellington 04 931 4600
Email: info@stats.govt.nz

More information

More [information about the Consumers Price Index](#) is available on our website.

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Contacts

For media enquiries contact:

Chris Pike
Wellington 04 931 4600
Email: info@stats.govt.nz

For technical information contact:

Sean Broughton or Sarah Williams
Wellington 04 931 4600
Email: info@stats.govt.nz

For general enquiries contact our Information Centre:

Phone: 0508 525 525 (toll free in New Zealand)
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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](#).

From the June 2012 quarter, the consumers price index table formatting has been updated.

1. Consumers price index, tradables, non-tradables, and all groups – index numbers and percentage changes
- 2.01. Consumers price index, groups and subgroups – index numbers
- 2.02. Consumers price index, groups and subgroups, percentage change from previous quarter
- 2.03. Consumers price index, groups and subgroups, percentage change from same quarter of previous year
- 3.01. Consumers price index, selected groupings – index numbers
- 3.02. Consumers price index, selected groupings, percentage change from previous quarter
- 3.03. Consumers price index, selected groupings, percentage change from same quarter of previous year
4. International comparisons of consumer price indexes, excluding housing and household utilities group and credit services class – index numbers and percentage changes
5. Weighted average retail prices of selected items
6. Consumers price index, expenditure weights, by group
7. Consumers price index, population weights, by region/pricing centre
- 8.01. Contribution to all groups and percentage change from previous quarter, by group, subgroup, or class
- 8.02. Contribution to all groups and percentage change from same quarter of previous year, by group, subgroup, or class
9. Consumers price index, expenditure weights, by group, subgroup, or class
10. Consumers price index, COICOP divisions – index numbers and percentage changes
11. Consumers price index, trimmed means and all groups – percentage changes
12. Consumers price index, weighted percentiles and all groups – percentage changes
13. Distribution of national item-level index movements from previous quarter

Supplementary tables

These tables provide longer time-series information than the tables above. Given the long time-series nature of the tables, they are not suitable for printing. See the 'Downloads' box.

1. Consumers price index, tradables, non-tradables, and all groups – index numbers and percentage changes
- 2.01. Consumers price index, groups and subgroups – index numbers
- 2.02. Consumers price index, groups and subgroups, percentage change from previous quarter
- 2.03. Consumers price index, groups and subgroups, percentage change from same quarter of previous year
- 3.01. Consumers price index, selected groupings – index numbers
- 3.02. Consumers price index, selected groupings, percentage change from previous quarter
- 3.03. Consumers price index, selected groupings, percentage change from same quarter of previous year
- 4.01. Consumers price index, purchase of housing class, selected regions – index numbers and percentage changes
- 4.02. Consumers price index, actual rentals for housing subgroup, selected regions – index numbers and percentage changes

Access more data on Infoshare

Use [Infoshare](#), a free, online tool to access time-series data specific to your needs.

To access the CPI time series, select the following from the homepage:

Subject category: **Economic indicators**

Group: **Consumers Price Index**

The CPI series provide additional information to that included in this release, including:

- index series for the CPI and its groups, subgroups, classes, and selected sections
- indexes compiled under the international classification of Classification of Individual Consumption according to Purpose (COICOP)
- the CPI, and selected groups, for the five broad regions
- non-standard aggregations of indexes (for example, alcoholic beverages consumed off licensed premises)
- analytical measures of price change
- historical seasonally unadjusted index series
- average prices for a selection of items in the CPI basket.

The time series can be downloaded in Excel or comma delimited format. Percentage movements can be calculated using the following formula:

$$\left(\frac{\text{Index number for later period} - \text{Index number for earlier period}}{\text{Index number for earlier period}} \right) \times 100$$

More information about [Infoshare](#) can be found on our website.