

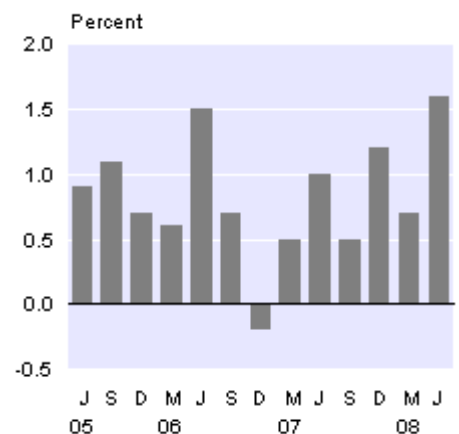
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Consumers Price Index: June 2008 quarter

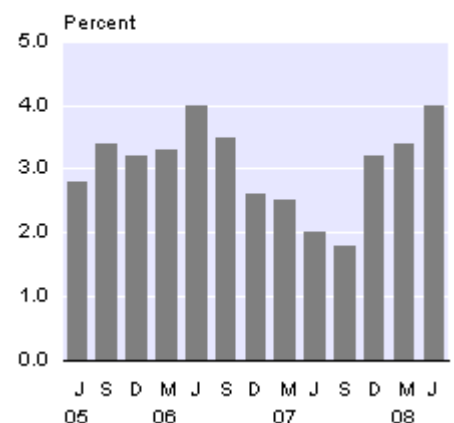
Highlights

- The Consumers Price Index (CPI) rose 1.6 percent in the June 2008 quarter.
- Transport prices increased 4.9 percent, driven by higher prices for petrol.
- Food prices rose 2.2 percent, driven by higher prices for grocery food.
- Housing and household utilities prices rose 1.2 percent, with the main contribution coming from higher prices for electricity.
- Prices for recreation and culture fell 0.5 percent.
- The CPI increased 4.0 percent for the year to the June 2008 quarter.

Consumers Price Index
Quarterly percentage change



Consumers Price Index
Annual percentage change



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There is a companion Media Release published – [Consumers Price Index: June 2008 quarter](#).

Commentary

Consumers Price Index quarterly movement

The Consumers Price Index (CPI) recorded an increase of 1.6 percent in the June 2008 quarter, following increases of 0.7 percent and 1.2 percent in the March 2008 and December 2007 quarters, respectively.

Eight of the 11 CPI groups recorded increases in the June 2008 quarter. The most significant upward contributions came from the transport (up 4.9 percent), food (up 2.2 percent) and housing and household utilities (up 1.2 percent) groups. Other upward movements came from the following groups: health (up 1.0 percent), clothing and footwear (up 0.6 percent), miscellaneous goods and services (up 0.4 percent), household contents and services (up 0.3 percent), and communication (up 0.5 percent).

Two groups recorded decreases: recreation and culture (down 0.5 percent), and alcoholic beverages and tobacco (down 0.2 percent).

The most significant individual upward contributions came from higher prices for petrol (up 12.8 percent), electricity (up 3.6 percent) and diesel (up 29.0 percent).

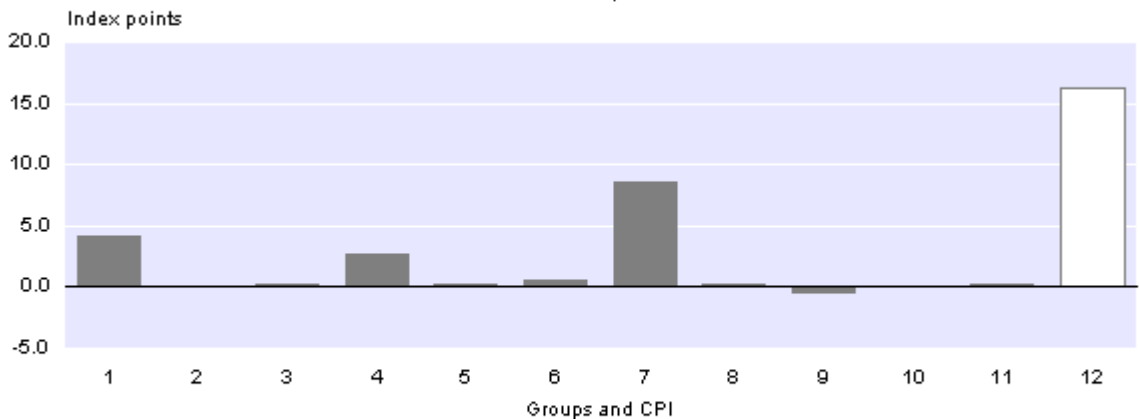
The most significant individual downward contributions came from lower prices for audio-visual and computing equipment (down 4.4 percent) and apples (down 21.1 percent).

Index Points Contribution to Consumers Price Index	
Group	June 2008 quarter
Transport	8.61
Food	4.18
Housing and household utilities	2.73
Health	0.54
Clothing and footwear	0.27
Miscellaneous goods and services	0.27
Household contents and services	0.21
Communication	0.17
Education	0.00
Alcoholic beverages and tobacco	-0.15
Recreation and culture	-0.54
All groups CPI	16.30

Note: Points contribution may not sum to totals due to rounding.

Index Points Contribution to Consumers Price Index

June 2008 quarter



1 Food
2 Alcoholic beverages and tobacco
3 Clothing and footwear
4 Housing and household utilities
5 Household contents and services
6 Health
7 Transport
8 Communication
9 Recreation and culture
10 Education
11 Miscellaneous goods and services
12 All groups

Distribution of item-level movements

The table below outlines the distribution of price movements in the March 2008 and June 2008 quarters. The CPI has been partitioned into those national item-level indexes that increased, showed no change, or decreased.

Distribution of Item-level Index Movements		
National item-level index movements	December 2007 quarter to March 2008 quarter	March 2008 quarter to June 2008 quarter
Increase in price		
Number of items	349	414
Percentage of all items	50.9	60.4
Percentage of expenditure weight	67.2	66.8
Index points contribution	15.2	22.6
Percentage points contribution	1.5	2.2
Weighted average price increase (percent)	2.2	3.2
No change in price		
Number of items	103	80
Percentage of all items	15.0	11.7
Percentage of expenditure weight	10.3	10.4
Decrease in price		
Number of items	233	191
Percentage of all items	34.0	27.9
Percentage of expenditure weight	22.5	22.9
Index points contribution	-7.9	-6.3
Percentage points contribution	-0.8	-0.6
Weighted average price decrease (percent)	3.4	2.6

The distribution of item-level movements shows that in the June 2008 quarter:

- the number of items that increased in price has risen, while the number of items that decreased in price has fallen
- the weighted average price increase has risen while the weighted average price decrease has fallen
- the percentage of expenditure weight of items that increased in price is still significantly greater than the percentage of expenditure weight of items that decreased in price
- the weighted average prices increase is now greater than the weighted average prices decrease.

This resulted in an increase of 1.6 percent in the CPI in the June 2008 quarter, following an increase of 0.7 percent in the March 2008 quarter.

CPI annual movement

The CPI increased 4.0 percent in the year from the June 2007 quarter to the June 2008 quarter, following increases of 3.4 and 3.2 percent for the years to the March 2008 and December 2007 quarters, respectively.

Five of the 11 groups in the CPI made upward contributions to the annual increase in the June 2008 quarter. The most significant upward contributions came from the transport (up 9.6 percent), food (up 6.9 percent), and housing and household utilities (up 5.0 percent) groups. Also increasing for the year to the June 2008 quarter were alcoholic beverages and tobacco (up 3.0 percent), and miscellaneous goods and services (up 2.5 percent).

The most significant individual upward contributions came from higher prices for petrol (up 25.9 percent), purchase of new housing (up 5.2 percent), electricity (up 6.6 percent) and actual rentals for housing (up 3.1 percent).

Downward contributions came from the following groups: health (down 1.4 percent), education (down 1.8 percent), recreation and culture (down 0.4 percent), household contents and services (down 0.7 percent), clothing and footwear (down 0.4 percent), and communication (down 0.4 percent).

The most significant individual downward contributions came from lower prices for audio-visual equipment (down 21.9 percent), pharmaceutical products (down 16.1 percent), early childhood education (down 33.6 percent) and computing equipment (down 16.9 percent)

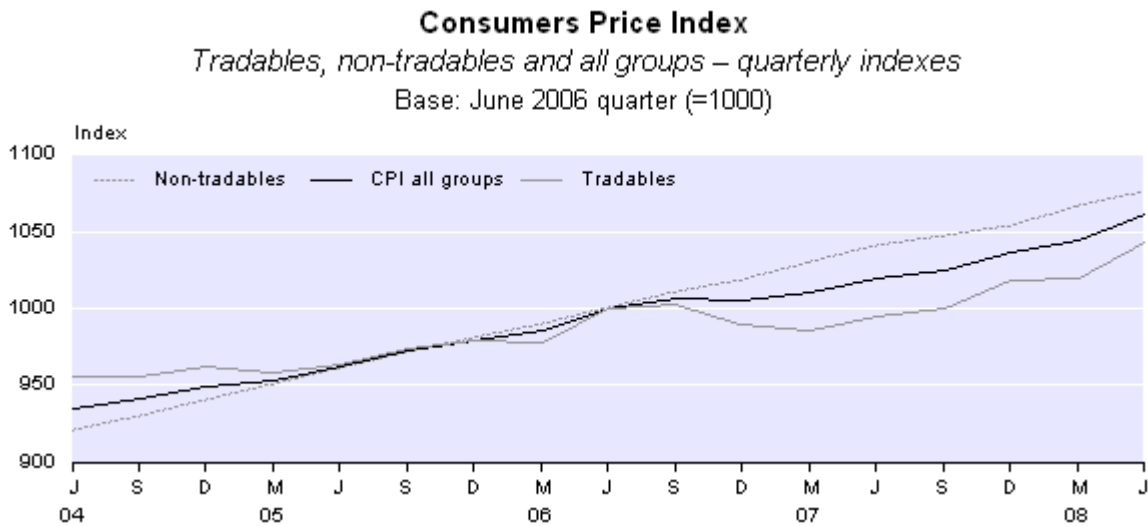
CPI all groups and tradable and non-tradable component series

In the June 2008 quarter, the tradable component increased 2.3 percent, following an increase of 0.2 percent in the March 2008 quarter. The most significant contribution to the tradable component came from petrol. The tradable component would have risen 0.8 percent if petrol prices had remained constant over the same period.

The non-tradable component increased 0.9 percent, following an increase of 1.1 percent in the March 2008 quarter.

For the year to the June 2008 quarter, the tradable component rose 4.8 percent and the non-tradable component increased 3.4 percent. The most significant upward contribution to the tradable component came from petrol. If petrol prices had remained constant over the same period, the tradable component would have increased 2.1 percent. A significant downward contribution came from audio-visual and computing equipment.

Within the non-tradable component, the most significant upward contribution to the annual movement came from purchase of new housing, electricity, and actual rentals for housing.



Transport

Prices for the transport group rose 4.9 percent in the June 2008 quarter, following increases of 0.8 percent and 3.2 percent in the March 2008 and December 2007 quarters, respectively. The most significant individual upward contribution came from higher prices for petrol (up 12.8 percent). If petrol prices had remained constant from the March 2008 quarter to the June 2008 quarter, the CPI would have increased 1.0 percent. Diesel (up 29.0 percent), domestic air transport (3.9 percent), and international air transport (1.7 percent) also made significant upward contributions to the transport group.

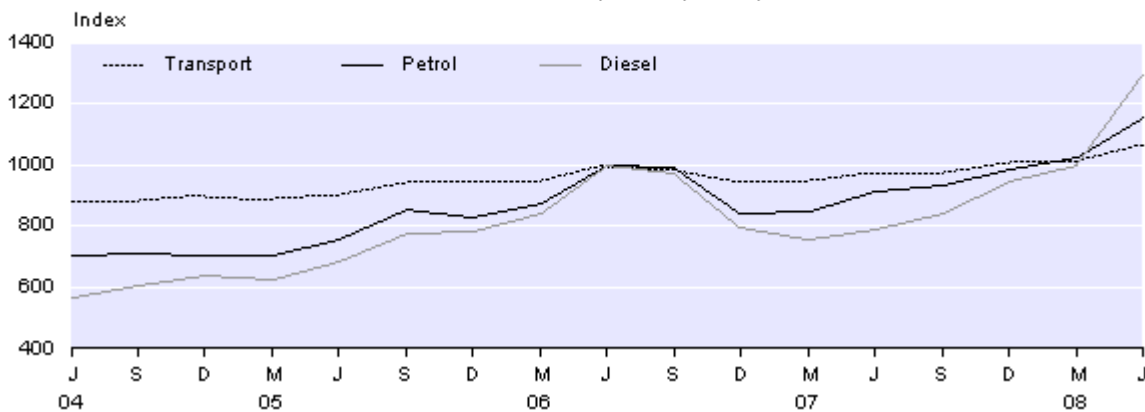
The most significant downward contribution came from lower prices for purchase of second-hand motor cars (down 0.9 percent).

The transport group increased 9.6 percent from the June 2007 quarter to the June 2008 quarter. The most significant individual upward contributions came from higher prices for petrol (up 25.9 percent). If petrol prices had remained constant from the June 2007 quarter to the June 2008 quarter, the CPI would have increased 2.7 percent.

Transport Group and Selected Classes

Quarterly indexes

Base: June 2006 quarter (=1000)



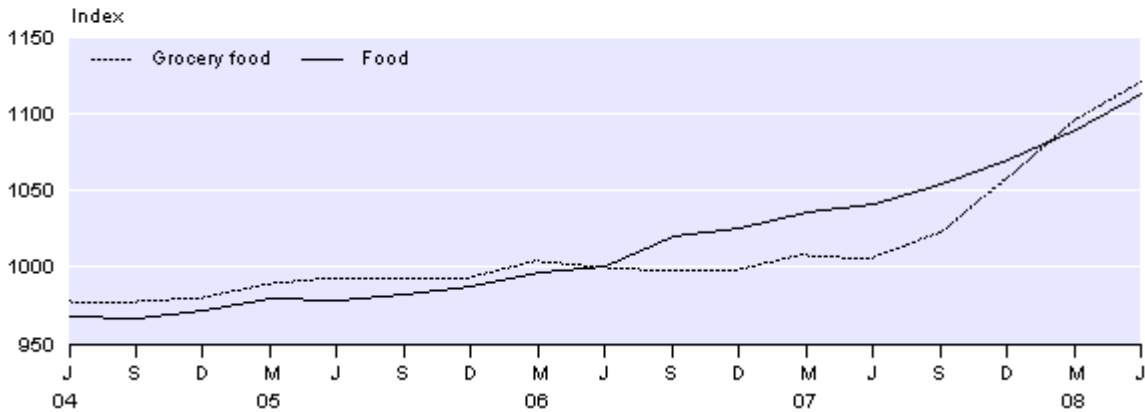
Food

Prices for the food group rose 2.2 percent in the June 2008 quarter, following increases of 1.8 percent and 1.5 percent in the March 2008 and December 2007 quarters, respectively. All five of the food subgroups increased in the June 2008 quarter. The most significant upward contribution came from higher prices for the grocery food subgroup (up 2.3 percent). This is followed by, in order of significance: fruit and vegetables (up 4.9 percent), restaurant meals and ready-to-eat food (up 2.0 percent), meat, poultry and fish (up 1.3 percent), and non-alcoholic beverages (up 0.6 percent).

Within the grocery food subgroup the main contributors to the 2.3 percent increase were higher prices for bread (up 4.0 percent) and snack foods (up 6.5 percent).

The food group increased 6.9 percent from the June 2007 quarter to the June 2008 quarter. The most significant upward contribution came from higher prices for the grocery food subgroup (up 11.4 percent). This was followed by, in order of significance: restaurant meals and ready-to-eat food (up 5.3 percent), fruit and vegetables (up 4.0 percent), meat, poultry and fish (up 2.9 percent), and non-alcoholic beverages (up 4.6 percent) subgroups.

Food Group and Grocery Food
Quarterly indexes
Base: June 2006 quarter (=1000)



Housing and household utilities

The housing and household utilities group increased 1.2 percent in the June 2008 quarter, following increases of 1.0 percent and 0.9 percent in the March 2008 and December 2007 quarters, respectively.

Prices for electricity rose 3.6 percent in the June 2008 quarter, following increases of 0.8 percent and 1.2 percent in the March 2008 and December 2007 quarters, respectively.

Prices for the purchase of new housing increased 1.1 percent in the June 2008 quarter, following increases of 0.9 percent and 1.3 percent in the March 2008 and December 2007 quarters, respectively. Respondents were asked to indicate reasons for any reported changes in their prices. Of the respondents reporting increases in the June 2008 quarter, 93 percent cited higher prices for construction components as a contributing factor to the increase.

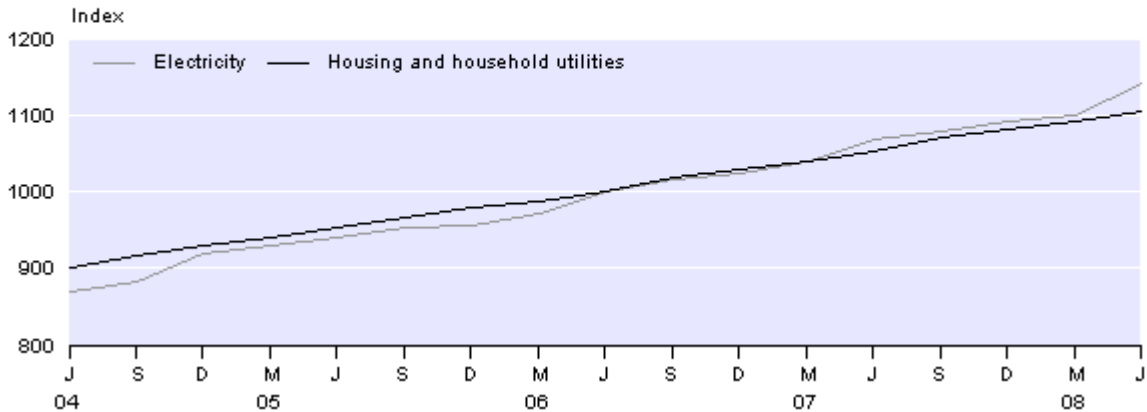
Actual rentals for housing rose 0.7 percent in the June 2008 quarter, following rises of 1.2 percent and 0.5 percent in the March 2008 and December 2007 quarters, respectively. Actual rentals for housing has now increased every quarter since June 2001.

The housing and household utilities group increased 5.0 percent from the June 2007 quarter to the June 2008 quarter. The most significant upward contributions came from higher prices for the purchase of new housing (up 5.2 percent), electricity (up 6.6 percent), actual rentals for housing (up 3.1 percent), and local authority rates and payments (up 6.7 percent).

Housing and Household Utilities Group and Selected Classes

Quarterly indexes

Base: June 2006 quarter (=1000)



Other groups

In the June 2008 quarter, upward movements were also recorded for the following groups: health (up 1.0 percent), clothing and footwear (up 0.6 percent), miscellaneous goods and services (up 0.4 percent), household contents and services (up 0.3 percent), and communication (up 0.5 percent). Combined, these groups contributed 1.46 index points to the overall CPI movement.

The 1.0 percent increase in health was driven by a 1.2 percent increase in medical services (up 1.7 percent).

The education group recorded no overall change.

In the June 2008 quarter, the recreation and culture subgroup (down 0.5 percent) and the alcoholic beverages and tobacco subgroup (down 0.2 percent) recorded downward contributions. Combined, these two subgroups contributed -0.69 index points to the overall CPI movement.

The 0.5 percent fall in recreation and culture subgroup was mainly driven by lower prices for audio-visual and computing equipment (down 4.4 percent).

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Release of the reweighted CPI for the September 2008 quarter

The release of the September 2008 quarter CPI will be a week later than usual, due to the implementation of the regular review of the index.

The September 2008 quarter CPI will be published on 21 October 2008, to allow time to implement changes made as part of the review. The index will incorporate:

- an updated basket of goods and services
- an updated expenditure-weighting pattern.

An information paper on the CPI review will be released on 7 October 2008. The paper will fully document the review, and include:

- the new expenditure weights down to the third level of the new expenditure classification
- details of changes made to the basket of representative goods and services
- the table layout that will be used for the September 2006 quarter Hot Off The Press and subsequent releases.

The information paper will be available on Statistics New Zealand's website and it will be sent to all CPI Hot Off The Press subscribers.

The reweighted Food Price Index (FPI) for July will also be released later than usual, on 25 August 2008. The August 2008 FPI will be published on 11 September, and the September 2008 FPI on 21 October, the same day as the reweighted CPI for the September 2008 quarter.

Subsequent CPI and FPI releases will be published at the usual times.

For further information or to join the list of interested parties please contact:
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Next release ...

Consumers Price Index: September 2008 quarter will be released on 21 October 2008.

Technical notes

What the Consumers Price Index measures

The Consumers Price Index (CPI) measures the rate of price change of goods and services purchased by households. The CPI all groups index is prepared quarterly. The food group is the only commodity group of the CPI for which an index is prepared each month.

2006 CPI review

The CPI underwent a major review in 2006. The CPI review was implemented with the publication of the reweighted September 2006 quarter CPI on 25 October 2006. The review encompassed:

- updating and reweighting the sample of representative goods and services in the CPI basket
- updating the sample of retail outlets that prices are collected from
- other changes, such as the adoption of a new expenditure classification (New Zealand Household Expenditure Classification (NZHEC)).

The review was initiated when the CPI Revision Advisory Committee met in June 2004 to undertake an independent review of the practices and methods used to compile the CPI. The committee's recommendations played a major part in shaping the review.

Information paper on CPI review

An information paper, published on 28 September 2006, provides detailed information about the 2006 CPI review.

This information paper includes:

- details of changes made to the basket of representative goods and services
- the new CPI expenditure weights down to the third level of the new expenditure classification
- details of how these weights were derived
- back-cast index time series, compiled using the new classification, up to the June 2006 quarter, inclusive
- details of progress made towards implementing the CPI Revision Advisory Committee's recommendations.

The information paper, entitled *Consumers Price Index Review (September 2006 (revised))*, is available electronically on the Statistics New Zealand website.

Expression base

The CPI has an expression base of the June 2006 quarter (=1000). The June 2006 quarter was the final quarter calculated and published on the previous base of the June 1999 quarter (=1000).

For categories under the new expenditure classification that have equivalent indexes under the old classification system, the previously published percentage changes for periods up until the June 2006 quarter have been preserved by scaling the index numbers so that the June 2006 quarter is set to 1000. For categories with no equivalent existing series, a new time series has been calculated back to the June 1999 quarter.

Price movements for the updated and reweighted basket from the June to September 2006 quarters have been linked to the rescaled series at the June 2006 quarter.

Rounding of index numbers and calculation of percentage changes

Published index numbers are rounded to the nearest index point for all periods following the expression base. The rounding of index numbers takes place as the final step before dissemination. That is, the CPI structure is calculated, class to subgroup, subgroup to group, and groups to all groups, and then after that, rounding of index numbers occurs at each level.

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 expression base, rounded index numbers (for the later period) should be compared to unrounded index numbers (for the earlier period).

Pricing coverage

Prices are obtained by price collectors from retail outlets in 15 urban areas: Whangarei, Auckland, Hamilton, Tauranga, Rotorua, Napier-Hastings, New Plymouth, Wanganui, Palmerston North, Wellington, Nelson, Christchurch, Timaru, Dunedin and Invercargill. Before 1988, 25 regions were sampled. In 1998 the number was reduced to 20, and in 1991 to 15. The territorial authorities of the 15 regional pricing centres account for about 69 percent of New Zealand's total resident population.

However, the prices of some goods and services are collected by postal questionnaires. 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 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.

The 2006 review looked at options for optimising the regional sample allocation, given existing resources.

Analysis was carried out on the impact of reducing the number of pricing centres on the CPI. However, due to concerns about the cumulative effect that periodically reducing the number of regional centres would have on the population coverage of price collection, the preferred approach was to retain all 15 centres but to reallocate resources to align them more closely with the importance of the regions than is currently the case. Public submissions were generally in favour of the proposed option, and a decision was made to adopt this approach. This has resulted in more prices being collected from the larger pricing centres, particularly Auckland.

Pricing frequency

Prices are collected weekly, monthly, quarterly or annually, depending on the expected frequency of price changes exhibited by the good or service. Weekly surveys are conducted for fresh fruit and vegetables, and motor fuels. Monthly surveys are limited to the following commodities: food, non-food groceries, electricity, gas, tobacco, alcoholic drinks, newspapers, Internet, cellphones, rental cars, and domestic and international air travel. Some items are monitored throughout the quarter, eg telephone call charges. Mortgage interest is also surveyed monthly but has been excluded from the CPI all groups calculations from the June 1999 quarter rebase.

Changes in expenditure weights

The main source of CPI weights is the Household Economic Survey (HES). However, data also comes from a variety of independent sources, including retail trade statistics, the census, building consents, data from the national accounts, and a variety of government and industry sources.

The total estimated expenditure used to create the weights in 2006 was \$69.6 billion, compared with total estimated expenditure in 2002 of \$58.6 billion, an increase of 19 percent. This is due in part to inflation, population growth, growth in real expenditure and change, and improvements in the methods and data sources used to derive the weights.

When 2000/01 HES expenditure estimates were originally published, they were based on a benchmark number of 1,371,000 private households living in permanent dwellings. Prior to publication of the 2003/04 HES expenditure estimates in 2004, it was found that the benchmark number of households used in 2000/01 was understated. Updated 2000/01 HES expenditure estimates were published in 2004. They were based on a revised number of 1,432,000 households. This resulted in the 2000/01 HES expenditure estimates increasing by about 4 percent, on average, across the expenditure classification.

The benchmark number of households for the 2003/04 HES was 1,494,500, 4.3 percent higher than the updated benchmark for 2000/01, and 9.0 percent higher than the original benchmark.

The originally published 2000/01 HES expenditure estimates were used to calculate the 2002 CPI weights. This means that CPI expenditure weights for 2002, which were independently estimated from other sources, were slightly overweighted relative to the weights derived directly from the 2000/01 HES. All things being equal, the independently estimated weights for 2006 have slightly lower relative importance than they did in 2002, as the 2003/04 HES estimates are based on higher population benchmarks.

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

Prior to 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 June 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 will be 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 will provide annual movements on a fully unadjusted basis during the year-long transition of the official CPI, during which annual movements will be based on fully unadjusted index numbers for the latest quarter, compared with partly adjusted index numbers for the same quarter of the previous year.

New elementary aggregate formula

Prior to the review, the CPI used a 'ratio of arithmetic mean prices' (or Dutot) formula to combine surveyed prices at the first (or elementary) stage of aggregation. The Dutot formula is:

$$P_{DU} = \frac{\sum_{i=1}^N \left(\frac{1}{N}\right) P_i^1}{\sum_{i=1}^M \left(\frac{1}{M}\right) P_i^0}$$

Where:

P_i^1 = Price of item i ($i=1 \dots N$) in period 1

P_i^0 = Price of item i ($i=1 \dots M$) in the base period

In practice, Statistics NZ uses a weighted arithmetic mean formula, with the weights, where available, representing the relative importance of outlet types, such as department stores, to appliance stores.

For the rebased CPI, the Jevons formula will be used to calculate the elementary aggregate indexes for items where outlet substitution is possible (eg for groceries and appliances). The Jevons formula is:

$$P_{JE} = \prod_{n=1}^N \left(\frac{P_n^1}{P_n^0} \right)^{\frac{1}{N}}$$

Where:

P_n^1 = Price of item n ($n=1 \dots N$) in period 1

P_n^0 = Price of item n ($n=1 \dots N$) in the base period

In practice, Statistics NZ uses a weighted geometric mean formula, with the weights, where available, representing the relative importance of outlet types, such as department stores, to appliance stores.

The Jevons formula is used to calculate the elementary aggregate indexes for items where outlet substitution is possible (eg for groceries and appliances). The Dutot formula will continue to be used for other 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.

The Dutot formula assumes that households purchase the same quantities at each surveyed outlet in each period. By comparison, the Jevons formula assumes that households spend the same amount at each surveyed outlet in each period. This implies that increased quantities are purchased from outlets showing lower-than-average relative price change, and decreased quantities from outlets showing higher-than-average price change. Use of the Jevons formula is recommended by the International Labour Office for goods and services where households are able to substitute towards outlets showing lower relative price change.

Use of retail transaction data

For the 2006 CPI review, substantial use was made of retail transaction data, obtained from ACNielsen in New Zealand and from GfK in Australia.

ACNielsen collects details of sales of barcoded products that are scanned at checkout counters in supermarkets up and down the country. Aggregate sales information was obtained for about 375 categories, broken down by quarter, leading manufacturer, leading brand and, in some cases, variety.

GfK collects similar information for a range of small and large appliances sold through most of New Zealand's main appliance retailers and department stores. Information was obtained on the volume and value of sales of about 30 different categories, broken down by feature. For example, the information quantifies the relative importance of colour TVs with standard, LCD and plasma displays.

The ACNielsen and GfK information has been used to help:

- determine the expenditure weights of some goods in the CPI basket
- determine whether expenditure weight adjustments were required to reflect volume changes since 2003/04 and, if so, by how much
- select representative products to survey when price collectors visit retail outlets each month or quarter
- ensure that the mix of brands in the CPI price samples reflect market shares.

Supermarket information relating to the year to June is being obtained once a year from ACNielsen. Appliance information for the years to June 2004, 2005 and 2006, broken down by calendar quarter, has been obtained from GfK.

The ACNielsen and GfK data will also be used on an ongoing basis between the three-yearly reweights to assist with keeping product samples, brand shares and weights (below the class level of the NZHEC classification) up to date.

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

As the CPI and Food Price Index (FPI) have been reweighted and re-expressed in the June 2006 quarter, 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, can be simplified for the September 2006 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 following these steps:

1. Adjust 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. Calculate the index points effect on the higher-level index of the specified change in the lower-level index:

$$PE_{(low\ on\ high)} = \left(\frac{W_{Jun-06,low}}{W_{Jun-06,high}}\right) \times (I_{n,low} - I_{n-1,low})$$

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

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

Where:

I : index

n : period n, where n is the September 2006 quarter or a subsequent quarter (CPI), or the July 2006 month or a subsequent month (FPI)

n-1 : (period n)-1

Jun-06 : June 2006 quarter (CPI) or June 2006 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 5.38 percent in the CPI) from the June 2006 quarter to the September 2006 quarter would have on the all groups CPI index can be calculated as follows:

1. Increase the petrol index for the June 2006 quarter by 5.0 percent to derive the index number for the September 2006 quarter:

$$\begin{aligned}
 I_{\text{Sep-06,low}} &= I_{\text{Jun-06,low}} \times \left(1 + \left(\frac{PC_{\text{Sep-02,low}}}{100}\right)\right) \\
 &= 1000 \times \left(1 + \left(\frac{5}{100}\right)\right) \\
 &= 1050
 \end{aligned}$$

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

$$\begin{aligned}
 PE_{(\text{low on high})} &= \left(\frac{W_{\text{Jun-06,low}}}{W_{\text{Jun-06,high}}}\right) \times (I_{\text{Sep-06,low}} - I_{\text{Jun-06,low}}) \\
 &= \left(\frac{5.38}{100}\right) \times (1050 - 1000) \\
 &= 2.69 \text{ index points.}
 \end{aligned}$$

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

$$\begin{aligned}
 PC_{\text{Sep-06,high}} &= \left(\left(\frac{I_{\text{Jun-06,high}} + PE_{(\text{low on high})}}{I_{\text{Jun-06,high}}}\right) - 1\right) \times 100 \\
 &= \left(\left(\frac{1000 + 2.69}{1000}\right) - 1\right) \times 100 \\
 &= 0.3 \text{ percent.}
 \end{aligned}$$

Treatment of selected items

Fuel discount schemes

Fuel discount schemes, related to spending at supermarkets and in-store at petrol stations, were launched in late October, November and December 2006. These new schemes and existing supermarket-related fuel discount schemes were incorporated into the CPI for the first time in the December 2006 quarter. Information on the volume and value of discounts attributable to private households is being used to adjust surveyed petrol and diesel pump prices. Further schemes, related to spending at other types of retail outlets, were added to the CPI in the March 2007 quarter.

Method of aggregating monthly collected prices from the monthly level 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 New Zealand quarterly index by weighting together regional price movements from the base (ie June 2006) 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 the 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 2006) 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 after the first price collection of a quarter is reflected only partly 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.

Distribution of item-level index movements

The Distribution of Item-level Index Movements table in the Commentary section of this release gives additional information on the distribution of price movements recorded 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 by 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.

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 Hot Off The Press release tables, and additional series are publicly available on INFOS.

Examples of these non-standard series include:

- All groups CPI less food
- All groups CPI plus interest
- Interest.

The series references for the CPI and FPI INFOS groups (CPIQ and CPIM) have changed as a result of the new NZHEC expenditure classification being adopted. The CPIQ and CPIM series references on INFOS now include the new classification category numbers and are expressed on bases of the June 2006 month or quarter (=1000).

The CPI is published at the following levels: group, subgroup and class, at the national level.

All series that were published under the old classification and on a base of the June 1999 month or quarter (=1000) have had changes to their references. The old references that began with CPIM or CPIQ have been relabelled CPYM or CPYQ, respectively. The CPYM and CPYQ series are being ceased at the June 2006 month or quarter, but will remain available on INFOS for those who wish to refer to series on the old expression base.

The new CPIQ series, expressed on a base of the June 2006 quarter (=1000), are given in the tables attached to these Technical notes.

Availability of regional indexes

The previously published 15 region series will not be published after the June 2006 quarter. These series are not considered 'fit for purpose', as price movements from national or broad region price collection have been used in their compilation.

However, in their stead, series for five broad regions will be produced: 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 will make less significant use of national pricing indicators in their compilation. The 15 region series will continue to be calculated and are available only upon request.

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); and the other contains goods and services that face no foreign competition (non-tradables). Movements in the tradables component (tradable inflation) demonstrate how international price movements and exchange rates are impacting on movements in consumer prices. The non-tradables component shows how domestic demand and supply conditions are affecting consumer prices.

The June 2006 quarter expenditure weight of the tradables component is 46.32 percent, compared with 44.42 percent in 2002. The June 2006 quarter weight of non-tradables is 53.68 percent, compared with 55.58 percent in 2002.

The reduced weight for non-tradables in part reflects lower weights for purchase of housing and insurance caused by methodology or estimation changes. Strong growth in petrol prices also contributed to tradables gaining a greater share of the weight.

The June 2006 quarter tradable/non-tradable weights at the group, subgroup and class levels of the NZHEC classification are included in the supplementary tables with the web version of the CPI review information paper: *Consumers Price Index Tradable and Non-tradable Series – Information Paper* available on the Statistics New Zealand website. This contains detailed information regarding the methodology.

Trend measures of price-level change

The CPI captures the broad pattern of price change over the long term, but over shorter horizons the trend in price change may be masked by one-off events. In particular, the CPI:

- can be subject to temporary influences, such as adverse climatic conditions affecting the prices of fresh fruit and vegetables
- is influenced by other supply disturbances, which, while they affect the cost of living, do not directly affect the underlying inflationary pressures in the economy. For example, supply disturbances for petrol or electricity can have a large impact on the CPI in the short term, and
- some items are subject to seasonality, such as international air fares and rental car hire, which may induce volatile short-term price behaviour.

In order to provide an indication of the trend in the CPI over time, alternative statistics, sometimes known as trend measures of price-level change, are calculated in an attempt to isolate the more persistent component of general price-level changes.

Several series are constructed to give a good guide to the trend in price-level change (5, 10, 15, 20, 25 and 30 percent trims), and a weighted median measure (the 50th percentile) is produced. Four other weighted percentile measures are also available (the 10th, 25th, 75th and 90th weighted percentiles), primarily to highlight the distribution of price changes within a particular time period. Where the distribution of price movements is positively skewed, the weighted median movement will tend to lie below the CPI movement. Where the distribution of price movements is negatively skewed, the weighted median movement will tend to lie above the CPI movement.

For detailed information regarding the methodology and compilation of trimmed means and weighted medians, an information paper titled *Trend Measures of Price Level Changes: Trimmed Means and Weighted Medians* is available electronically on the Statistics NZ website.

Annual trend measures spanning a reweighting period

When the CPI is reweighted, as happened at the June 2002 quarter and again at the June 2006 quarter, there is a transition period during which the percentage changes used to calculate the annual trimmed mean and weighted percentile measures span the price reference period. The annual measures are calculated by directly weighting annual percentage changes, rather than by aggregating the four relevant quarterly percentage changes.

As the June 2006 quarter reweight resulted in some significant relative changes in expenditure weights (such as for petrol and the purchase of new housing), Statistics NZ made two sets of annual trimmed mean and weighted percentile measures available during the transition across the June 2006 quarter reweight. The two sets of figures were based on:

- 'price-updated' June 2002 quarter expenditure weights
- 'price-backdated' June 2006 quarter expenditure weights.

Two sets of figures were released for the September 2006, December 2006 and March 2007 quarters. From the June 2007 quarter onwards, only the June 2006 quarter expenditure weights will be used.

Statistics NZ considers that the transition across the June 2006 quarter reweight has resulted in a structural break in the annual trimmed mean and weighted percentile time series. For this reason, the annual time series based on the June 2002 quarter expenditure weights, and on the June 2006 quarter expenditure weights, will be presented as separate time series, with an overlap period of three quarters. The annual series based on the June 2002 quarter expenditure weights cease at the March 2007 quarter. The annual series based on the June 2006 quarter expenditure weights commence with figures for the September 2006 quarter and will be updated on an ongoing basis.

An information paper titled *Transition across reweights for trimmed means and weighted percentiles* is available electronically on the Statistics NZ website.

Central and local government charges non-standard series

The central and local government charges index, which appears in Tables 3.01, 3.02 and 3.03, made up 9.53 percent of the CPI in the June 2006 quarter. It includes items such as Housing NZ and local authority rentals, land transfer registration fee, 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 school donations and fees, university and polytechnic fees, and cheque duty.

However, the current composition of the “Central and Local Government Charges” series is being reviewed. Users are invited to consult with Statistics New Zealand on the use they make of the current series. Upon completion of the review, the series will either be continued under its existing composition or new series of indexes will be produced to replace it.

Goods and services non-standard series

The goods and services component series that appear in Tables 3.01, 3.02 and 3.03 allow users to decompose CPI into its goods and services components, respectively. The goods component made up 62.90 percent, while the services component 37.10 percent, in the June 2006 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, 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); and the 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 in the goods component.

Detailed contribution information tables

Tables 8.01 and 8.02 includes 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 contribution from the previous quarter and from the same quarter of the previous year. These tables have been included to provide a broader perspective of the categories contributing to the movement in the all groups CPI. In cases 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 contained within tables 8.01 and 8.02 is calculated from unrounded index numbers. Percentage changes have been calculated from index numbers rounded to the nearest index point (see 'Rounding of Index numbers', 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.

Index points contribution measure the contribution of each group, subgroup and class to the overall quarterly and annual change in index points in the all groups CPI.

Percentage point contribution measures the contribution of each group, subgroup and class to the overall quarterly and annual percentage change in the all groups CPI. For any particular level of the CPI classification, such as the group level, percentage points contribution add to the overall percentage change in the all groups CPI.

Percentage contribution measures the relative contribution of each group, subgroup and class to the overall quarterly and annual index points (or percentage) change in the all groups CPI. For any particular level of the CPI classification, such as the group level, percentage contributions add to 100 percent.

While the contribution information is given to different decimal places for index points effect, percentage contribution and percentage contribution, all three measures have the similar level of accuracy.

Calculating scenarios for holding prices constant

One analysis often contained within the commentary of this release is an examination of hypothetical quarterly and annual percentage changes in the all groups CPI, or tradable or non-tradable components, if prices for a particular class or item under consideration had remained unchanged. These scenarios are constructed by removing the index points contribution of the class or item under consideration from the CPI all groups index number. This assumes that the item remains in the basket of goods and services, but its price remained unchanged over the period of comparison. As such analyses use rounded index numbers, the final step is to round the new hypothetical CPI all groups index number to the nearest index point before calculating percentage changes.

These scenarios can be calculated using information contained within table 8.01 and 8.02. This can best be done by subtracting the percentage point contribution of a class from the total CPI all groups percentage change (calculated from unrounded index numbers). Note that this is approximating the method used above and results may differ slightly to those contained within the commentary of this release, due to the final step of rounding the new hypothetical index numbers to the nearest index point.

Note that the analysis of holding prices constants differs from an analysis that excludes the class or item from the basket.

Average retail prices in the CPI

Included in this Hot Off The Press is a selection of average retail prices for the current and previous quarter. The weighted average prices will be 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.

As part of the CPI review, the selection of items appearing in the tables has been reviewed, and the items have been grouped under their corresponding group headings.

With the adoption of the Jevons elementary aggregate formula as part of the current review, the average prices in these tables will be calculated differently for some items. For some items, a weighted arithmetic mean price is calculated for each of the 15 pricing centres. The weights reflect the relative importance of sampled outlets. These regional arithmetic mean prices are then weighted by the population weights assigned to pricing centres (see Table 6) to calculate a national weighted arithmetic mean price. For other items, a weighted geometric mean price is calculated for each of the pricing centres. The weights reflect the relative importance of sampled outlets. These regional geometric mean prices are then weighted by the pricing centre population weights to calculate a national mean price using a weighted arithmetic mean formula.

For any given set of prices, a geometric mean price is less than or equal to an arithmetic mean price. This means that the June 2006 quarter average prices for items where the Dutot formula is adopted will in many cases be lower than those that appeared in the June 2006 quarter CPI Hot Off The Press. Other factors that will cause the new quarter average prices to differ from the previously published ones include:

- the sample of retail outlets has been updated
- the relative importance of sampled outlet types (eg department stores and appliance stores) has been updated
- the mix of surveyed brands, varieties and sizes has been updated
- the reference size in the 'unit' column of the tables has changed for some items.

International comparisons of consumer price indexes

To provide a better basis for international comparisons, the Seventeenth International Conference of Labour Statisticians adopted a resolution that called for countries to "if possible, compile and provide for dissemination to the international community an index that excludes housing and financial services" in addition to the all items index. Table 4 presents the CPI less housing and household utilities group and credit services class series. Data for other international statistics offices is calculated by the Australian Bureau of Statistics from information supplied by the source country.

More information

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

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Tables

The following tables are printed with this Hot Off The Press and can also be downloaded from the Statistics New Zealand website in Excel format. If you do not have access to Excel, you may use the [Excel file viewer](#) to view, print and export the contents of the file.

1. 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. Consumers price index, weighted average retail prices of selected items
6. Consumers price index expenditure weights, by group
7. Consumers price index population weights, by region
- 8.01. Consumers price index, groups, subgroups and classes, contribution to all groups and percentage change from previous quarter
- 8.02. Consumers price index, groups, subgroups and classes, contribution to all groups and percentage change from same quarter of previous year
9. Consumers price index, expenditure weights, groups, subgroups and classes
10. Consumers price index, COICOP divisions – index numbers and percentage changes

Supplementary tables

The following tables can be downloaded from the Statistics New Zealand website in Excel format. If you do not have access to Excel, you may use the [Excel file viewer](#) to view, print and export the contents of the file.

1. Consumers price index, trimmed means and all groups
2. Consumers price index, weighted percentiles and all groups