

# Consumers Price Index Review

## 1. Introduction

The 2004 Consumers Price Index (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 have played a major part in shaping the current major review of the index.

The current CPI review will culminate in the publication of the reweighted September 2006 quarter CPI on 25 October 2006. The review has 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.

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
- backcast 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.

## 2. Summary

The current CPI review has encompassed a number of aspects. The basket of representative goods and services has been reselected and reweighted, using information from the 2003/04 Household Economic Survey (HES) and other sources. The index was last reweighted in 2002, based on the 2000/01 HES.

The sample of retail outlets from which prices are collected has been reselected for the first time since the 1999 review. Item specifications have been updated and the sample of product sizes, brands and varieties has been reselected. While the sample of 15 regional centres is remaining unchanged, price collection effort is being redistributed more towards the larger cities.

A new expenditure classification has been adopted. The new classification, called the New Zealand Household Expenditure Classification (NZHEC), is being used for both the reweighted CPI and the 2006/07 HES, which went into the field in July 2006. The new classification is based on the international standard Classification of Individual Consumption According to Purpose (COICOP) and has been adapted to suit New Zealand conditions. Index time series based on the new classification have been recast from the June 1999 quarter up to the June 2006 quarter.

The geometric means (or Jevons) formula will be used in the reweighted index to calculate elementary aggregate indexes for goods and services that are considered to be subject to outlet substitution. The Jevons formula, which is recommended by the International Labour Office (ILO), implicitly assumes that consumers increasingly favour outlets showing lower relative price change, whereas the formula used in the current CPI, the ratio of arithmetic mean prices (or Dutot), assumes that consumers do not substitute between outlets.

The reweighted CPI All groups index will no longer include prices that are seasonally adjusted. Until the review, fresh fruit and vegetable prices were seasonally adjusted, while the prices of other goods and services known to exhibit seasonality (such as international airfares and holiday accommodation) were not adjusted. This change was recommended by the CPI Revision Advisory Committee.

The range of regional indexes that are routinely published is being reduced from the 15 regional centres to five broad regions based on regional council areas (Auckland, Wellington, Rest of North Island, Canterbury and Rest of South Island). The regional indexes currently being published are not considered fit for purpose, as they make use of national movements, where regional variation is possible, for about 30 percent of the basket (based on expenditure weight).

National movements, where regional variation is possible, are currently being used for such important goods and services as construction of new dwellings, dwelling rentals and used cars. Indexes for the five broad regions will make use of price movements that correspond to the respective broad regions for construction of new dwellings, dwelling rentals and used cars.

For the first time during a periodic CPI review, substantial use has been made of retail transaction data, obtained from ACNielsen in New Zealand and GfK in Australia. ACNielsen collects details of sales of barcoded products that are scanned at checkout counters in supermarkets up and down the country. 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. The information has been used to help determine the expenditure weights of some goods in the CPI basket, to select representative product sizes and varieties to survey, and to ensure that the mix of brands in the CPI price samples reflects market shares.

The September 2006 quarter CPI, which will be released on 25 October, will be the first published on a new expression base of the June 2006 quarter (=1000).

### **3. CPI Revision Advisory Committee process**

The use of CPI advisory committees is recommended by the ILO. The ILO's *Resolution Concerning Consumer Price Indices* states:

"The ... agency ... should consult representatives of users ... particularly during preparations for any changes to the methodology used in compiling the CPI. One way ... is through the establishment of advisory committees."

The first New Zealand CPI Revision Advisory Committee was appointed in 1948, and committees have been convened periodically since, with the most recent three being in 1991, 1997 and 2004. The 1991 and 1997 committees had 16 and 14 members and were chaired by the Government Statistician. The 2004 committee, which had seven members, was chaired by John McDermott (then Chief Economist of the National Bank) and was selected to bring professional expertise and the confidence of stakeholders to the review process.

The 2004 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 considered papers, prepared by Statistics New Zealand, on a range of key issues, and submissions made by the public.

The committee's report was tabled in Parliament and published in October 2004.

The committee's 20 recommendations have played a major part in shaping the development work programme in the lead-up to the forthcoming implementation of the reweighted CPI. Details of progress made towards implementing the CPI Revision Advisory Committee's recommendations are given in section 22.

### **4. Publication timetable and seminar on the review**

The reweighted Food Price Index (FPI) was published for July 2006 on 25 August 2006. The FPI has been re-expressed on a base of the June 2006 month (=1000).

The current review will culminate in the publication of the September 2006 quarter CPI on 25 October 2006.

The release dates for the July 2006 FPI and the September 2006 quarter CPI are later than usual, to allow time to implement changes made as part of the review.

Users are invited to attend a seminar on the CPI review. The seminar will be held at 2.30pm on Tuesday 3 October 2006 at Statistics NZ's Wellington office, Statistics House, The Boulevard, Harbour Quays. The seminar will commence with an overview of the review, and will provide an opportunity for attendees to discuss any aspect of the review in more detail.

## **5. Reselecting the basket**

The CPI basket of representative goods and services is reviewed approximately once every three years to ensure it continues to reflect household purchases. The aim of such reviews is to introduce goods and services that have become available since the previous review (provided that they have achieved a sufficient share of household spending) or have grown in importance, and to remove from the basket goods and services that have declined in importance to the extent that they no longer have a significant share of household spending.

As the sample of goods and services in the basket is representing a much wider range of goods and services acquired by households, steps are taken to ensure adequate representation. This means that areas of the expenditure classification showing relatively high variability in price movements across goods and services (eg fresh vegetables, audio and visual appliances) may require greater representation in the basket than areas showing relatively low variability (eg cigarettes and tobacco).

The current review of the basket was informed by lower-level 2000/01 and 2003/04 HES expenditure data, feedback from CPI price collectors, and retail transaction data obtained from ACNielsen (supermarkets) and GfK (electrical appliances).

Representative goods and services that have been added to the basket as part of the current review include:

- beans
- parsnips
- spring onions
- canned tomatoes
- pork roasts (replaced pork strips)
- frozen fish fillets (replaced frozen fish fingers)
- soy sauce (replaced worcestershire sauce)
- dried herbs (replaced peppercorns)
- canned soup (replaced soup powder)
- frozen complete meals
- bottled water
- kitchen mixer taps (replaced laundry tub taps)
- bottled gas (replaced coal)
- entertainment units (replaced wall units)
- rice cookers
- kitchen knives (replaced forks)
- nasal sprays
- panelbeating
- road-user charges (were added to the index, after the 2002 reweighting, in 2005)
- courier charges
- VCR/DVD combination players (replaced VCRs)
- DVD players/recorders (players were already in the basket)
- home theatre systems

- flat-panel television sets (conventional cathode ray tube (CRT) television sets were already in the basket)
- MP3 players (replaced personal portable compact disc players)
- laptop computers (desktop computers were already in the basket)
- digital recording media (recordable compact discs and digital camera memory cards)
- spa pools (replaced swimming pools)
- surfboards
- barbecues
- indoor plants
- digital photo printing (replaced conventional photo processing)
- overseas package holidays prepaid in New Zealand
- beauty therapy services.

Goods and services removed from the basket, generally because of low expenditure, include:

- takeaway soup
- sherry
- knitting needles
- refrigerator (refrigerator/freezers remain in the basket)
- clothes line
- dermatology cream
- television repair
- atlas
- hairspray
- store-card fees.

## 6. Sample review

The sample of retail outlets from which prices are collected has been reselected for the first time since the 1999 CPI review. The sample of 15 pricing centres has remained unchanged. However, price collection effort is being redistributed to align more closely with the population shares of the regions. This has resulted in more prices being collected in the larger pricing centres, particularly Auckland. The objective of this reallocation was to maximise the accuracy of the national CPI, while taking into account a secondary requirement to produce regional indexes of good quality.

The pricing specifications for the goods and services priced at retail outlets have been reviewed to ensure that surveyed varieties and sizes are representative of household purchases. The samples of product sizes, brands and varieties have been reselected.

For each grouping of similar goods and services in the basket, price collectors in each of the 15 regional centres were given target numbers of outlets to select, broken down by store type (such as 'department store' and 'appliance store'). Store type information from the HES was used to determine the main store types for each group of similar goods and services in the basket. In some cases, price collectors were also given further guidance about specific chains to include in the sample. Price collectors then used their judgement to select representative retail outlets in the pricing centres, to meet the target numbers of outlets.

Summary information collated from retail transaction data for supermarkets (obtained from ACNielsen) and for appliances (obtained from GfK) was used to:

- determine representative specifications for goods in the basket
- provide price collectors with information about the market shares of the main brands
- provide price collectors with specific brand-share targets for selected goods, to ensure that the mix of brands in the CPI price samples reflected market shares.

The new samples of outlets and products were selected in February 2006 (for goods and services where prices are collected once each quarter from retail outlets) and in March 2006 (for goods and services where prices are collected monthly from retail outlets). Price collection for the existing and new samples ran alongside each other until June 2006, when collection for the old index ceased. Hundreds of new outlets have been added to the sample. More information about changes to the composition of the retail outlets in the sample will be included in the September 2006 quarter Hot Off The Press.

**Note:** Postal questionnaires are used to collect prices for a number of sampled goods and services, including rented dwellings and construction of new dwellings. The postal samples are reselected on a rolling basis and were not specifically reviewed as part of the current CPI review.

## 7. New expenditure classification

In 2003, the ILO published a resolution that sets out international best practice guidelines for CPIs. This resolution states: "For the purposes of international comparisons, the classification should also be reconcilable with the most recent version of the United Nations (UN) Classification of Individual Consumption According to Purpose (COICOP), at least at its division level."

The 2004 CPI Revision Advisory Committee recommended that Statistics New Zealand should base the CPI classification system on the upper-level structure of COICOP (recommendation 11). The committee noted that "the standard COICOP classification may not be entirely appropriate for use in New Zealand, and should be modified accordingly as had occurred in Australia."

In considering the issue, the committee viewed the potential harmonisation between the CPI and HES classifications as the main possible benefit of adopting a COICOP-based classification. This is a practice endorsed in the ILO's *Resolution Concerning Consumer Price Indices*, which states that "there should be consistency between the classification used for index compilation and the one used for household expenditure statistics." This will make it simpler in future to map HES expenditure information to the CPI basket of representative goods and services. This should result in the derivation of CPI expenditure weights being more efficient and transparent in future.

The UN COICOP was developed under a consumption (or use) framework primarily for use in the consumption expenditure part of the national accounts. Broadly speaking, consumer price indexes can be compiled under 'use', 'acquisitions' and 'payments' frameworks. The New Zealand CPI, like the Australian CPI, is compiled using an acquisitions framework (with a payments-type add-on in the form of the 'CPI all groups plus interest' index). Under an acquisitions framework, classification categories within housing are required for expenditure on purchase of housing and on property rates, for example. These categories are not catered for in COICOP, under which owner-occupiers' consumption of shelter services is measured by imputed rents.

The New Zealand classification, while largely based on the UN COICOP, was modified so that it could be used to compile a CPI under the acquisitions framework. The composition of the new classification was also shaped by the following factors:

- the needs of CPI users
- a desire to minimise disruption to users caused by structural breaks
- a desire to group close substitutes together
- a need to be able to accommodate new goods and services into the classification with minimum disruption to higher levels
- CPI basket and weighting requirements
- HES collection constraints
- a desire to be able to reconcile with the UN COICOP at its higher levels
- a desire to align the classifications used for CPI and HES outputs.

The criterion of grouping close substitutes together influenced a decision to group takeaway food and grocery food together in the same first-level category ('01 Food'), and to group together alcoholic

beverages consumed on and off licensed premises (whilst retaining an on and off licence split at lower levels, to allow for aggregation to the standard COICOP categories).

Following development of a draft classification, a public consultation paper entitled *Review of the CPI Classification System* was made available in August 2005 for comment by September 2005. The paper presented background information and draft classification options, and indicated Statistics NZ's preferred approach. Meetings were also held with key users.

Submissions were generally in favour of a COICOP-based classification being adopted for the CPI and HES, provided that historical CPI time series compiled under the new classification were made available. Following consultation, the new expenditure classification developed for use in the CPI and HES was finalised. The classification is called the New Zealand Household Expenditure Classification (NZHEC). It is being used for the reweighted CPI and for the 2006/07 HES.

The full benefit of adopting the new classification will not be felt until the 2008 CPI reweight, based on the 2006/07 HES.

The upper three levels of NZHEC are being used to produce published CPI indexes and expenditure weights. For the reweighted CPI, there are 11 groups at the first level, and 44 subgroups and 105 classes at the second and third levels. These numbers compare with the current CPI classification's nine groups, 22 subgroups, 70 sections and 315 subsections.

CPI categories at the first level of NZHEC are:

- 01 Food
- 02 Alcoholic beverages and tobacco
- 03 Clothing and footwear
- 04 Housing and household utilities
- 05 Household contents and services
- 06 Health
- 07 Transport
- 08 Communication
- 09 Recreation and culture
- 10 Education
- 11 Miscellaneous goods and services.

The major changes in the new classification for the CPI are:

- There are now 11 groups instead of nine at the highest level.
- There is a separate group for communication goods and services. Under the old classification, these were in the household operation group.
- There is a separate group for education. Under the old classification, this was in the recreation and education group.
- There is a separate group for health. Under the old classification, this was in the personal and health care group. The remaining goods and services from the personal and health care group are now in the miscellaneous goods and services group.
- Within the food group, there is a subgroup for non-alcoholic beverages. Previously, these were part of the grocery foods subgroup and the ready-to-eat food section (poured soft drinks).
- Household fuels, such as electricity and reticulated gas, are in the housing and utilities group. Under the old classification, these were in the household operation group.
- All of the different types of insurance services are in the same group (miscellaneous goods and services). Under the old classification, insurance was split across different groups (eg dwelling insurance was in the housing group, and vehicle insurance was in the transport group).
- Audio and visual appliances and computing equipment are in the recreation and culture group. Audio and visual appliances were previously in the household operation group, and computing equipment was in the recreation and education group.

To assist with the transition to the new classification, time series back to the June 1999 quarter have been provided as supplementary tables with the web version of this paper and are available on INFOS. Statistics NZ plans to do further work on the feasibility of backcasting categories to the December 1993 quarter. If feasible, these should be available when the reweighted September 2006 quarter CPI is released on 25 October. Categories affected by the exclusion from the CPI at the 1999 review of residential sections and interest payments will not be backcast prior to 1999.

In addition to publishing indexes based on the first three levels of NZHEC, Statistics NZ intends to publish analytical COICOP series at the first level, to aid international comparisons. The first-level CPI categories of COICOP are:

- 01 Food and non-alcoholic beverages
- 02 Alcoholic beverages, tobacco and narcotics
- 03 Clothing and footwear
- 04 Housing, water, electricity, gas and other fuels
- 05 Furnishings, household equipment and routine household maintenance
- 06 Health
- 07 Transport
- 08 Communication
- 09 Recreation and culture
- 10 Education
- 11 Restaurants and hotels
- 12 Miscellaneous goods and services.

The COICOP indexes will be included in the September 2006 quarter and subsequent CPI Hot Off The Press releases as supplementary analytical tables.

## **8. Expression base**

The September 2006 quarter CPI will be the first index published on a new expression base of the June 2006 quarter (=1000). Previous series were published on a 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 will be linked to the rescaled series at the June 2006 quarter.

## **9. The CPI is no longer seasonally adjusted**

In line with recommendation 17 made by the 2004 CPI Revision Advisory Committee, the reweighted CPI All groups index will not include prices that are seasonally adjusted. Until the review, fresh fruit and vegetable prices were adjusted to remove the effect of normal seasonal change, while the prices of other goods and services known to exhibit seasonality (such as international airfares and holiday accommodation) were not adjusted.

The committee agreed that a partial approach was undesirable and that a consistent approach should be applied to the entire basket. Production of an accurate seasonally adjusted index would require subsequent revisions to published data. In the context of the uses of the CPI, the committee agreed that revisions to published data were not acceptable, and concluded that the CPI should be a fully unadjusted measure.

The fully unadjusted FPI has been linked to the partly adjusted, previously published FPI at the June 2006 month. Similarly, the ongoing, fully unadjusted CPI will be linked to the partly adjusted, previously published CPI at the June 2006 quarter linking period. The committee recognised that this may cause some short-term disruption to annual movements during the year-long transition to a fully

unadjusted CPI, but recommended that the originally published time series be maintained.

Fully seasonally unadjusted analytical series are given in Table 3 of the FPI Hot Off The Press and Tables 3.01, 3.02 and 3.03 of this paper. These analytical time series will provide annual movements on a fully unadjusted basis during the year-long transition of the official FPI and CPI, during which annual movements will be based on fully unadjusted index numbers for the latest period, compared with partly adjusted index numbers for the same period of the previous year.

The following table gives percentage changes in the All groups and All groups seasonally unadjusted series from the September 2005, December 2005 and March 2006 quarters to the June 2006 quarter. These figures indicate that the All groups annual movements during the transition are likely to be slightly higher than the All groups seasonally unadjusted series (by 0.1 to 0.2 of a percentage point), though, under a small number of scenarios, equal annual movements are possible due to index number and percentage change rounding.

Quarter	Percentage change	
	All groups	All groups – seasonally unadjusted
From Sep 05 to Jun 06	2.8	2.7
From Dec 06 to Jun 06	2.1	1.9
From Mar 06 to Jun 06	1.5	1.4

The committee also recommended (recommendation 18) that Statistics NZ should consider producing a seasonally adjusted CPI All groups index as an analytical series. However, the committee attached a relatively low priority to the production of such an index. Although some investigatory work was carried out during preparation of papers for the committee, subsequent work has yet to be undertaken, and a seasonally adjusted series will not be published when the reweighted CPI is introduced in October 2006. The issue was discussed at the April 2006 meeting of the Advisory Committee on Economic Statistics. Committee members had mixed views on the importance or value of producing seasonally adjusted CPI series.

## 10. Regional issues

There has been a strong regional aspect to the current CPI review. Following recommendations made by the 2004 CPI Revision Advisory Committee (recommendations 13, 14 and 15), a review of regional collection, compilation and publication practices was undertaken. Three key issues were investigated:

- the possible use of regional expenditure weights for use in compiling the national CPI and regional CPIs
- the sample of regions for price collection
- the range of regional indexes for publication.

These issues were explored in a public consultation paper entitled *Review of CPI Regions*, made available in December 2005 for comment by January 2006. The paper presented background information relating to each issue, presented options and indicated Statistics NZ's preferred approach. Both the consultation paper and a summary outcomes paper of the review, entitled *Outcome of the Review of CPI Regions*, are available on the Statistics NZ website.

### 10.1 Possible use of regional expenditure weights

The New Zealand CPI is constructed using national expenditure weights, which assumes the population in each region purchases the same basket of goods and services. An alternative is the regional expenditure weighting approach, which reflects any regional differences in the mix of goods and services purchased by households, and any regional differences in spending per capita. The latter approach is recognised as best practice by the ILO and is used in a number of countries.

Statistics NZ investigated the possibility of moving from national expenditure weighting to regional expenditure weighting. Analysis on the impact of introducing regional expenditure weighting showed that the differences at the national CPI level would be negligible. There was evidence that improvements to regional indexes might be possible.

In principle, Statistics NZ is in favour of adopting a regional expenditure weighting approach. However, there is little evidence that regional expenditure weighting would improve the accuracy of the national CPI. In addition, there would have been risks involved in moving to regional expenditure weighting during the current review, due to the possibility that the sampling errors of some regional expenditure estimates may be too high to be usable. Consequently, Statistics NZ made a decision to use national expenditure shares (derived from the 2003/04 HES and other sources) for the 2006 CPI rebase. These are being allocated across the 15 regional pricing centres based on the population shares of the regional council areas to which they belong (and, where there is more than one regional pricing centre within a regional council area, based on territorial authority population shares).

The 2006/07 HES sample is being allocated in a way that will result in improved regional expenditure estimates for five broad regions (Auckland, Wellington, Rest of North Island, Canterbury and Rest of South Island). However, only modest gains can be achieved given the existing sample size of almost 3,000 households. Statistics NZ will consider revisiting the issue of regional expenditure weighting after the CPI rebase in 2006. Possible options include constructing experimental series based on the 2003/04 HES, following the current CPI review, so that the quality and credibility of the resulting indexes and regional expenditure weights can be assessed. This would provide a firm basis for deciding whether to formally adopt regional expenditure weights using 2006/07 HES data.

### **10.2 Sample of regions for price collection**

In order to reflect any variations in price movements across different regions, prices for the CPI are mainly collected from retail outlets in 15 regions throughout New Zealand. The 15 regional centres are: 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 the total population.

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

Statistics NZ carried out an analysis on the impact of reducing the number of pricing centres on the CPI. Due to concerns about the cumulative effect that periodically reducing the number of regional centres would have on the population coverage of price collection, Statistics NZ's preferred approach was to retain all 15 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.

### **10.3 Range of regional indexes**

At present, regional indexes are publicly available for the 15 regions. However, the resulting regional CPIs are not considered accurate measures of regional price movement, due mainly to the use of national expenditure weights and national average prices where regional variation is possible for 30 percent of the basket (including construction of new dwellings, rented dwellings and used cars).

Statistics NZ investigated the possibility of publishing indexes for five broad regions (Auckland, Wellington, Rest of North Island, Canterbury and Rest of South Island), and to implement greater use of regional price movements (such as for construction of new dwellings and rented dwellings). Analysis of movements for the five broad regions for purchase and construction of new dwellings, rented dwellings and used cars showed significant regional differences during the period from the June 2002 quarter to the March 2004 quarter. Although the use of regional movements for these items would have had very little effect on the national CPI, it would have resulted in differences of several index points for the All groups indexes of the five broad regions.

The public consultation process indicated that users were generally in favour of this approach. In

future, this will result in the following regional indexes being routinely published and/or made available on request:

Index/level	15 regions <sup>(1)</sup>	7 regions <sup>(2)</sup>
<b>Food Price Index</b>		
Group	Published	Published
<b>Consumers Price Index</b>		
All groups	Available on request (with suitable caveats)	Published
Group	Not available	Published, except for selected groups not considered fit for purpose

(1) Whangarei, Auckland, Hamilton, Tauranga, Rotorua, Napier/Hastings, New Plymouth, Wanganui, Palmerston North, Wellington, Nelson, Christchurch, Timaru, Dunedin and Invercargill.

(2) Auckland, Canterbury, Wellington, Rest of North Island, Rest of South Island, North Island and South Island.

The FPI will continue to be made publicly available for each of the 15 regions, because prices are collected in each region for all food items in the basket.

## 11. Regional population weights

As part of the review of the CPI, the regional population weights have been updated. These population weights are used to allocate the national expenditure weights of goods and services derived from the HES and other sources to the CPI pricing centres. The population weights ensure that a given price change in Auckland, for example, with a population weight of 32.63 percent, would have nearly three times the effect on the national CPI than would the same movement in Christchurch, which has a population weight of 11.46 percent.

Prior to the current review, the CPI population weights were derived by allocating the usually resident population to pricing centres in a way that took into account the availability of retail services, communities of interest and geographical ease of access. By comparison, the new population weights, which appear in Tables 5.01 and 5.02, have been calculated by making direct use of local government boundaries. The weights were derived by assigning the usually resident population as at June 2005 of each regional council area to the pricing centre(s) within the region.

For three regional council areas, Bay of Plenty, Manawatu-Wanganui and Canterbury, there are two pricing centres in each region. In these cases, the proportion of the regional council area population allocated to each pricing centre was based on the population of the pricing centre's territorial authority.

Four regions do not contain a pricing centre. The Gisborne region's population was allocated to the Napier-Hastings pricing centre, and the Marlborough, Tasman and West Coast regions were allocated to the Nelson pricing centre.

Table 5.01 includes the June 2002 quarter regional population weights based on the old method (used in the CPI until the June 2006 quarter) and also the new method. This shows that while the Auckland population weight used in the CPI until the June 2006 quarter has declined slightly over the four years, based on the new method it has actually increased from 31.37 percent to 32.63 percent. Although a new method has been used to derive the population weights, changes are reasonably modest. The pricing centre having the greatest absolute gain is Hamilton (up from 7.99 percent to 9.39 percent).

In addition to allocating population weights to the 15 CPI pricing centres, Statistics NZ will publish the CPI for five broad regions, based on regional council area boundaries. These regions are Auckland, Wellington, Rest of North Island, Canterbury and Rest of South Island. The population weights of these regions are given in Table 5.02.

## 12. Reweighting the basket

### 12.1 Background

The CPI is reweighted approximately once every three years to ensure that the expenditure weights allocated to the basket of representative goods and services continue to reflect the relative importance of goods and services acquired by households for consumption purposes. The time between reweights is well within the ILO recommendation of at least once every five years. The previous reweight, in 2002, was based on the 2000/01 HES. The current reweight, in 2006, has been based on information from the 2003/04 HES and a number of other sources.

The current reweight is being implemented one year later than usual. This is because decisions were made to delay both the 2003/04 HES and the 2003 CPI Revision Advisory Committee review by one year. The HES decision was subsequently reversed, but this decision was made too late to convene the CPI Revision Advisory Committee in 2003.

The next HES is running from July 2006 to June 2007. The 2006/07 HES will be used to reweight the CPI in 2008 (with the publication of the September 2008 quarter CPI in October 2008). The new CPI weights will therefore be used for only two years, rather than the usual three.

As noted above, the current reweight has made use of information from the 2003/04 HES and other sources. For some goods and services, the HES does not provide accurate estimates of expenditure. Respondents tend to under-report expenditure on some goods and services (such as tobacco and alcohol), and large, infrequent purchases (such as new dwellings and new cars) may not be reported frequently enough by the nearly 3,000 households in the survey to provide accurate estimates of total household expenditure.

HES data has been complemented by information obtained from a range of other sources, including Statistics NZ surveys, government administration data, retail transaction data and information provided by businesses.

The goods and services in the CPI basket comprise a representative sample of the wider range of goods and services acquired by households. The expenditure weights assigned to the 685 individual goods and services in the basket represent expenditure on those goods and services, and also expenditure on similar goods and services not directly included in the basket but expected to exhibit similar price change. For example, oranges and mandarins are included in the basket but lemons are not. Expenditure on lemons (and other citrus fruit not directly included in the basket) is allocated to oranges and to mandarins in proportion to spending directly on each of these two citrus fruits.

Table 6 shows the proportion of the new expenditure weights contributed directly from the HES for the sample of goods and services included in the CPI basket (eg oranges), the proportion that was contributed by the HES for goods and services not directly included in the basket (eg lemons), and the proportion of the weight estimated using sources other than the HES.

The table shows that 65.5 percent of the total expenditure weight was sourced from the HES, and the remainder was based on information from other sources. Of the HES-sourced weights, more than two-thirds comprised spending directly on goods and services in the basket, with the remainder being spending on goods and services not directly included in the basket.

HES was the main weighting source for communication (100 percent), clothing and footwear (100 percent), household contents and services (99.4 percent), and recreation and culture (93.7 percent). Use made of other information to benchmark clothing and footwear expenditure is explained in section 14.10. Groups where other information sources were heavily relied on included alcoholic beverages and tobacco (the HES contributed just 0.4 percent), health (17.1 percent), and housing and household utilities (45.0 percent).

### 12.2 Excluding out-of-scope expenditure

The target population for the HES (and the CPI) is New Zealand-resident, private households living in permanent private dwellings. This means that the population does not include overseas visitors who expect to be resident in New Zealand for less than 12 months; people living in non-private dwellings

such as hotels, motels, boarding houses, hostels, motor camps and homes for the elderly; patients in hospitals; residents of psychiatric and penal institutions; members of the permanent armed forces; members of the non-New Zealand armed forces; and overseas diplomats. Children at boarding schools are not surveyed, but expenditure on behalf of those children is included in the record keeping of the parent or guardian.

For survey purposes, a 'household' comprises a group of people who share a private dwelling and normally spend four or more nights a week in the household. They must share consumption of food or contribute some portion of income towards the provision of essentials for living as a group.

A key step when alternative data sources are used to estimate CPI expenditure weights is to ensure that the estimates include expenditure made by only the HES and CPI reference population. Expenditure by others is out of scope of the CPI and needs to be excluded from the expenditure weights so that they will not be upwardly biased relative to weights sourced from the HES. In addition to the people listed above not covered by the HES and CPI, expenditure by businesses and government also needs to be excluded.

Alternative expenditure information is sourced from a wide range of providers. Where possible, data providers were asked to report expenditure information that closely matches the scope of the CPI. In practice, however, many providers were not able to disaggregate their data to the level required. Statistics NZ had to estimate what proportion of a particular expenditure was in scope of the CPI when making use of this information to derive expenditure weights.

As part of the current review, a more targeted approach than has been used in the past was developed to exclude out-of-scope expenditure. This involved deriving a set of specific adjustment ratios for various areas of the basket. Appropriate ratios were then applied to the corresponding independently sourced expenditures. For example, these ratios took into account the relative shares of expenditure made by visitors from overseas, which varied significantly across different areas of the basket.

Sources of information used in deriving the out-of-scope adjustment factors included:

Information source	Breakdown	Type of out-of-scope expenditure
National Accounts Household Consumption Expenditure	Estimates of proportion of total retail spending by the business sector, by retail store type	Business
National Population Estimates	Estimated resident population	Non-private and non-permanent households
Tourism Satellite Account	International visitor expenditure as a proportion of total supply, by product	Non-residents (overseas tourists)

### **12.3 Price updating expenditures**

For the current review, the 'weight reference' period is the year to June 2004, which coincides with the 2003/04 HES (although expenditure on some goods and services is collected in the HES on a recall basis, meaning that purchases can span a two-year period). When alternative sources were used to derive expenditure weights, information for the year to June 2004 was used, where possible.

Expenditure information from the 2003/04 HES and other sources has been 'price updated' to the 'price reference' period of the June 2006 quarter. The effect of price updating, recommended for CPIs by the ILO and common international practice, is to express the underlying 2003/04 quantities in the prices of the June 2006 quarter price reference period. In general, the indicators used to price update the weights were the lower-level CPI indexes corresponding to the goods and services in the new basket.

Prior to price updating, the expenditure totalled \$64.691 billion for 2003/04. After price updating to the

June 2006 quarter, the new CPI expenditure weights totalled \$69.586 billion, which is \$4.895 billion or 7.6 percent higher than the figure prior to price updating.

Petrol prices increased by about 53 percent from 2003/04 to the June 2006 quarter, resulting in the price updating of petrol adding \$1.294 billion (or 26 percent) of the overall \$4.895 billion added by price updating.

Other goods and services with high price updating ratios included other vehicle fuels and lubricants, including diesel (prices in the June 2006 quarter were 83 percent higher than in 2003/04), purchase of housing (up 31 percent), domestic air transport (up 29 percent), gas (up 22 percent), real estate services (up 21 percent), dental services (up 21 percent), electricity (up 19 percent), property maintenance services (up 16 percent), and local authority rates and payments (up 13 percent). The price updating indicator that was used for purchase of housing is not the CPI index for purchase and construction of new dwellings. The reasons for this are given in section 14.01.

Goods and services for which price updating resulted in reduced expenditure included audio-visual equipment (down 39 percent), small electrical household appliances (down 12 percent), purchase of second-hand motor cars (down 5 percent), international air transport (down 3 percent) and purchase of new motor cars (down 3 percent).

For goods and services showing price increases from 2003/04 to the June 2006 quarter, price updating added \$6.215 billion to the expenditure weight. This was partly offset by a reduction of \$1.320 billion for goods and services showing price decreases from 2003/04 to the June 2006 quarter.

#### **12.4 Volume adjustments**

CPIs are generally calculated using a base-weighted Laspeyres formula that measures the changing cost of acquiring a basket of goods and services. The underlying quantities of goods and services in the basket relate to some earlier period and are held fixed.

The underlying 2003/04 quantities will be held fixed in the Laspeyres price index formula during the life of the index (from 2006 to 2008). These quantities will be assumed to be broadly representative of household purchases during the two-year life of the index (although it is known that consumers will to some extent substitute towards goods and services showing lower relative price change during the period).

It is also known that there have been significant shifts in quantities for some goods and services since the weight reference period of 2003/04. As the 2006 reweight is happening a year later than usual, the price reference period is a year further away from the weight reference period than usual, therefore increasing the possibility and magnitude of volume shifts.

Adjustments have been made to the underlying quantities in selected cases where there is strong evidence of a significant trend (rather than short-term) change in volumes since 2003/04. A wide range of possible adjustments was considered, but the number actually made was limited to those cases that were considered significant and where reliable information was available. Although the use of selected adjustments introduced a level of subjectivity into the process, this was considered preferable to steadfastly retaining the underlying 2003/04 quantities across the whole basket. The aim of making these adjustments is to improve the relevance of the expenditure weights during the period they will be used (from 2006 to 2008).

These 'volume adjustments' were made in two ways: either directly to the 2003/04 expenditures prior to price updating, or incorporated into the indicator used to price update 2003/04 expenditures.

The following table lists the volume adjustments that were made, the reasons for making these adjustments, and the data sources used to determine whether to adjust and by how much.

<b>Good or service</b>	<b>Reason for adjustment</b>	<b>Information source</b>
Wine	To reflect growth in volumes	Alcohol available for consumption figures for 2003/04 and 2005/06
Spirits and liqueurs	To reflect growth in volumes, particularly for ready-to-drink spirits	Alcohol available for consumption figures for 2003/04 and 2005/06
Purchase of housing	To reflect increases in the size of new houses and increased costs as a result of the introduction of a more stringent building consents and inspection process	Building consents and value of work put in place information
Purchase of new motor cars	To reflect a shift from large to medium and small cars since 2003/04	Vehicle registration information for the year to March 2006
Purchase of motorcycles	To reflect big increases in registrations, influenced by petrol price increases	Vehicle registration information for the year to March 2006
Urban train fares	To reflect increased usage, particularly in Auckland	Passenger numbers
Internet charges	To reflect a strong shift from dial-up to broadband connections	Internet connection numbers
Cellphone handset purchases	To reflect growth in connections and improvements in the quality of handsets	Information on the number of connections and the prices of handsets
Cellphone call charges	To reflect growth in connections and changes in average revenue per user	Information on the number of connections and average revenue per user
DVD players and player/recorders	To reflect strong volume growth, particularly in player/recorders	Retail transaction data for 2003/04, 2004/05 and 2005/06 obtained from GfK
VCR/DVD combination players	To reflect volume growth in combination players and player/recorders	Retail transaction data for 2003/04, 2004/05 and 2005/06 obtained from GfK
Television sets	To reflect strong volume growth, particularly in flat-panel plasma and LCD display television sets	Retail transaction data for 2003/04, 2004/05 and 2005/06 obtained from GfK
Digital cameras	To reflect strong growth for digital cameras, partly offset by decreased volumes for analogue cameras	Retail transaction data for 2003/04, 2004/05 and 2005/06 obtained from GfK
Subscriber television	To reflect strong growth in subscribers	Subscriber numbers
Sunday newspapers	To reflect the emergence in 2005 of a new Sunday newspaper	Circulation figures

As noted above, price updating expenditure on petrol by households during 2003/04 to June 2006 quarter prices added \$1.294 billion to the expenditure weight for petrol. According to New Zealand

Energy Statistics, deliveries of petrol declined in volume terms by 0.8 percent between 2003/04 and 2005/06. However, these deliveries are for both household and non-household use. Because reliable information was not available on changes in volumes purchased by households, an adjustment has not been made for any decline in petrol volumes purchased by households. Adjustments elsewhere in the basket for any changes since 2003/04 in spending on other goods and services in the basket as a result of higher petrol prices have been limited to those transport-related goods and services in the table above. It is worth noting that the Quarterly Employment Survey measure of average weekly earnings (including overtime) increased by 8.8 percent from 2003/04 to the June 2006 quarter, broadly in line with the 7.6 percent increase (including the impact of petrol price rises) caused by expressing 2003/04 expenditures in June 2006 quarter prices.

Expenditure for some goods and services is highly cyclical or highly volatile. Two important areas of expenditure where this can be the case are the purchase of newly constructed dwellings and insurance services. For purchase of housing (and related services such as conveyancing and real estate fees), rentals for housing and insurance services, a decision was made to extend the weight reference period to the three years ending with the HES period to derive annual average CPI expenditure weights, to smooth the impact of cyclical highs or lows (housing) or unusual claims years (insurance). For the current review, information for the three years to June 2004 was used.

### **13. Updating of the 2000/01 HES estimates**

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, but 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 that 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.

### **14. Methods used to derive expenditure weights**

As noted above, HES expenditure information has been complemented by information obtained from a range of other sources, including Statistics NZ surveys, government administration data, retail transaction data and information provided by businesses. For some goods and services, the HES does not provide accurate estimates of expenditure. Respondents tend to under-report expenditure on some goods and services (such as tobacco and alcohol), and large, infrequent purchases (such as new dwellings and new cars) may not be reported frequently enough by the nearly 3,000 households in the survey to provide accurate estimates of total household expenditure. In other cases, such as insurance services, expenditure captured in the HES might not match the concept employed in the CPI.

This section of the paper outlines the methods used to derive expenditure weights for key parts of the index where alternative information sources were used.

#### **14.01 Purchase of housing**

Under the 'acquisitions' conceptual approach used for compiling the New Zealand CPI, the expenditure weight allocated to purchase of housing represents the value of the net increase in the stock of owner-occupied housing during the weight reference period. Expenditure on newly constructed dwellings by owner-occupiers is included, as are alterations and additions to established owner-occupied dwellings.

Sales within the household sector of established owner-occupied dwellings do not add to the stock of owner-occupied dwellings, as netting results in each purchase (positive expenditure) being cancelled out by a corresponding sale (negative expenditure). However, any net shift of dwellings in either direction between owner-occupation and renting or small-business use should be included, as it would result in a net addition (towards owner-occupation) or net reduction (towards renting or business use) to the stock of owner-occupied housing.

For the 2002 reweight, the method used to derive the expenditure weight for purchase of housing was to estimate owner-occupiers' share of the value of new residential building work put in place (including alteration and additions).

The method used in 2006 involved applying an average new private dwelling value to the net change in the number of owner-occupied dwellings, then adding an estimate of owner-occupiers' share of the value of residential building additions and alterations to established dwellings.

The net change in the number of owner-occupied dwellings reflects the overall effect of households:

- acquiring newly constructed dwellings for occupation
- demolishing established owner-occupied dwellings
- selling established owner-occupied dwellings to landlords, small businesses, developers or government
- acquiring established dwellings (for owner-occupation) from landlords, small businesses, developers or government.

The underlying assumption in 2002 was that there had not been any, or any significant, net shift in either direction of established dwellings between owner-occupation and renting or small-business use. However, information from the Census of Population and Dwellings, the HES and other sources indicates that there has been a trend over a lengthy period towards lower home ownership rates.

Information from the 1991, 1996 and 2001 Census of Population and Dwellings, the 2000/01 and 2003/04 HES and research by the Reserve Bank on the impact of family trusts on published home ownership rates was used to conservatively extrapolate tenure proportions (ie home ownership and renting rates) beyond the 2001 Census of Population and Dwellings. These extrapolated home ownership rates were applied to Statistics NZ's time series estimates of the total number of dwellings (included in Dwelling Estimates by Tenure statistics) to derive time series estimates of the number of owner-occupied dwellings. The Dwelling Estimates by Tenure figures hold tenure proportions constant beyond the 2001 Census.

As noted in section 12.4, a decision was made to extend the weight reference period to the three years ending with the HES period to derive annual average CPI expenditure weights for the purchase of housing (and related services such as conveyancing and real estate fees) and rentals for housing, to smooth the impact of cyclical highs or lows in activity. For the current review, information for the three years to June 2004 was used.

The derived time series estimates of the number of owner-occupied dwellings for the years to June 2001, 2002, 2003 and 2004 were used to calculate the net annual change for each of the three years to June 2004. These net annual changes were multiplied by the average cost of constructing a new dwelling during the year to June 2004 (derived from Statistics NZ's Building Consents statistics and Value of Building Work Put in Place statistics). Figures for each of the three years to June 2004 were averaged.

The values of residential building additions/alterations to established dwellings for the years to June 2002, 2003 and 2004 (from Value of Building Work Put in Place statistics) were multiplied by the extrapolated home ownership rates referred to above, to estimate owner-occupiers' share of the value of improvements to established dwellings. Figures for each of the three years to June 2004 were expressed in 2003/04 prices, averaged, then added to the annual average value assigned to the net

change in the number of owner-occupied dwellings.

The final step was to price update to the June 2006 quarter. The price updating indicator that was used for purchase of housing was not the CPI index for purchase and construction of new dwellings; rather, an indicator based on Building Consents and Value of Building Work Put in Place data was used. This was to reflect an increase in the size of new houses since 2003/04 (as shown by Building Consents data) and to reflect increased costs as a result of the introduction of a more stringent building consents and inspection process. Changes to the building consents regime have in some cases resulted in improvements to the materials used in constructing, and the quality of, new house plans being tracked in the CPI survey. The impact these improvements had on surveyed prices was stripped out of the CPI index for purchase and construction of new dwellings.

The expenditure weight for purchase of housing has decreased from 8.47 percent in 2002 to 4.66 percent in 2006. The decrease in weight can be attributed both to the adoption of a new method that reflects the falling home ownership rate and to about one-fifth of the 2002 weight comprising HES expenditure on alterations, additions and improvements that would already have been included in the independent estimate based on the Value of Building Work Put in Place data.

**Notes:**

1. For the purposes of deriving the CPI expenditure weight for purchase of housing, households holding the homes they occupy in family trusts were treated as being owner-occupiers (even though this might not be true in a strict legal sense).
2. Expenditure by landlords on, or relating to, the properties they rent out is not included in the CPI.

**14.02 Rentals for housing**

To provide consistency with purchase of housing, the expenditure weight of rentals for housing was estimated from data for the three years to June 2004.

Administrative data was used to estimate the expenditure weight allocated to Housing New Zealand dwellings.

As noted above under section 14.01, a range of information was used to extrapolate tenure proportions beyond the 2001 Census of Population and Dwellings. These rates were applied to Statistics NZ's time series estimates of the total number of dwellings (included in Dwelling Estimates by Tenure statistics) to derive time series estimates of the number of households renting non-Housing New Zealand dwellings. These households were classified by number of bedrooms, using ratios from the 2001 Census of Population and Dwellings. To estimate expenditure, the resulting figures were multiplied by corresponding average prices from the CPI rented dwellings collection. These average prices excluded Housing New Zealand properties.

Figures for each of the three years to June 2004 were expressed in 2003/04 prices, averaged, then price updated to the June 2006 quarter. In dollar-value terms, the price-updated expenditure weight of rentals for housing is slightly lower (by about 3.4 percent) than it would have been if based solely on the 2003/04 HES. Also in dollar value terms, the 2006 expenditure weight of rentals for housing is 45.2 percent higher than the 2002 weight, reflecting both a relative shift towards renting and, to a lesser extent, rent increases.

The expenditure weight of rentals for housing increased from 5.54 percent in 2002 to 6.87 percent in 2006.

**Note:** Educational accommodation is included in rentals for housing under the NZHEC classification system, whereas it was included in the accommodation and board section within the old classification system's leisure and recreation subgroup.

#### **14.03 Purchase of new motor cars**

Information on new motor car registrations by individuals for private use (disaggregated by make and model) were used in conjunction with list prices (disaggregated by make and model) to derive the expenditure weight for new motor cars. Adjustments were made to exclude out-of-scope expenditure and to reflect discounts for cash. Registrations for the year to March 2006 were used, to reflect a relative shift from large cars to medium and small cars since 2003/04. This resulted in a lower absolute weight than would have been the case if 2003/04 registrations had been used, and higher relative weights for medium and small cars.

The increase in the relative weight for purchase of new cars (1.69 percent in 2006 compared with 1.25 percent in 2002) partly reflects an increase in registrations. It also partly reflects the use in 2006 of a comprehensive set of prices disaggregated by make and model. In 2002, average prices from the relatively small CPI sample were used, and these did not reflect the significant share of registrations of more highly specified models and luxury European vehicles.

The sample of new car makes and models has been reselected as part of the current review. The updated sample has greater representation of four-wheel drive, diesel-powered and luxury European vehicles.

The expenditure weight allocated to the purchase of new cars represents gross expenditure on new cars for private use by households. The expenditure weight for purchase of second-hand cars, derived from the HES, represents net purchases of second-hand cars (ie purchases of second-hand cars minus sales and trade-ins of second-hand cars, including trade-ins on purchases of new cars).

#### **14.04 Domestic air transport**

Industry information was used to estimate total revenue from domestic passengers carried for the year ended June 2004.

Since only some domestic air transport trips in New Zealand are taken by the CPI reference population of private households living in permanent dwellings, it was necessary to make an adjustment for out-of-scope trips. This involved firstly turning the summed revenue into a total number of one-way domestic air travel trips taken, using an average fare derived from industry information and the CPI monthly survey of domestic air transport.

Trips that were taken by overseas visitors and by businesses were then removed. To estimate the proportion of all trips taken by overseas visitors, information from the Tourism Research Council New Zealand (TRCNZ) International Visitor Survey was used. This survey gives the estimated number of trips taken by international visitors by type of transport used. These trips were removed from the total, leaving only the trips taken by New Zealand residents.

The next step involved removing out-of-scope trips, such as those taken mainly for business purposes, from all trips taken by New Zealand residents. The Domestic Tourism Survey, also compiled by the TRCNZ, gives information on the number of trips taken by New Zealand residents, broken down by main purpose of trip. A ratio of in-scope trips to total trips taken by New Zealand residents was derived. The final ratio used was an average of the annual ratios for the four years to June 2005, as the June 2004 year appeared to be an outlier.

The final step involved removing expenditure by people who are not part of private households living in permanent dwellings, using sources of information listed in section 12.2.

#### **14.05 International air transport**

Estimating the expenditure weight for international air transport involved two key steps. Firstly, the volume of in-scope trips, broken down by routes, taken by the CPI population was estimated. Secondly, these volumes were combined with average prices, which were weighted by the importance of routes.

External migration statistics provided the main data source used to derive the passenger volumes. Information on short-term overseas trips taken by New Zealand residents was used in conjunction with port of disembarkation data to derive the passenger volumes at the routes level. Out-of-scope trips,

such as those where the main purposes of travel were business, conventions and conferences, were removed from the totals.

Information collected as part of the CPI monthly survey of international air transport, along with information provided by travel agents, was used to derive a set of weighted average prices. A number of adjustments were made to ensure that the final prices used were representative. Factors that were taken into account include: the importance of airlines for each route, fare type/class weights, and the taxes and levies payable on each journey.

After combining the volumes with their corresponding weighted average prices, out-of-scope expenditure by people who are not part of private households living in permanent dwellings was removed (using sources of information listed in section 12.2).

As part of the current review, the routes for which prices are collected for each month have been reweighted to reflect the changing popularity of destinations.

There has been a change to the way HES expenditure on overseas package holiday and accommodation costs prepaid in New Zealand was allocated across items in the CPI basket. In 2002, this was allocated to international air transport. In 2006, this expenditure has been allocated to a new basket item, overseas package holidays prepaid in New Zealand, which is included in the package holidays class within the recreation and culture group. Because the calculation of the international air transport expenditure estimate was based on passenger volumes, the volume data included those departing on package tours. An adjustment was made to remove expenditure that related to prepaid packages.

The expenditure weight for international air transport has fallen from 3.11 percent in the June quarter 2002 to 1.36 percent in the June 2006 quarter. This is partly due to:

- expenditure on overseas package holiday and accommodation costs prepaid in New Zealand being allocated in 2006 to the package holidays class within recreation and culture
- improvements in the way HES expenditure on goods and services not directly included in the basket was allocated in 2006 across those that are in the basket
- the inclusion in the 2002 weight, but not in the 2006 weight, of credit-card purchases made by New Zealand residents while overseas.

#### **14.06 Alcoholic beverages**

HES respondents tend to significantly under-report expenditure on alcoholic beverages, so alternative information sources are required for calculating CPI expenditure weights. Statistics NZ Alcohol Available for Consumption statistics were used to base the 2006 weights on.

The quantities of alcoholic beverages available for consumption within New Zealand in the year to June 2004 were used in the initial calculations as a proxy for purchases in the weight reference period. These were available at a disaggregated level (eg by type of spirit for full-strength spirits).

Expenditure estimates were calculated by multiplying the quantities available for consumption by average prices derived from the CPI price collections and ACNielsen data. The quantities were split into beverages consumed on and off licensed premises, using industry information (beer) and the HES (wine and spirits). This is an important step, given that prices for alcoholic beverages consumed on licensed premises are much higher than for those consumed off licensed premises. The beer information was available in quantities, but the HES breakdown by store type related to expenditure shares, so had to be converted to quantity shares using corresponding average prices.

The disaggregated alcohol available for consumption figures and ACNielsen information on the relative shares of different types of wine were used to allocate quantities to a representative sample of beverages in the CPI basket.

Adjustments were made to exclude out-of-scope expenditure from international tourists, businesses

and people living in non-private dwellings, using information from the sources listed in section 12.2 above.

Further adjustments were made to reflect growth from 2003/04 to 2005/06 in volumes of wine (about 7 percent over and above population growth) and spirits (about 8.5 percent), particularly for ready-to-drink spirits. In dollar-value terms, the price-updated expenditure weight of alcoholic beverages is 93 percent higher than it would have been if based simply on what was reported in the 2003/04 HES.

A broadly similar method was used in 2002, but improvements were made in 2006 to the way that quantities were allocated to consumption on and off licensed premises and to adjustments made to exclude out-of-scope expenditure. Changes in methods, rather than a real decline in spending, largely explain the relative drop in the weight of the alcoholic beverages subgroup from 6.43 percent in 2002 to 4.97 percent in 2006.

#### **14.07 Cigarettes and tobacco**

HES respondents also tend to significantly under-report expenditure on cigarettes and tobacco. Statistics NZ Tobacco Available for Consumption statistics were used to base the 2006 weights on.

The quantities of cigarettes and tobacco available for consumption within New Zealand in the year to June 2004 were used in the calculations as a proxy for purchases in the weight reference period.

Expenditure estimates were calculated by multiplying the quantities available for consumption by corresponding unit prices derived from ACNielsen supermarket expenditure and quantity data. CPI price collection information indicates that cigarette and tobacco price levels vary little between different store types.

Adjustments were made to exclude out-of-scope expenditure from international tourists and people living in non-private dwellings, using information from the sources listed in section 12.2 above. In dollar-value terms, the price-updated expenditure weight of cigarettes and tobacco is 79 percent higher than it would have been if based on expenditure reported in the 2003/04 HES.

ACNielsen data was used to reselect the CPI sample of representative cigarette and tobacco brands and pack sizes. An analysis of price change showed that there were only minor differences over time between different brands of cigarettes, so the number of brands in the sample has been reduced while continuing to represent different market segments.

#### **14.08 Insurance services**

The expenditure weights allocated to the various types of insurance service have been estimated on a 'net' basis. Under a net approach, the cost of insurance is viewed as being only the cost associated with the provision by insurance companies of administration and risk-pooling services.

The insurance industry is viewed as essentially providing an intermediation service in which the contributions made by policy holders are pooled and managed. The part of premiums that does not pay for the intermediation service goes into pools that are managed by the companies, invested to best advantage, and provide a source of funds for policy holders to use when it becomes necessary to repair or replace insured property, pay for medical services or obtain income.

Under the net approach, the weight given to insurance relates to the administrative costs of providing the service, which is collecting premiums and paying claims, and the profits of insurance companies.

The value of the insurance service can be defined as:

- gross insurance premiums payable by households
- + premium supplements (income earned on investing prepaid premiums and actuarial reserves)
- claims
- changes in actuarial reserves.

Under the net approach for insurance services, the weights of goods and services covered by insurance represent total expenditure on goods and services, whether funded by insurance or other

means.

A similar view of insurance services is taken in the National Accounts, and the CPI expenditure weights for life insurance and health insurance were based on Household Consumption Expenditure (HCE) estimates.

Some adjustments were needed to bring the scope of the HCE insurance service charges in line with the scope of the CPI. The HCE estimate for health insurance includes a proportion that is funded by employers, which was excluded from the CPI weight calculations (as the value of fringe benefits, or income paid in kind, has not traditionally been included in the CPI weights). Information was obtained from the industry on the share of premiums funded by employers.

Most types of life insurance are excluded from the CPI because they are considered to represent savings and investment, rather than consumption. However, 'term' life insurance provides risk-only cover and has no surrender or residual value. Claims are paid out only in the event of death, disability or personal accident. With respect to the CPI, the service provided by term life insurance can be regarded as protection against the risk of disability, personal accident and loss of life. Given that there is no investment element in this type of life insurance, it is appropriate to include it in the CPI.

The HCE estimate for life insurance includes the service charge for investment and savings products, in addition to that for risk cover. An adjustment was made to exclude the proportion of the life insurance service charge that is not attributable to term life insurance, and the proportion attributable to employers subsidising the cover of paid employees. Information giving a breakdown of premiums and claims by type of life insurance policy, and an estimate of the proportion of premium income funded by employers, were obtained from the industry and used to adjust the HCE estimate.

Adjustments were also made to exclude the estimated shares of health and life insurance service charges attributable to people who are not part of private households living in permanent dwellings, using information from the sources listed in section 12.2 above.

Information obtained from the industry was used to estimate the service charge for general insurance in the CPI. These calculations were based on the premiums paid by households less claims received for dwelling, contents insurance and vehicle insurance. Adjustments were made to exclude out-of-scope expenditure, using information from the sources listed in section 12.2 above. Because expenditure by landlords on, or relating to, the properties they rent out is excluded from the CPI, a further adjustment was made to exclude landlord spending on dwelling and contents insurance. Statistics NZ tenure estimates and information obtained from the industry were used to calculate this adjustment.

Consideration was given to using HCE estimates for general insurance. However, the approach used for the CPI delivered similar results to HCE for contents insurance and vehicle insurance. In addition, there is no HCE estimate for dwelling insurance, as consumption of the flow of shelter services by owner-occupiers is valued using imputed rentals, which implicitly cover dwelling insurance and other home-ownership-related expenses.

Using the net approach for insurance services, spending on goods and services that is funded by insurance claims is allocated to the expenditure weights of those goods and services. When claims are paid by insurance providers directly to households, the resulting expenditure made by households to repair or replace insured property is captured directly in the HES. However, when insurance providers pay claims directly to the goods and service providers repairing or replacing insured property, this expenditure on behalf of households would not be captured in the HES.

Information was obtained from the industry on the proportion of claims paid directly to service providers for the different types of general insurance. These proportions were applied to the claims figures used to derive the service charge weights, and the resulting amounts were added to the expenditure weights of appropriate insurable goods and services. The total estimated amount of general insurance claims paid directly to goods and service providers was \$558 million (more than half related to vehicle insurance), and \$490 million of this was allocated to the weights of appropriate insurable goods and services (as the remainder of the claims paid directly was estimated to have

already been included in the independently sourced estimates of insurable goods and services).

An adjustment was not made in 2002 for claims payments made directly by insurance providers to goods and service providers. This has contributed to increases in the weights for some classes, such as vehicle servicing and repairs (up from 1.14 percent in 2002 to 1.48 percent in 2006).

The method used in 2002 to estimate the expenditure weights of the different types of general insurance involved using premiums and claims information reported in the HES to derive service charges. However, as noted above, when insurance providers pay claims directly to the goods and service providers repairing or replacing insured property, this expenditure on behalf of households would not be captured in the HES, resulting in HES claims payments being understated. This, and some unintended double counting in 2002, has resulted in the 2006 expenditure weights for dwelling, contents and vehicle insurance being much lower than in 2002.

As noted in section 12.4, a decision was made to extend the weight reference period to the three years ending with the HES period to derive annual average CPI expenditure weights for insurance services, to smooth the impact of unusual claims years and to minimise the risk of negative weights. For the current review, information for the three years to June 2004 was used.

#### **14.09 Health services**

Within the health group, most of the expenditure weights allocated to the out-patient services class and the hospital services class were derived from sources other than the HES.

GST sales data (including GST) was used to provide information on the total income of medical service providers (broken down by type of provider). Information obtained from the Ministry of Health was used to remove the part of providers' income funded directly by government (such as subsidies for general practitioner consultations) and not-for-profit institutions. An adjustment was also made to exclude the share of health insurance claims attributable to employers that subsidise health insurance premiums of paid employees. The resulting expenditure weights allocated to the various health services represent out-of-pocket spending by private households, and spending on claims made, on behalf of private households, by health insurance companies to health service providers.

An improved method for allocating the income of optometrists across the consultation, prescription glasses and contact lens goods and services in the basket has contributed to a higher relative weight in 2006 for the therapeutic appliances and equipment class, and a lower relative weight for the medical services class.

#### **14.10 Clothing and footwear**

HES estimates of expenditure on clothing and footwear appear to be significantly understated. This may reflect under-reporting by respondents and/or issues with how information is collected. Some expenditure on apparel is collected via a question asking respondents to recall payments by household members during the past 12 months of \$200 or more at one time on any one kind of article. Other purchases (ie of under \$200 at one time on any one kind of article) are taken from two-week expenditure diaries filled in by responding household members aged 15 or over. There is scope for larger purchases not being recalled, and diary entries being excluded during processing because respondents reported single amounts of \$200 or more on purchases involving more than one kind of article (and did not attach itemised receipts).

The approach used to derive the CPI clothing and footwear expenditure weights involved the following steps:

1. using HES to determine the ratio of apparel sales to all sales at clothing stores, department stores, footwear stores and sports stores
2. applying these ratios to Retail Trade Survey (RTS) disaggregated sales figures for the equivalent store types
3. adding GST
4. removing out-of-scope spending (such as that by international visitors and businesses)
5. adjusting HES expenditure for apparel items by the ratio of HES expenditure to adjusted RTS expenditure at the store type level.

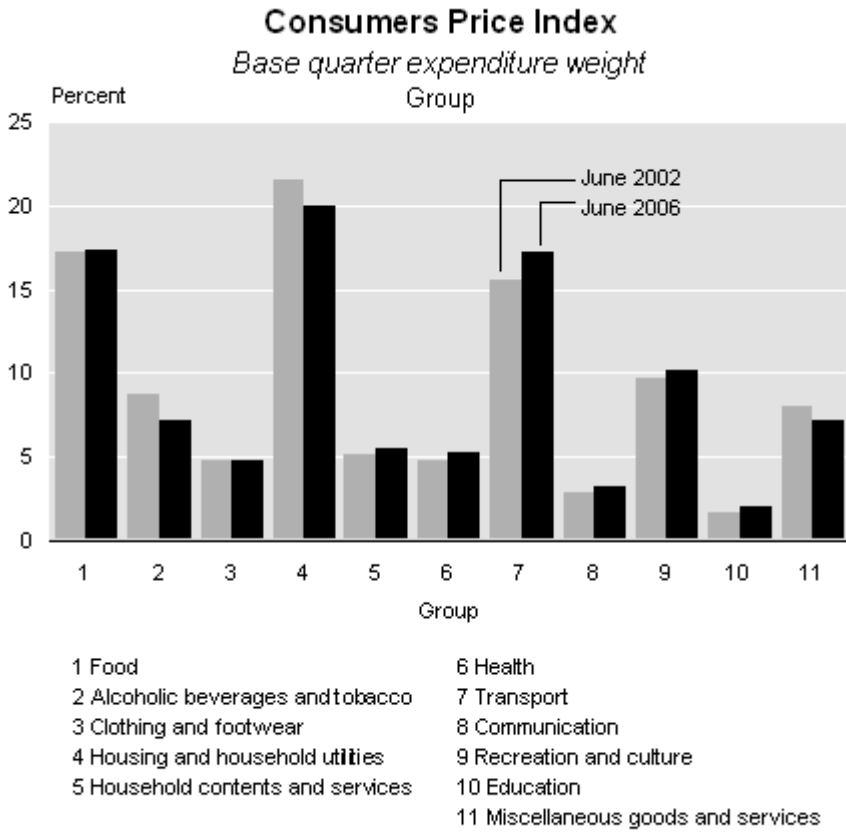
A similar approach was used for the 2002 review. Benchmarking HES expenditure to the RTS contributed about one-quarter of the 2006 CPI expenditure weight for clothing and footwear.

**15. Analysis of expenditure weights**

Table 7 attached to this paper gives the new expenditure weights, as at the June 2006 quarter, for the rebased CPI. The table also includes the June 1999 and 2002 quarter expenditure weights, reclassified using the new NZHEC classification system rather than the previously used classification system.

The expenditure weights and corresponding indexes are being published at the group, subgroup and class levels of the new classification. Weights will be held fixed down to the class level until the subsequent reweight in 2008. Relative weights below the class level of the NZHEC classification will be monitored on an ongoing basis and adjusted where necessary to reflect volume-related shifts in relative importance.

The following graph compares the June 2006 quarter expenditure weights for the eleven groups with the June 2002 quarter weights.



**15.01 Food**

The food group has a June 2006 expenditure weight of 17.38 percent, compared with 17.21 percent in 2002.

The main source of information used to reweight the food group was the 2003/04 HES. For food items where the HES is not considered to provide accurate information, such as confectionery and soft drinks, alternative information, such as supermarket scanner data obtained from ACNielsen, was used.

Comparing the old and new classification systems at the subgroup level, the NZHEC meat, poultry and fish subgroup is equivalent to the old system's meat, fish and poultry subgroup. The NZHEC fruit and vegetables subgroup covers the same items as the old system's subgroup, with the exception of pasta sauces, which are classified under the NZHEC grocery food subgroup. A new subgroup, non-alcoholic beverages, draws on items previously classified under the old system's grocery food subgroup, and the restaurant meals and ready-to-eat food subgroup.

**Note:** Takeaway coffee, tea and milkshakes are classified under the NZHEC restaurant meals and ready-to-eat food subgroup.

Fruit and vegetables have a June 2006 quarter expenditure weight of 2.20 percent, compared with 2.03 percent for the June 2002 quarter. Total expenditure by households on both fruit and vegetables has increased. However, the relative weight for fruit has fallen. The increase in the expenditure weight for fruit and vegetables is partly due to improvements in the way grocery expenditure not further defined by households reporting in the HES was allocated across items in the basket.

The share of the total CPI weight for meat, poultry and fish has fallen, to 2.82 percent. This is partly due to improvements in the way grocery expenditure not further defined by households in the HES was allocated across items in the basket. Price increases since the last reweight for meat, poultry and fish have been lower than the overall price increases for food, which also caused its share of the total food weight to fall.

The relative weight for grocery food (6.70 percent) is slightly higher than its share of the total weight in 2002.

The weight for non-alcoholic beverages (1.62 percent) has fallen, overall. The weight for coffee, tea and other hot drinks has increased slightly, while the weight for soft drinks, waters and juices has decreased.

There has been a strong increase in the overall weight for the restaurant meals and ready-to-eat food subgroup (4.03 percent compared with 3.60 percent in 2002). This reflects increases in spending by households on these types of items.

#### **15.02 Alcoholic beverages and tobacco**

The alcoholic beverages and tobacco group has a June 2006 expenditure weight of 7.20 percent, compared with 8.72 percent in 2002.

Changes in weight-estimation methods, rather than a real decline in spending, largely explain the relative drop in the weight of the alcoholic beverages subgroup from 6.43 percent in the June 2002 quarter to 4.97 percent in the June 2006 quarter. See section 14.06 for more details.

The weight for cigarettes and tobacco has fallen slightly, from 2.29 percent to 2.23 percent.

#### **15.03 Clothing and footwear**

The weight for clothing and footwear (4.75 percent) has remained similar to its share of the total weight in 2002.

#### **15.04 Housing and household utilities**

Housing and household utilities continues to be the highest-weighted group. However, its share of the CPI weight has fallen from 21.52 percent to 20.02 percent.

The group's decrease in weight is driven by a fall in the weight for purchase of housing (from 8.47 percent to 4.66 percent). This is partly offset by a strong increase in the weight for rentals for housing (from 5.54 percent to 6.87 percent). The fall in the weight for purchase of housing is not a real decline and results mainly from the adoption in 2006 of an improved weight-estimation method that reflects a falling rate of home ownership rate. For more information on the methods used to derive these weights, refer to sections 14.01 and 14.02.

The weight for electricity has increased from 2.73 percent to 3.29 percent, reflecting an increase of

32.9 percent in electricity prices from the June 2002 quarter to the June 2006 quarter. The relative weight for local authority rates and payments has increased only slightly, from 2.04 percent to 2.16 percent. While the CPI rates index increased by 28.8 percent from the June 2002 quarter to the June 2006 quarter, growth in the number of occupied dwellings has been affected by a falling rate of home ownership.

#### **15.05 Household contents and services**

The weight for household contents and services has increased to 5.49 percent, compared with 5.13 percent in 2002.

Within this group, some weights were affected by both changes to methods (there was some benchmarking to the RTS in 2002, which was not considered necessary in 2006) and to differences in the structure of the NZHEC classification compared with the previous classification, which changed the way that expenditure on goods and services not directly included in the basket was allocated across those that are in the basket.

#### **15.06 Health**

The health group has a June 2006 quarter expenditure weight of 5.23 percent, compared with 4.83 percent in June 2002.

The increase for this group is mainly due to the weight for medical products, appliances and equipment having risen from 0.62 percent to 1.13 percent. This has been caused by two factors. The 2003/04 HES was used to estimate the weight for prescription medicines (within the pharmaceutical products class), which led to a higher weight, as weaknesses were identified in the alternative information source used in 2002. In addition, an improved method for allocating the income of optometrists across the consultation, prescription glasses and contact lens goods and services in the basket contributed to a higher relative weight in 2006 for the therapeutic appliances and equipment class (and a corresponding lower relative weight for the medical services class).

#### **15.07 Transport**

The transport group has a June 2006 quarter expenditure weight of 17.24 percent, compared with 15.51 percent in June 2002. The rise in the weight for transport is the most significant absolute increase of the 11 groups.

The weight for purchase of vehicles has risen to 5.24 percent, partly driven by an increase in the weight for the purchase of new motor cars. Part of the increase for new cars reflects an improved method for estimating expenditure on more highly specified models and luxury European vehicles. See section 14.03 for more details.

The weight for the private transport supplies and services subgroup has risen strongly, from 6.22 percent to 9.27 percent. This is mainly due to an increase in the weight for petrol, which increased from 3.12 percent to 5.38 percent. Petrol prices were 56.9 percent higher in the June 2006 quarter than in the June 2002 quarter.

The passenger transport services subgroup has had a significant decrease in its weight, from 4.82 percent to 2.73 percent. The decrease is mainly due to a large fall in the weight for international air transport, which has fallen from 3.11 percent to 1.36 percent. The fall is partly due to HES expenditure on overseas package holiday and accommodation costs prepaid in New Zealand being allocated to international air transport in 2002, but to the package holidays class within the recreation and culture group in 2006. In addition, credit-card purchases made by New Zealand residents while overseas were included in the 2002 weight, but not in the 2006 weight.

#### **15.08 Communication**

The weight for communication has risen from 2.92 percent to 3.26 percent, mainly due to an increase in weight of telecommunication services (from 2.65 percent to 2.96 percent). Telecommunication services make up the majority of the weight of the communication group.

The weights for postal services and telecommunication equipment have remained at similar levels.

### **15.09 Recreation and culture**

The recreation and culture group has had an increase in weight, from 9.73 percent to 10.21 percent.

The weight for recreational and cultural services has risen from 2.55 percent to 2.88 percent, driven by an increase in the weight for cultural services, which includes subscriber television.

The weight for package holidays has increased significantly, from 0.06 percent to 0.84 percent. The gain in weight is due to a change in the way overseas package holiday and accommodation costs prepaid in New Zealand was allocated to the CPI basket. In 2002, prepaid overseas package holidays were not directly included in the basket, and expenditure on them was allocated to international airfares.

Changes to the weights for the books class and the newspapers and magazines class reflect both changes to the way that expenditure on goods not directly included in the basket was allocated across those that are in the basket and to unintended double counting in 2002 for magazines.

### **15.10 Education**

The education group is the lowest-weighted group in the CPI, with a weight of 2.08 percent (up from 1.65 percent).

The increase in weight is partly due to increases in expenditure recorded in the HES for primary and secondary education (although the associated sampling errors are relatively high) and partly due to improvements in 2006 to the way that HES expenditure was mapped to the education services in the CPI basket.

### **15.11 Miscellaneous goods and services**

The weight for the miscellaneous goods and services group has fallen from 8.01 percent to 7.13 percent. The decrease is driven by a large fall in the weight for insurance (from 3.71 percent to 1.70 percent), which is mainly due to improvements in the method used to calculate the weights for the general insurance items. For more details, refer to section 14.08.

### **15.12 Tradables/non-tradables**

Tradables are goods and services that are imported or that are in competition with foreign goods and services either in domestic or foreign markets. Non-tradables are goods and services that do not face foreign competition. 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 this paper.

### **15.13 CPI all groups plus interest**

Interest payments have been excluded from the All groups CPI since 1999. However, an analytical CPI all groups plus interest series continues to be made available. The interest component of this index has a June 2006 quarter expenditure weight of 9.27 percent, compared with 7.99 percent for the June 2002 quarter. Mortgage interest has a June 2006 quarter expenditure weight of 8.19 percent.

The increase in the relative weight of interest reflects higher mortgage rates in the June 2006 quarter than in the June 2002 quarter, and the impact of strong growth in house prices on the size of the average mortgage.

The money, credit and financial statistics published by the Reserve Bank and the CPI mortgage interest survey were the main sources of information used to derive the expenditure weights for interest. The CPI does not include expenditure by landlords relating to the properties they rent out. An adjustment was made to exclude an estimate of the proportion of mortgage payments that relate to

rental properties and for small business purposes.

## 16. New elementary aggregate formula

The 2004 CPI Revision Advisory Committee recommended that Statistics NZ should move to using the geometric means (or Jevons) formula to calculate elementary aggregate indexes for goods and services that are considered to be subject to outlet substitution (recommendation 9).

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 supermarkets relative to convenience stores, and the relative importance of individual outlets (eg supermarket chains). Where weighting information is not available, outlet types and/or outlets are equally weighted.

For the reweighted CPI, the 'geometric mean of price relatives' (or Jevons) formula is being introduced for some goods and services in the basket. 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 will use a *weighted* geometric mean formula, with the weights, where available, representing the relative importance of outlet types such as supermarkets relative to convenience stores, and the relative importance of individual outlets (eg supermarket chains). Where weighting information is not available, outlet types and/or outlets will be equally weighted.

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 ILO for goods and services where households are able to substitute towards outlets showing lower relative price change.

For the reweighted 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 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.

Some empirical work was undertaken at the time papers were being prepared for the 2004 CPI Revision Advisory Committee. The Dutot formula was retained for goods and services in the CPI

basket that were unlikely to be subject to outlet substitution or where zero prices were possible. The Jevons formula was used for remaining elementary aggregate indexes (which represented about 65 percent of the basket, by expenditure weight). The CPI was recalculated from the December 2000 quarter through to the September 2003 quarter. The resulting Jevons/Dutot-based index was 2.2 index points lower at the end of the period than the Dutot-based index. This provides an indication of the possible magnitude of outlet substitution bias during the period.

The geometric means formula will be implemented for goods and services that are considered to be subject to outlet substitution when the reweighted CPI is published for the September 2006 quarter.

## **17. Average prices of selected items**

The CPI and FPI Hot Off The Press releases contain a selection of average retail prices for the current and previous month. The weighted average prices will be calculated by applying index movements to weighted average prices for the June 2006 month (FPI) and 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 will be grouped under their corresponding subgroup headings. There is now an indication of the types of retail outlets prices are collected from, and whether the prices are based on the cheapest available brand or variety in each retail outlet at the time of price collection. For other items, a specific brand or variety is selected in each retail outlet, and the price of that good is collected each period, subject to availability.

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 will be 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 5.01) to calculate a national weighted arithmetic mean price. For other items, a weighted geometric mean price will be calculated for each of the pricing centres. The weights reflect the relative importance of sampled outlets. These regional geometric mean prices will then be 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 month and 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 FPI Hot Off The Press and June 2006 quarter CPI Hot Off The Press. Other factors that will cause the new June 2006 month and 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 supermarkets and convenience stores) and sample outlets (eg supermarket chains) 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.

## **18. Use of retail transaction data**

For the first time during a periodic CPI review, substantial use is being made of retail transaction data, obtained from ACNielsen in New Zealand and from Australian company GfK.

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 reflects 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, was 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.

## **19. INFOS changes**

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 will be 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 this paper. Additional series will become available on 25 October 2006 with the September 2006 quarter CPI release.

## **20. Quantifying upper-level substitution bias**

Under normal economic conditions, price and quantity relatives are negatively correlated. Households tend to react to changes in relative prices by choosing to reduce purchase of goods and services showing higher relative price change and instead to buy more of those showing lower relative price change. Under such circumstances, a base-weighted Laspeyres index will be larger than a current-weighted Paasche index, for example.

For practical reasons, CPIs are generally calculated using a Laspeyres formula (or a Lowe or Young variant). CPIs are therefore subject to upper-level (or item) substitution bias, unlike indexes calculated using a superlative index formula such as the Fisher ideal formula (which is the geometric mean of the Laspeyres and Paasche indexes).

The New Zealand CPI is calculated using a Laspeyres-type formula. The index is reweighted once every three years, which is well within the ILO recommendation of at least once every five years.

Frequent reweighting of the basket can minimise the problem of upper-level substitution, but will not eliminate it.

Once each new set of CPI expenditure weights has been calculated, it is possible to make use of the existing and new weights to calculate a superlative index on a retrospective basis.

The 2004 CPI Revision Advisory Committee recommended that at each reweighting of the CPI basket, Statistics NZ should calculate a superlative index on a retrospective basis to provide information on the effect of upper-level (or item) substitution on the fixed-weight CPI (recommendation 10).

Such an exercise was undertaken during preparation of papers for the committee. The June 1999 and June 2002 quarter weights were used to calculate Laspeyres, Paasche and Fisher indexes retrospectively between the June 1999 quarter and June 2002 quarter. The Fisher index for the June 2002 quarter was 1077, about 5 index points lower than the Laspeyres index for the same period.

Details of a retrospective superlative index calculated between the June 2002 quarter and the June 2006 quarter will be included in the September 2006 quarter CPI Hot Off The Press. The index will provide an indication of the effect of commodity substitution on the fixed-weight CPI. It will, however, also reflect changes and improvements in the methods and data sources used to derive the 2006 expenditure weights. The reduced expenditure weight on the purchase of housing, for example, is partly the result of employing a new method that better reflects a fall in the home ownership rate. The resulting expenditure weights imply a stronger relative shift from owning to renting than is really the case and this will have a downward influence on the superlative index, as dwelling rentals have increased at a lower rate than house construction prices.

## **21. Ongoing CPI development work programme**

As noted above, the 2006/07 HES will be used to reweight the CPI in 2008. Work will commence on the 2008 reweight in the September 2007 quarter (when early HES estimates become available), approximately one year after the current CPI review is implemented.

Following the implementation of the current CPI review, the shorter-term focus of the ongoing CPI development work programme will be to improve the price indicators for such areas as communication and health services. Communication services is a particularly demanding and fast-moving area. Constructing and maintaining robust measures of price change is data intensive and requires a good deal of cooperation from service providers. A medium-term focus will be on making greater use of retail transaction data.

## **22. Progress towards implementing CPI Revision Advisory Committee recommendations**

The 2004 CPI Revision Advisory Committee's recommendations, and details of progress made towards implementing the recommendations, follow.

**Recommendation 1:** The Revision Advisory Committee recognises the wide ranging uses of the CPI, in terms of its application as a measure of inflation and as a measure of changes in the cost of living. The committee acknowledges that a single index cannot meet the needs of all users, but also recognises the value and importance of maintaining a 'single' CPI. On balance, there should remain one index branded as the 'CPI' and it should remain an acquisitions-based index measuring inflation in the goods and services purchased by New Zealand-resident private households.

*The CPI will continue to be compiled under an acquisitions conceptual framework.*

**Recommendation 2:** Statistics New Zealand should provide another index (or indexes) as separate series that would be more suited conceptually to measuring changes in households' cost of living. This additional index (or indexes) need not be published on as frequent a basis as the CPI, and an annual frequency would probably be sufficient to meet most users' requirements.

The precise methodology for producing a credible and robust cost of living measure would be left to Statistics New Zealand to explore. However, in producing an index, or a range of indexes, Statistics New Zealand should take account of changes in the cost of living for different population subgroups such as superannuitants, wage and salary earners, low-income households, and recipients of government transfer payments.

*Statistics New Zealand commissioned Daniel Melser and Robert Hill of the University of New South Wales to develop a suitable methodology for constructing regional spatial cost of living indexes and to document findings in a research report. In the report, entitled Developing a*

Methodology for Constructing Spatial Cost of Living Indexes, *the authors outlined possible uses of regional spatial cost of living indexes, explored possible conceptual frameworks, and discussed possible methodological approaches.*

*The authors highlighted the need for wide consultation with potential users to determine precise requirements and uses. This is particularly important in relation to possible compensation-related uses, where the objective of the compensation would help to guide a decision about an appropriate conceptual framework. The authors conclude that a conditional cost of living index constructed under a 'use' framework would appear to be most appropriate.*

*The paper was presented at the New Zealand Association of Economists conference (June 2005), at an Official Statistics System seminar in Wellington (July 2005) and at the Key Statistics Conference for Users of Statistics (October 2005).*

*In a media release about the 2004 CPI Revision Advisory Committee's report, Government Statistician Brian Pink said that he supported the potential value of these additional measures, but noted that current resources would not allow for the development of cost of living indexes.*

*Statistics NZ consulted widely with a range of possible users of temporal and/or regional spatial cost of living indexes. The possible development of these measures received solid support from potential users. Funding is not available for the development and ongoing production of these measures.*

**Recommendation 3:** Statistics New Zealand should not make changes to further enhance the CPI as a measure of inflation in the domestic economy (such as including expenditure in New Zealand by overseas tourists or removing local authority rates and similar non-market transactions) if such changes would result in the index being less suitable for measuring changes in the cost of living for New Zealand households. However, this decision could be reviewed at a time when Statistics New Zealand makes available a robust and credible cost of living index (or a range of cost of living indexes).

*No such changes have been made as part of the current review.*

**Recommendation 4:** Statistics New Zealand should produce a 'tradables/non-tradables' analysis of the CPI as a quarterly analytical series, published at the same time as the CPI All Groups index.

*A tradables/non-tradables analysis was first published with the December 2004 quarter and subsequent CPI Hot Off The Press releases. As part of the 2006 CPI review, goods and services added to the basket have been classified as either tradable or non-tradable, and basket deletions have been removed from the series. The rebased tradables/non-tradables series appear in Table 1 of this paper and will in future appear in Table 1 of the CPI Hot Off The Press.*

**Recommendation 5:** The Revision Advisory Committee endorses current Statistics New Zealand practices with respect to managing item substitution, new goods and new outlets, and notes that these practices are in line with ILO recommendations.

*Current practices for managing item substitution, new goods and new outlets will continue to be followed. In future, greater use will be made between three-yearly reweights of retail transaction data, to keep weights below the class level of NZHEC up to date and to ensure the timely introduction of new goods into the index.*

**Recommendation 6:** Statistics New Zealand should continue with the current three-yearly re-weighting cycle. At this stage, there is no clear evidence that the benefits of more frequent re-weighting justify the additional cost.

*There are no current plans to change the frequency of basket reweights. Although the current reweight is being implemented a year later than usual, the following reweight will be in two years' time and then there will be a return to the three-yearly cycle. In future, greater use will be made between reweights of retail transaction data, to keep weights below the class level of NZHEC up to date and to ensure the timely introduction of new goods into the index.*

**Recommendation 7:** Statistics New Zealand should continue with current practices with respect to

quality adjustment in the CPI and, in particular, the use of hedonic regression – but should take account of the limits of the application of this technique.

*Current quality adjustment procedures and practices will continue to be followed and improved, where possible.*

**Recommendation 8:** Within its current resources, and subject to Recommendations 1 and 3, Statistics New Zealand should continue to update its index methodologies to improve the quality of the CPI, taking into account changes in the economy, changing user requirements, and changes in international standards of good practice.

*This will continue to be the approach taken by Statistics NZ. An area of focus in future will be exploring further use of retail transaction data. Statistics NZ will continue to maintain and increase contact with users and other statistical agencies, and continue to participate in international price index forums and working groups.*

**Recommendation 9:** Statistics New Zealand should move to using the geometric means formula (also known as the Jevons formula) to calculate elementary aggregates for items that it deems are subject to outlet substitution.

*The geometric means (or Jevons) formula is being implemented as part of the current review and will be used to calculate elementary aggregate indexes for goods and services that are considered to be subject to outlet substitution.*

**Recommendation 10:** At each re-weighting of the CPI basket, Statistics New Zealand should calculate a superlative index on a retrospective basis to provide information on the effect of item substitution on the fixed-weight CPI. Consistent with Recommendation 8, Statistics New Zealand should also assess the value of providing users with real-time estimates of the effect of item substitution on the CPI.

*A retrospective superlative index calculated between the June 2002 quarter and the June 2006 quarter will be included in the September 2006 quarter CPI Hot Off The Press. The index will provide an indication of the effect of item substitution on the fixed-weight CPI. It will also reflect changes and improvements in the methods and data sources used to derive the 2006 expenditure weights. Statistics NZ has not yet assessed the value or feasibility of providing users with real-time estimates of the effect of item substitution.*

**Recommendation 11:** Statistics New Zealand should base the CPI classification system on the upper level structure of the Classification of Individual Consumption According to Purpose (COICOP). Statistics New Zealand should have flexibility in the application of COICOP to the CPI, in line with the ILO recommendation that: “For the purposes of international comparisons, the classification should also be reconcilable with the most recent version of COICOP, at least at its divisional level.”

*A new expenditure classification is being adopted as part of the current CPI review. The new classification, called the New Zealand Household Expenditure Classification (NZHEC), is based on the United Nations Classification of Individual Consumption According to Purpose (COICOP) and has been adapted to suit New Zealand conditions. The NZHEC has been developed for use in both the reweighted CPI and for the 2006/07 HES. In addition to publishing CPI indexes based on the first three levels of NZHEC, Statistics NZ intends to publish analytical COICOP series at the first level, to aid international comparisons. The COICOP indexes will be included in the September 2006 quarter and subsequent CPI Hot Off The Press releases as supplementary analytical tables.*

**Recommendation 12:** As part of the risk-management process, when changes to the CPI are introduced – such as the adoption of new classifications, Statistics New Zealand should produce a backcast series. Furthermore, Statistics New Zealand should backcast over as long a time period as practical, taking into account the minimum time period required for the principal uses of the index.

*Indexes based on the new classification have been backcast to the June 1999 quarter. The back series, up to the June 2006 quarter inclusive, have been provided as supplementary tables with the web version of this paper and are available on INFOS. Statistics NZ plans to do further work on the feasibility of backcasting to the December 1993 quarter. If feasible, these should be available when the reweighted September 2006 quarter CPI is released on 25 October. Categories affected by the exclusion from the CPI at the 1999 review of residential sections and interest payments will not be backcast prior to 1999.*

**Recommendation 13:** Statistics New Zealand should undertake an integrated sample review of items, regions, field outlets and brands as part of the 2006 CPI revision.

*An integrated sample review has been undertaken as part of the current review. The sample of retail outlets from which prices are collected has been reselected. The specifications of the representative basket of goods and services have been updated, and the sample of product sizes, brands and varieties has been reselected. The sample of regions from which prices are collected was reviewed as part of the regional issues review (see response to recommendation 15).*

**Recommendation 14:** Statistics New Zealand should explore the possibility of moving from national expenditure weights to using regional expenditure weights for a number of broad regions, if the use of regional weights would improve the accuracy of the national CPI. The use of regional weights would have the added benefit of supporting the derivation of 'fit-for-purpose' indexes for regions such as each of Auckland, Wellington, the rest of the North Island, Canterbury, and the rest of the South Island.

*Statistics NZ investigated the possibility of adopting regional expenditure weights and reported on the investigation in a public consultation paper. In principle, Statistics NZ is in favour of adopting a regional expenditure weighting approach. However, there was little evidence that regional expenditure weighting would improve the accuracy of the national CPI. Further, there would have been risks involved in adopting the regional expenditure approach during the current review. Consequently, a decision was made to use national expenditure shares for the 2006 rebase. Statistics NZ will consider revisiting the issue of regional expenditure weighting following the 2006 rebase.*

**Recommendation 15:** Statistics New Zealand should consult with users in reviewing the number of regional centres from which prices are to be collected.

*Following public consultation in December 2005/January 2006, based on an issues and options paper entitled Review of CPI Regions, Statistics NZ made a decision to continue to collect prices from the existing 15 regional centre, but to reallocate resources to align more closely with the population shares of the regions. This has resulted in more prices being collected from the larger pricing centres, particularly Auckland.*

**Recommendation 16:** The committee recognises that there are different regional data requirements. One such requirement is for an absolute price level measurement at a point in time, via 'spatial' indexes, to measure differences in the cost of living in different regions. Regional spatial indexes would also complement the range of indexes designed to measure changes in the cost of living over time (Recommendation 2). Statistics New Zealand should seek to develop regional spatial indexes. Consistent with Recommendation 2, it will not be necessary to publish such indexes more frequently than on an annual basis.

*Statistics NZ commissioned Daniel Melser and Robert Hill of the University of New South Wales to develop a suitable methodology for constructing regional spatial cost of living indexes and to document findings in a research report. In the report, entitled Developing a Methodology for Constructing Spatial Cost of Living Indexes, the authors outlined possible uses of regional spatial cost of living indexes, explored possible conceptual frameworks, and discussed possible methodological approaches.*

*The authors highlighted the need for wide consultation with potential users to determine precise requirements and uses. This is particularly important in relation to possible compensation-related uses, where the objective of the compensation would help to guide a decision about an appropriate conceptual framework. The authors conclude that a conditional cost of living index constructed under a 'use' framework would appear to be most appropriate.*

*The paper was presented at the New Zealand Association of Economists conference (June 2005), at an Official Statistics System seminar in Wellington (July 2005) and at the Key Statistics Conference for Users of Statistics (October 2005).*

*In a media release about the 2004 CPI Revision Advisory Committee's report, Government Statistician Brian Pink said that he supported the potential value of these additional measures,*

*but noted that current resources would not allow for the development of cost of living indexes.*

*Statistics NZ consulted widely with a range of possible users of temporal and/or regional spatial cost of living indexes. The possible development of these measures received solid support from potential users. Funding is not available for the development and ongoing production of these measures.*

**Recommendation 17:** Statistics New Zealand should adopt a consistent treatment of seasonality in the CPI and, in particular, all prices in the CPI All Groups index should be seasonally *unadjusted*. The committee recognises that the alternative of a fully seasonally adjusted index would require subsequent revisions, and that such revisions are unacceptable given the uses of the CPI. The committee also recognises there is likely to be some short-term disruption to annual movements during the year-long transition to a fully unadjusted CPI.

*The reweighted All Groups CPI will not include prices that are seasonally adjusted. The FPI became fully seasonally unadjusted from the July 2006 month, and the CPI will become fully unadjusted from the September 2006 quarter. Fully seasonally unadjusted FPI and CPI analytical time series are available, and these will provide annual movements on a fully unadjusted basis during the year-long transition of the official FPI and CPI. During the transition period, annual movements will be based on fully unadjusted index numbers for the latest period, compared with partly adjusted index numbers for the same period of the previous year.*

**Recommendation 18:** Statistics New Zealand should consider producing a seasonally adjusted CPI All Groups index as an analytical series. However, the committee attaches a relatively low priority to the production of such as index.

*Although some investigatory work was carried out during preparation of papers for the committee, subsequent work has yet to be undertaken, and a seasonally adjusted series will not be published when the reweighted CPI is introduced in October 2006. The issue was discussed at the April 2006 meeting of the Advisory Committee on Economic Statistics. Committee members had mixed views on the importance or value of producing seasonally adjusted CPI series.*

**Recommendation 19:** Statistics New Zealand should continue to produce the Food Price Index on a monthly cycle. To be consistent with the CPI All Groups index, all prices in the Food Price Index should be seasonally unadjusted.

*The FPI will continue to be produced on a monthly cycle and is seasonally unadjusted from the July 2006 month.*

**Recommendation 20:** At this point in time, given the balance of users' requirements and Statistics New Zealand's resource requirements, the production of a monthly CPI is a relatively low priority.

*There are no current plans to move to a monthly CPI.*

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Table 1

**Consumers Price Index**  
*Tradables, non-tradables and all groups – index numbers and percentage changes*<sup>(1)</sup>  
 Base: June 2006 quarter (=1000)

	Tradables <sup>(2)(3)</sup>				Non-tradables <sup>(4)</sup>			All groups <sup>(2)</sup>		
	Index	Percentage change		Index	Percentage change		Index	Percentage change		
		From previous quarter	From same quarter of previous year		From previous quarter	From same quarter of previous year		From previous quarter	From same quarter of previous year	
<i>Series ref: CPIQ</i>	<i>SE9NS6000</i>				<i>SE9NS6500</i>			<i>SE9A</i>		
<b>Quarter</b>										
1999 Jun	895	..	..	787	..	..	832	0.2	-0.4	
Sep	895	0.0	..	793	0.7	..	835	0.4	-0.5	
Dec	899	0.4	..	794	0.1	..	837	0.2	0.5	
2000 Mar	903	0.5	..	800	0.8	..	843	0.7	1.5	
Jun	910	0.7	1.6	806	0.7	2.3	849	0.7	2.0	
Sep	924	1.6	3.2	816	1.3	2.9	860	1.4	3.0	
Dec	940	1.7	4.6	821	0.7	3.5	870	1.2	4.0	
2001 Mar	938	-0.2	3.9	820	-0.1	2.6	869	-0.2	3.1	
Jun	953	1.5	4.7	823	0.3	2.2	876	0.9	3.2	
Sep	957	0.5	3.6	828	0.7	1.5	881	0.6	2.4	
Dec	960	0.3	2.1	834	0.7	1.5	886	0.6	1.8	
2002 Mar	958	-0.2	2.1	844	1.2	2.9	891	0.6	2.6	
Jun	973	1.6	2.2	849	0.6	3.2	900	1.0	2.8	
Sep	970	-0.3	1.4	857	1.0	3.5	904	0.5	2.6	
Dec	975	0.5	1.6	865	0.9	3.8	910	0.6	2.7	
2003 Mar	972	-0.3	1.5	872	0.8	3.4	913	0.4	2.5	
Jun	962	-1.0	-1.1	880	0.8	3.6	913	0.0	1.5	
Sep	956	-0.7	-1.5	890	1.2	3.8	918	0.5	1.5	
Dec	955	-0.1	-2.0	902	1.3	4.2	924	0.7	1.6	
2004 Mar	950	-0.6	-2.3	912	1.1	4.5	928	0.4	1.5	
Jun	956	0.7	-0.7	920	0.9	4.7	935	0.8	2.4	
Sep	956	0.0	0.0	930	1.0	4.5	941	0.6	2.5	
Dec	962	0.7	0.7	940	1.1	4.3	949	0.9	2.7	
2005 Mar	958	-0.5	0.8	950	1.1	4.2	953	0.4	2.8	
Jun	963	0.6	0.7	961	1.1	4.4	962	0.9	2.8	
Sep	974	1.1	1.9	971	1.1	4.4	973	1.1	3.4	
Dec	979	0.5	1.7	980	1.0	4.3	979	0.7	3.2	
2006 Mar	978	-0.1	2.1	990	1.0	4.1	985	0.6	3.3	
Jun	1000	2.3	3.8	1000	1.0	4.1	1000	1.5	4.0	

(1) Percentage changes are calculated from index numbers that are unrounded prior to the June 2006 quarter.

(2) From the September 2006 quarter, prices for fresh fruit and vegetables will not be seasonally adjusted. They were seasonally adjusted until the June 2006 quarter.

(3) Tradables are goods and services that are imported or that are in competition with foreign goods and services either in domestic or foreign markets.

(4) Non-tradables are goods and services that do not face foreign competition.

**Symbol:**

.. figures not available

Table 2.01

**Consumers Price Index**  
**Groups and subgroups – index numbers**  
 Base: June 2006 quarter (=1000)

Group or subgroup	Series ref: CPIQ	Quarter				
		2005			2006	
		Jun	Sep	Dec	Mar	Jun
<b>Food group<sup>(1)</sup></b>	SE901	978	982	987	997	1000
Fruit and vegetables	SE9011	951	924	917	937	1000
Meat, poultry and fish	SE9012	978	995	1024	1022	1000
Grocery food	SE9013	992	993	993	1004	1000
Non-alcoholic beverages	SE9014	968	982	984	998	1000
Restaurant meals and ready-to-eat food	SE9015	975	982	988	994	1000
<b>Alcoholic beverages and tobacco group</b>	SE902	982	986	988	995	1000
Alcoholic beverages	SE9021	988	993	993	994	1000
Cigarettes and tobacco	SE9022	970	970	978	999	1000
<b>Clothing and footwear group</b>	SE903	998	996	1000	997	1000
Clothing	SE9031	994	990	995	994	1000
Footwear	SE9032	1019	1024	1024	1010	1000
<b>Housing and household utilities group</b>	SE904	953	967	978	987	1000
Actual rentals for housing	SE9041	975	984	986	990	1000
Home ownership	SE9042	952	961	976	986	1000
Property maintenance	SE9043	957	966	978	987	1000
Property rates and related services	SE9044	924	975	1000	1000	1000
Household energy	SE9045	942	952	956	972	1000
<b>Household contents and services group</b>	SE905	1007	1002	1003	997	1000
Furniture, furnishings and floor coverings	SE9051	1007	1000	1001	998	1000
Household textiles	SE9052	1009	1003	1007	987	1000
Household appliances	SE9053	1023	1011	1013	997	1000
Glassware, tableware and household utensils	SE9054	983	990	1017	998	1000
Tools and equipment for house and garden	SE9055	994	990	988	996	1000
Other household supplies and services	SE9056	997	1003	996	1001	1000
<b>Health group</b>	SE906	959	973	980	990	1000
Medical products, appliances and equipment	SE9061	974	988	1002	1010	1000
Out-patient services	SE9062	958	970	974	986	1000
Hospital services	SE9063	949	977	989	996	1000
<b>Transport group</b>	SE907	901	937	948	943	1000
Purchase of vehicles	SE9071	1020	1003	990	989	1000
Private transport supplies and services	SE9072	835	903	890	919	1000
Passenger transport services	SE9073	920	941	1019	949	1000
<b>Communication group</b>	SE908	979	977	976	983	1000
Postal services	SE9081	986	986	986	1000	1000
Telecommunication equipment	SE9082	1368	1164	1068	1030	1000
Telecommunication services	SE9083	970	973	974	981	1000
<b>Recreation and culture group</b>	SE909	986	988	994	999	1000
Audio-visual and computing equipment	SE9091	1077	1052	1027	1006	1000
Major recreational and cultural equipment	SE9092	994	979	983	1008	1000
Other recreational equipment and supplies	SE9093	1002	1003	996	998	1000
Recreational and cultural services	SE9094	962	974	977	983	1000
Newspapers, books and stationery	SE9095	955	966	993	998	1000
Accommodation services	SE9096	956	973	1015	1042	1000
Package holidays	SE9097	..	..	..	..	1000
<b>Education group</b>	SE910	958	962	956	992	1000
Early childhood education	SE9101	971	982	964	972	1000
Primary and secondary education	SE9102	941	942	944	1000	1000
Tertiary and other post-school education	SE9103	956	956	956	1000	1000
<b>Miscellaneous goods and services group</b>	SE911	971	978	983	992	1000
Personal care	SE9111	986	989	987	990	1000
Personal effects	SE9113	956	953	958	971	1000
Insurance	SE9114	987	986	988	996	1000
Credit services	SE9115	954	978	993	1000	1000
Other miscellaneous services	SE9116	928	954	970	991	1000
<b>All groups<sup>(1)</sup></b>	SE9A	962	973	979	985	1000

(1) From the September 2006 quarter, prices for fresh fruit and vegetables will not be seasonally adjusted. They were seasonally adjusted until the June 2006 quarter.

**Symbol:**

.. figures not available

Table 2.02

**Consumers Price Index**  
**Groups and subgroups**  
 Percentage change from previous quarter<sup>(1)</sup>

Group or subgroup	Quarter				
	2005			2006	
	Jun	Sep	Dec	Mar	Jun
<b>Food group<sup>(2)</sup></b>	-0.1	0.4	0.5	1.0	0.3
Fruit and vegetables	-0.4	-2.8	-0.8	2.2	6.7
Meat, poultry and fish	-1.8	1.8	2.9	-0.2	-2.2
Grocery food	0.3	0.1	0.0	1.1	-0.4
Non-alcoholic beverages	0.8	1.4	0.2	1.4	0.2
Restaurant meals and ready-to-eat food	0.4	0.7	0.6	0.6	0.6
<b>Alcoholic beverages and tobacco group</b>	0.4	0.4	0.2	0.7	0.5
Alcoholic beverages	0.6	0.5	0.0	0.2	0.6
Cigarettes and tobacco	0.1	0.0	0.8	2.1	0.1
<b>Clothing and footwear group</b>	0.5	-0.2	0.4	-0.3	0.3
Clothing	0.3	-0.4	0.5	-0.1	0.6
Footwear	1.4	0.5	0.0	-1.4	-0.9
<b>Housing and household utilities group</b>	1.4	1.5	1.1	0.9	1.3
Actual rentals for housing	0.5	0.9	0.2	0.4	1.0
Home ownership	2.2	1.0	1.6	1.0	1.4
Property maintenance	1.3	1.0	1.2	0.9	1.3
Property rates and related services	-0.1	5.5	2.6	0.0	0.0
Household energy	1.5	1.0	0.4	1.7	2.9
<b>Household contents and services group</b>	1.1	-0.5	0.1	-0.6	0.3
Furniture, furnishings and floor coverings	0.5	-0.7	0.1	-0.3	0.2
Household textiles	0.8	-0.6	0.4	-2.0	1.3
Household appliances	2.9	-1.2	0.2	-1.6	0.3
Glassware, tableware and household utensils	-0.5	0.6	2.7	-1.8	0.2
Tools and equipment for house and garden	1.0	-0.4	-0.2	0.8	0.4
Other household supplies and services	0.8	0.6	-0.7	0.5	-0.1
<b>Health group</b>	0.8	1.5	0.7	1.0	1.0
Medical products, appliances and equipment	-0.3	1.4	1.4	0.8	-1.0
Out-patient services	0.9	1.3	0.4	1.2	1.4
Hospital services	1.2	3.0	1.2	0.7	0.4
<b>Transport group</b>	1.9	4.0	1.2	-0.5	6.0
Purchase of vehicles	-0.3	-1.6	-1.4	-0.1	1.2
Private transport supplies and services	4.0	8.1	-1.4	3.3	8.8
Passenger transport services	0.7	2.3	8.3	-6.9	5.4
<b>Communication group</b>	-0.2	-0.2	-0.1	0.7	1.8
Postal services	0.0	0.0	0.0	1.4	0.0
Telecommunication equipment	-5.2	-15.0	-8.2	-3.6	-2.9
Telecommunication services	0.0	0.3	0.1	0.7	1.9
<b>Recreation and culture group</b>	-0.7	0.2	0.6	0.5	0.1
Audio-visual and computing equipment	-3.2	-2.3	-2.4	-2.0	-0.6
Major recreational and cultural equipment	0.1	-1.5	0.4	2.5	-0.8
Other recreational equipment and supplies	0.0	0.1	-0.7	0.2	0.2
Recreational and cultural services	-0.2	1.2	0.3	0.6	1.7
Newspapers, books and stationery	0.6	1.1	2.8	0.5	0.2
Accommodation services	-4.2	1.8	4.3	2.7	-4.0
<b>Education group</b>	0.5	0.4	-0.6	3.8	0.8
Early childhood education	1.8	1.2	-1.9	0.8	2.9
Primary and secondary education	0.1	0.1	0.2	5.9	0.0
Tertiary and other post-school education	0.0	0.0	0.0	4.6	0.0
<b>Miscellaneous goods and services group</b>	2.3	0.7	0.5	0.9	0.8
Personal care	0.0	0.3	-0.2	0.3	1.0
Personal effects	0.6	-0.3	0.5	1.4	3.0
Insurance	2.2	-0.1	0.2	0.8	0.4
Credit services	1.7	2.4	1.6	0.7	0.0
Other miscellaneous services	6.7	2.8	1.7	2.2	0.9
<b>All groups<sup>(2)</sup></b>	0.9	1.1	0.7	0.6	1.5

(1) Percentage changes are calculated from index numbers that, in some cases, are unrounded up until the June 2006 quarter.

(2) From the September 2006 quarter, prices for fresh fruit and vegetables will not be seasonally adjusted. They were seasonally adjusted until the June 2006 quarter.

Table 2.03

<b>Consumers Price Index</b>					
<i>Groups and subgroups</i>					
Percentage change from same quarter of previous year <sup>(1)</sup>					
Group or subgroup	Quarter				
	2005			2006	
	Jun	Sep	Dec	Mar	Jun
<b>Food group<sup>(2)</sup></b>	1.1	1.6	1.5	1.8	2.2
Fruit and vegetables	-2.9	-4.7	-2.9	-1.9	5.2
Meat, poultry and fish	1.7	4.4	3.4	2.6	2.3
Grocery food	1.4	1.6	1.3	1.5	0.8
Non-alcoholic beverages	0.8	2.5	3.1	4.0	3.3
Restaurant meals and ready-to-eat food	2.2	2.4	2.3	2.4	2.6
<b>Alcoholic beverages and tobacco group</b>	4.0	2.2	2.2	1.7	1.8
Alcoholic beverages	4.1	1.5	1.7	1.3	1.3
Cigarettes and tobacco	4.0	3.9	3.5	3.1	3.1
<b>Clothing and footwear group</b>	-0.2	0.1	-0.1	0.4	0.2
Clothing	0.4	0.3	0.1	0.3	0.6
Footwear	-2.9	-1.1	-0.7	0.4	-1.9
<b>Housing and household utilities group</b>	5.7	5.6	5.2	5.0	4.9
Actual rentals for housing	2.3	2.7	2.5	2.1	2.6
Home ownership	7.6	6.6	6.4	5.9	5.0
Property maintenance	3.8	4.1	4.5	4.5	4.5
Property rates and related services	3.6	6.2	8.1	8.1	8.2
Household energy	8.3	7.9	4.4	4.8	6.1
<b>Household contents and services group</b>	1.6	1.3	0.8	0.1	-0.7
Furniture, furnishings and floor coverings	1.7	0.8	0.4	-0.4	-0.7
Household textiles	-1.0	-0.8	-0.4	-1.4	-0.9
Household appliances	3.5	2.6	2.1	0.3	-2.2
Glassware, tableware and household utensils	-2.6	-1.2	0.5	0.9	1.7
Tools and equipment for house and garden	0.4	1.1	0.8	1.2	0.6
Other household supplies and services	2.0	3.1	0.8	1.2	0.3
<b>Health group</b>	3.6	4.4	4.4	4.1	4.3
Medical products, appliances and equipment	1.2	2.8	3.1	3.4	2.7
Out-patient services	3.8	4.4	4.3	3.9	4.4
Hospital services	4.4	5.9	5.7	6.2	5.4
<b>Transport group</b>	2.5	6.1	5.2	6.7	11.0
Purchase of vehicles	-0.4	0.3	-0.3	-3.4	-1.9
Private transport supplies and services	4.6	13.4	11.4	14.4	19.8
Passenger transport services	1.9	-0.3	0.7	3.8	8.7
<b>Communication group</b>	-2.5	-2.0	-1.9	0.1	2.1
Postal services	0.0	0.0	0.0	1.4	1.4
Telecommunication equipment	-21.9	-31.1	-32.8	-28.7	-26.9
Telecommunication services	-1.7	-0.7	-0.6	1.1	3.1
<b>Recreation and culture group</b>	0.5	0.7	0.8	0.6	1.4
Audio-visual and computing equipment	-6.3	-6.9	-7.7	-9.6	-7.1
Major recreational and cultural equipment	2.2	0.1	-0.7	1.5	0.6
Other recreational equipment and supplies	-1.8	-0.3	-0.7	-0.4	-0.2
Recreational and cultural services	2.9	3.1	2.5	2.0	4.0
Newspapers, books and stationery	2.6	2.8	5.1	5.1	4.8
Accommodation services	4.6	5.6	5.2	4.4	4.6
<b>Education group</b>	5.3	5.3	4.4	4.1	4.4
Early childhood education	6.4	6.0	3.2	1.9	3.0
Primary and secondary education	8.2	8.3	8.5	6.3	6.2
Tertiary and other post-school education	4.1	4.1	4.1	4.6	4.6
<b>Miscellaneous goods and services group</b>	4.0	4.0	4.8	4.5	3.0
Personal care	1.6	1.7	1.2	0.4	1.4
Personal effects	-1.2	-0.7	0.5	2.2	4.6
Insurance	2.9	2.5	2.8	3.1	1.3
Credit services	0.8	3.0	9.8	6.6	4.8
Other miscellaneous services	12.5	13.2	14.3	13.9	7.8
<b>All groups<sup>(2)</sup></b>	2.8	3.4	3.2	3.3	4.0

(1) Percentage changes are calculated from index numbers that, in some cases, are unrounded up until the June 2006 quarter.

(2) From the September 2006 quarter, prices for fresh fruit and vegetables will not be seasonally adjusted. They were seasonally adjusted until the June 2006 quarter.

Table 3.01

**Consumers Price Index**  
**Selected groupings – index numbers**  
 Base: June 2006 quarter (=1000)

Selected grouping	Series ref: CPIQ	Quarter				
		2005			2006	
		Jun	Sep	Dec	Mar	Jun
All groups <sup>(1)</sup>	SE9A	962	973	979	985	1000
All groups – seasonally unadjusted	SE9NS1160	962	973	981	986	1000
<b>All groups less selected groups/classes<sup>(1)</sup></b>						
All groups less food group	SE9NS1200	958	971	978	983	1000
All groups less alcoholic beverages and tobacco group	SE9NS1210	960	971	978	984	1000
All groups less clothing and footwear group	SE9NS1220	960	972	979	984	1000
All groups less housing and household utilities group	SE9NS1230	964	974	980	984	1000
All groups less household contents and services group	SE9NS1240	960	971	978	984	1000
All groups less health group	SE9NS1250	962	973	980	985	1000
All groups less transport group	SE9NS1260	973	979	985	993	1000
All groups less communication group	SE9NS1270	961	972	980	985	1000
All groups less recreation and culture group	SE9NS1280	959	971	978	984	1000
All groups less education group	SE9NS1290	962	973	980	985	1000
All groups less miscellaneous goods and services group	SE9NS1300	961	972	979	984	1000
All groups less credit services	SE9NS1080	962	973	979	984	1000
All groups less purchase of housing class	SE9NS1400	963	974	980	985	1000
<b>Other groupings<sup>(1)</sup></b>						
All groups less central and local government charges	SE9NS1120	963	973	980	985	1000
Central and local government charges	SE9NS3270	946	968	976	987	1000
All groups – goods component	SE9NS1130	966	974	977	984	1000
All groups – services component	SE9NS1140	956	970	984	986	1000
All groups plus interest	SE9NS1150	964	975	982	987	1000

(1) From the September 2006 quarter, prices for fresh fruit and vegetables will not be seasonally adjusted. They were seasonally adjusted until the June 2006 quarter.

Table 3.02

**Consumers Price Index**  
*Selected groupings*  
Percentage change from previous quarter<sup>(1)</sup>

Selected grouping	Quarter				
	2005			2006	
	Jun	Sep	Dec	Mar	Jun
All groups <sup>(2)</sup>	0.9	1.1	0.7	0.6	1.5
All groups – seasonally unadjusted	0.8	1.2	0.8	0.5	1.4
<b>All groups less selected groups/classes<sup>(2)</sup></b>					
All groups less food group	1.0	1.4	0.7	0.5	1.8
All groups less alcoholic beverages and tobacco group	1.0	1.1	0.8	0.6	1.6
All groups less clothing and footwear group	0.8	1.2	0.7	0.5	1.6
All groups less housing and household utilities group	0.6	1.0	0.6	0.4	1.6
All groups less household contents and services group	0.9	1.1	0.7	0.6	1.6
All groups less health group	0.8	1.1	0.7	0.5	1.5
All groups less transport group	0.7	0.6	0.6	0.8	0.7
All groups less communication group	0.8	1.1	0.8	0.5	1.5
All groups less recreation and culture group	0.9	1.3	0.7	0.6	1.6
All groups less education group	0.9	1.1	0.7	0.5	1.5
All groups less miscellaneous goods and services group	0.7	1.1	0.7	0.5	1.6
All groups less credit services	0.9	1.1	0.7	0.5	1.6
All groups less purchase of housing class	0.7	1.1	0.6	0.5	1.5
<b>Other groupings<sup>(2)</sup></b>					
All groups less central and local government charges	0.9	1.0	0.7	0.5	1.5
Central and local government charges	0.8	2.3	0.7	1.2	1.3
All groups – goods component	0.9	0.9	0.3	0.8	1.6
All groups – services component	0.9	1.5	1.5	0.2	1.4
All groups plus interest	0.9	1.1	0.7	0.6	1.3

(1) Percentage changes are calculated from index numbers that, in some cases, are unrounded up until the June 2006 quarter.

(2) From the September 2006 quarter, prices for fresh fruit and vegetables will not be seasonally adjusted. They were seasonally adjusted until the June 2006 quarter.

Table 3.03

**Consumers Price Index**  
*Selected groupings*  
Percentage change from same quarter of previous year<sup>(1)</sup>

Selected grouping	Quarter				
	2005			2006	
	Jun	Sep	Dec	Mar	Jun
All groups <sup>(2)</sup>	2.8	3.4	3.2	3.3	4.0
All groups – seasonally unadjusted	2.8	3.4	3.2	3.3	4.0
<b>All groups less selected groups/classes<sup>(2)</sup></b>					
All groups less food group	3.2	3.8	3.5	3.7	4.4
All groups less alcoholic beverages and tobacco group	2.8	3.5	3.3	3.5	4.2
All groups less clothing and footwear group	3.0	3.6	3.4	3.4	4.2
All groups less housing and household utilities group	2.0	2.6	2.6	2.7	3.7
All groups less household contents and services group	3.0	3.4	3.3	3.5	4.2
All groups less health group	2.8	3.4	3.2	3.2	4.0
All groups less transport group	3.0	2.9	2.8	2.8	2.8
All groups less communication group	3.0	3.5	3.4	3.4	4.1
All groups less recreation and culture group	3.0	3.6	3.4	3.6	4.3
All groups less education group	2.8	3.4	3.2	3.4	4.0
All groups less miscellaneous goods and services group	2.8	3.3	3.1	3.1	4.1
All groups less credit services	2.9	3.4	3.1	3.2	4.0
All groups less purchase of housing class	2.3	3.1	2.8	3.0	3.8
<b>Other groupings<sup>(2)</sup></b>					
All groups less central and local government charges	2.7	3.1	3.0	3.2	3.8
Central and local government charges	4.3	5.9	4.9	5.1	5.7
All groups – goods component	2.6	3.1	2.8	2.8	3.5
All groups – services component	3.4	3.8	3.8	4.0	4.6
All groups plus interest	3.3	3.7	3.3	3.3	3.7

(1) Percentage changes are calculated from index numbers that, in some cases, are unrounded up until the June 2006 quarter.

(2) From the September 2006 quarter, prices for fresh fruit and vegetables will not be seasonally adjusted. They were seasonally adjusted until the June 2006 quarter.

Table 4

**International Comparisons of Consumer Price Indexes**

*Excluding housing and credit services - index numbers and percentage changes*<sup>(1)</sup>

Base: June 2006 quarter (=1000)<sup>(2)</sup> and June 1999 quarter (=1000)<sup>(2)</sup>

	New Zealand <sup>(3)(4)</sup>	Australia	Canada	Japan	Germany	United Kingdom	United States
<i>Series ref: ICPQ</i>	<i>SI1A</i>	<i>SI1B</i>	<i>SI1C</i>	<i>SI1E</i>	<i>SI1F</i>	<i>SI1G</i>	<i>SI1H</i>
<b>Quarter</b>							
2004 Jun	945	1162	1123	945	1071	1074	1121
Sep	949	1163	1122	945	1074	1072	1124
Dec	956	1172	1126	950	1074	1079	1135
2005 Mar	958	1179	1128	940	1079	1080	1139
Jun	964	1186	1139	944	1084	1090	1157
Sep	974	1198	1150	941	1092	1092	1175
Dec	980	1202	1147	944	1093	1099	1184
2006 Mar	984	1215	1150	943	1092	1100	1187
Jun	1000	..	..	..	..	..	..
<b>Percentage change from previous quarter</b>							
<b>Quarter</b>							
2004 Jun	0.5	0.5	1.2	0.4	0.8	0.7	1.6
Sep	0.4	0.1	-0.1	0.0	0.3	-0.2	0.2
Dec	0.7	0.7	0.3	0.6	0.0	0.6	1.0
2005 Mar	0.2	0.6	0.2	-1.1	0.5	0.1	0.3
Jun	0.6	0.6	1.0	0.5	0.5	0.9	1.6
Sep	1.0	1.0	0.9	-0.3	0.8	0.2	1.5
Dec	0.6	0.3	-0.3	0.3	0.1	0.6	0.7
2006 Mar	0.4	1.1	0.3	-0.1	-0.1	0.1	0.3
Jun	1.6	..	..	..	..	..	..
<b>Percentage change from same quarter of previous year</b>							
<b>Quarter</b>							
2004 Jun	1.0	2.1	2.1	-0.3	2.0	1.2	2.8
Sep	1.5	2.0	1.7	-0.1	2.0	1.0	2.6
Dec	1.9	2.3	2.1	0.7	2.0	1.2	3.6
2005 Mar	1.9	2.0	1.7	-0.2	1.5	1.2	3.1
Jun	2.0	2.1	1.4	-0.1	1.2	1.5	3.2
Sep	2.6	3.0	2.5	-0.4	1.7	1.9	4.6
Dec	2.5	2.5	1.9	-0.7	1.8	1.9	4.3
2006 Mar	2.7	3.1	1.9	0.4	1.2	1.9	4.2
Jun	3.7	..	..	..	..	..	..

(1) Percentage changes are calculated from unrounded index numbers for all countries except New Zealand.

(2) The New Zealand index series has been re-expressed on a base of the June 2006 quarter (=1000), while the index series for all other countries have remained on an expression base of the June 1999 quarter (=1000). From the September 2006 quarter CPI release, all index series in this table will be expressed on a base of the June 2006 quarter (=1000).

(3) From the September 2006 quarter, prices for fresh fruit and vegetables will not be seasonally adjusted. They were seasonally adjusted until the June 2006 quarter.

(4) Excludes the housing and household utilities group and the credit services subgroup.

**Symbol:**

.. figures not available

Table 5.01

**Consumers Price Index**  
*Population weights*  
Pricing centre

Pricing centre	Base quarter population weight		
	June 2002		June 2006
	Used in CPI <sup>(1)</sup>	Based on new method <sup>(2)</sup>	
	Percent <sup>(3)</sup>		
Whangarei	3.79	3.72	3.63
Auckland	32.69	31.37	32.63
Hamilton	7.99	9.53	9.39
Tauranga	4.80	4.31	4.42
Rotorua	2.00	2.06	1.94
Napier-Hastings	4.96	4.97	4.74
New Plymouth	2.61	2.72	2.56
Wanganui	1.38	1.76	1.59
Palmerston North	3.72	4.10	3.93
Wellington	11.89	11.35	11.23
Nelson	3.16	4.05	4.04
Christchurch	12.23	11.35	11.46
Timaru	1.62	1.45	1.38
Dunedin	4.41	4.85	4.80
Invercargill	2.76	2.40	2.27
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

(1) The estimated usually resident population was allocated to pricing centres in a way that took into account the availability of retail services, communities of interest and geographical ease of access.

(2) Based on the estimated usually resident population of the pricing centre's regional council area. Where there is more than one pricing centre within a region, the proportion of the regional council area allocated to each pricing centre was based on the population of the pricing centre's territorial authority. Regional council areas not containing a pricing centre were allocated to a neighbouring region.

(3) Figures may not add to totals due to rounding.

Table 5.02

**Consumers Price Index**  
*Population weights*  
Region

Region <sup>(1)</sup>	Base quarter population weight <sup>(2)</sup>	
	June 2006	
	Percent	
Auckland	32.63	
Wellington	11.23	
Rest of North Island	32.19	
Canterbury	12.84	
Rest of South Island	11.11	
<b>Total</b>	<b>100.00</b>	

(1) Based on regional council area boundaries. The Canterbury region contains the Christchurch and Timaru pricing centres.

(2) Based on the estimated usually resident population as at June 2005 of the regional council area or regional council areas falling within the region.

Table 6

**Consumers Price Index**  
*Source of expenditure weights*  
 Group

Group	Household Economic Survey (HES)		Total HES	Other sources	Total
	Directly allocated <sup>(1)</sup>	Indirectly allocated <sup>(2)</sup>			
Percent <sup>(3)</sup>					
Food	48.6	32.1	80.7	19.3	100.0
Alcoholic beverages and tobacco	0.0	0.4	0.4	99.6	100.0
Clothing and footwear	59.7	40.3	100.0	0.0	100.0
Housing and household utilities	35.3	9.7	45.0	55.0	100.0
Household contents and services	60.8	38.6	99.4	0.6	100.0
Health	11.6	5.6	17.1	82.9	100.0
Transport	66.5	4.8	71.4	28.6	100.0
Communication	86.1	13.9	100.0	0.0	100.0
Recreation and culture	65.6	28.0	93.7	6.3	100.0
Education	52.2	15.1	67.3	32.7	100.0
Miscellaneous goods and services	36.3	18.1	54.4	45.6	100.0
<b>All groups</b>	47.3	18.3	65.5	34.5	100.0

(1) Household Economic Survey expenditure on goods and services directly included in the CPI basket.

(2) Household Economic Survey expenditure on goods and services not directly included in the CPI basket.

(3) Figures may not add to totals due to rounding.

Table 7

**Consumers Price Index**  
*Expenditure weights*  
Group, subgroup or class

Group, subgroup or class	Base quarter expenditure weight		
	June 1999	June 2002	June 2006
	Percent of total expenditure (weight) <sup>(1)</sup>		
<b>Food group</b>	18.17	17.21	17.38
Fruit and vegetables	2.37	2.03	2.20
Fruit	1.03	0.90	0.87
Vegetables	1.33	1.13	1.33
Meat, poultry and fish	2.73	3.28	2.82
Meat and poultry	2.38	2.93	2.48
Fish and other seafood	0.35	0.36	0.34
Grocery food	7.54	6.54	6.70
Bread and cereals	2.34	1.90	2.01
Milk, cheese and eggs	1.80	1.55	1.57
Oils and fats	0.35	0.33	0.31
Food additives and condiments	0.39	0.55	0.46
Confectionery, nuts and snacks	2.04	1.60	1.65
Other grocery food	0.61	0.59	0.70
Non-alcoholic beverages	1.80	1.76	1.62
Coffee, tea and other hot drinks	0.36	0.28	0.32
Soft drinks, waters and juices	1.44	1.48	1.30
Restaurant meals and ready-to-eat food	3.74	3.60	4.03
Restaurant meals	1.44	1.64	1.79
Ready-to-eat food	2.29	1.96	2.24
<b>Alcoholic beverages and tobacco group</b>	9.25	8.72	7.20
Alcoholic beverages	6.14	6.43	4.97
Beer	3.31	2.81	2.18
Wine	1.39	1.54	1.51
Spirits and liqueurs	1.45	2.08	1.28
Cigarettes and tobacco	3.11	2.29	2.23
Cigarettes and tobacco	3.11	2.29	2.23
<b>Clothing and footwear group</b>	3.83	4.77	4.75
Clothing	3.12	3.89	3.95
Men's clothing	0.85	1.19	1.08
Women's clothing	1.46	1.86	2.00
Children's and infants' clothing	0.54	0.63	0.73
Knitting and sewing supplies	0.17	0.13	0.07
Clothing services	0.11	0.08	0.07
Footwear	0.71	0.88	0.80
Men's footwear	0.24	0.32	0.24
Women's footwear	0.29	0.41	0.43
Children's and infants' footwear	0.18	0.15	0.12
<b>Housing and household utilities group</b>	24.24	21.52	20.02
Actual rentals for housing	6.32	5.54	6.87
Actual rentals for housing	6.32	5.54	6.87
Home ownership	9.85	8.47	4.66
Purchase of housing	9.85	8.47	4.66
Property maintenance	2.37	2.12	2.24
Property maintenance materials	1.26	1.08	0.63
Property maintenance services	1.11	1.04	1.61
Property rates and related services	2.26	2.34	2.44
Water supply	0.00	0.16	0.16
Refuse disposal and recycling	0.00	0.14	0.12
Local authority rates and payments	2.26	2.04	2.16
Household energy	3.44	3.04	3.82
Electricity	3.00	2.73	3.29
Gas	0.31	0.20	0.40
Solid fuels	0.12	0.11	0.13

**Note:** For footnotes, see end of table.

Table 7  
continued

**Consumers Price Index**  
*Expenditure weights*  
Group, subgroup or class

Group, subgroup or class	Base quarter expenditure weight		
	June 1999	June 2002	June 2006
	Percent of total expenditure (weight) <sup>(1)</sup>		
<b>Household contents and services group</b>	5.58	5.13	5.49
Furniture, furnishings and floor coverings	1.91	1.91	2.07
Furniture and furnishings	1.53	1.50	1.59
Carpets and other floor coverings	0.38	0.41	0.49
Household textiles	0.56	0.51	0.53
Household textiles	0.56	0.51	0.53
Household appliances	1.17	1.26	1.16
Major household appliances	0.98	1.08	0.89
Small electrical household appliances	0.10	0.05	0.15
Repair and hire of household appliances	0.09	0.12	0.13
Glassware, tableware and household utensils	0.44	0.32	0.35
Glassware, tableware and household utensils	0.44	0.32	0.35
Tools and equipment for house and garden	0.59	0.48	0.45
Major tools and equipment for the house and garden	0.22	0.21	0.18
Small tools and accessories for the house and garden	0.36	0.27	0.27
Other household supplies and services	0.92	0.66	0.93
Cleaning products and other household supplies	0.72	0.59	0.77
Other household services	0.20	0.06	0.16
<b>Health group</b>	2.20	4.83	5.23
Medical products, appliances and equipment	0.93	0.62	1.13
Pharmaceutical products	0.73	0.54	0.77
Other medical products	0.05	0.04	0.04
Therapeutic appliances and equipment	0.15	0.04	0.33
Out-patient services	1.20	3.54	3.42
Medical services	0.71	2.62	2.09
Dental services	0.45	0.70	0.86
Paramedical services	0.04	0.21	0.47
Hospital services	0.08	0.67	0.68
Hospital services	0.08	0.67	0.68
<b>Transport group</b>	14.39	15.51	17.24
Purchase of vehicles	4.84	4.48	5.24
Purchase of new motor cars	0.80	1.25	1.69
Purchase of second-hand motor cars	3.86	3.12	3.30
Purchase of motorcycles	0.09	0.07	0.19
Purchase of bicycles	0.08	0.04	0.05
Private transport supplies and services	5.56	6.22	9.27
Vehicle parts and accessories	0.60	0.47	0.72
Petrol	3.00	3.12	5.38
Other vehicle fuels and lubricants	0.35	0.26	0.44
Vehicle servicing and repairs	0.66	1.14	1.48
Other private transport services	0.95	1.22	1.27
Passenger transport services	3.99	4.82	2.73
Rail passenger transport	0.06	0.25	0.08
Road passenger transport	0.54	0.49	0.46
Domestic air transport	0.67	0.84	0.73
International air transport	2.65	3.11	1.36
Sea passenger transport	0.06	0.13	0.10
<b>Communication group</b>	2.58	2.92	3.26
Postal services	0.15	0.12	0.16
Postal services	0.15	0.12	0.16
Telecommunication equipment	0.02	0.15	0.15
Telecommunication equipment	0.02	0.15	0.15
Telecommunication services	2.41	2.65	2.96
Telecommunication services	2.41	2.65	2.96

**Note:** For footnotes, see end of table.

Table 7  
continued

**Consumers Price Index**  
*Expenditure weights*  
Group, subgroup or class

Group, subgroup or class	Base quarter expenditure weight		
	June 1999	June 2002	June 2006
	Percent of total expenditure (weight) <sup>(1)</sup>		
<b>Recreation and culture group</b>	9.24	9.73	10.21
Audio-visual and computing equipment	1.90	1.78	1.83
Audio-visual equipment	0.68	0.74	0.94
Computing equipment	0.61	0.52	0.49
Recording media	0.51	0.47	0.40
Repair of audio-visual, photographic and information processing equipment	0.10	0.04	0.00
Major recreational and cultural equipment	0.54	0.87	0.42
Major recreational and cultural equipment	0.54	0.87	0.42
Other recreational equipment and supplies	1.87	2.00	2.01
Games, toys and hobbies	0.36	0.28	0.37
Equipment for sport, camping and outdoor recreation	0.38	0.32	0.47
Plants, flowers and gardening supplies	0.64	0.89	0.57
Pet-related products	0.49	0.52	0.59
Recreational and cultural services	2.52	2.55	2.88
Recreational and sporting services	1.21	1.01	1.01
Cultural services	1.10	1.31	1.63
Veterinary services	0.21	0.23	0.24
Newspapers, books and stationery	1.81	1.89	1.58
Books	0.42	0.23	0.45
Newspapers and magazines	0.96	1.33	0.87
Miscellaneous printed matter	0.00	0.22	0.00
Stationery and drawing materials	0.43	0.11	0.26
Accommodation services	0.55	0.57	0.66
Accommodation services	0.55	0.57	0.66
Package holidays	0.06	0.06	0.84
Package holidays	0.06	0.06	0.84
<b>Education group</b>	1.81	1.65	2.08
Early childhood education	0.22	0.48	0.35
Early childhood education	0.22	0.48	0.35
Primary and secondary education	0.54	0.21	0.70
Primary and secondary education	0.54	0.21	0.70
Tertiary and other post-school education	1.05	0.96	1.03
Tertiary and other post-school education	1.05	0.96	1.03
<b>Miscellaneous goods and services group</b>	8.70	8.01	7.13
Personal care	1.91	2.02	2.14
Hairdressing and personal grooming services	0.51	0.52	0.67
Electrical appliances for personal care	0.02	0.02	0.02
Other appliances, articles and products for personal care	1.37	1.49	1.44
Personal effects	0.39	0.45	0.58
Jewellery and watches	0.25	0.28	0.37
Other personal effects	0.14	0.18	0.22
Insurance	3.58	3.71	1.70
Life insurance	0.35	0.70	0.69
Dwelling insurance	0.59	0.51	0.19
Contents insurance	0.72	1.04	0.25
Health insurance	0.93	0.15	0.18
Vehicle insurance	0.99	1.30	0.38
Credit services	0.69	0.58	0.76
Direct credit service charges	0.69	0.58	0.76
Other miscellaneous services	2.13	1.25	1.95
Vocational services	0.22	0.18	0.30
Professional services	0.41	0.31	0.35
Real estate services	1.39	0.69	1.11
Other miscellaneous services nec	0.10	0.07	0.19
<b>All groups</b>	100.00	100.00	100.00

(1) Figures may not add to totals due to rounding.