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# Consumers price index review: 2011



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## Information about the data

### **Percentage changes**

Percentage movements are, in a number of cases, calculated using data of greater precision than published. This could result in slight variations.

### **Rounding procedures**

On occasion, figures are rounded to the nearest thousand or some other convenient unit. This rounding may result in a total disagreeing slightly with the total of the individual items as shown in tables.

### **Source**

Statistics New Zealand compiles all data, except where otherwise stated. Both administrative and survey data has been used in this report.

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# 1 Introduction

*Consumers price index review: 2011* provides users of the consumers price index (CPI) with the results of the 2011 review of the index. The paper includes:

- details of changes made to the CPI basket of representative goods and services
- the new CPI expenditure weights
- details of how these weights were derived
- an analysis of the main changes in the weights.

The CPI review will be implemented when the September 2011 quarter index is released on 25 October 2011. The review focused on reselecting and reweighting the basket of representative goods and services, to ensure the basket continues to reflect household spending patterns.

## 2 Summary

The CPI measures the rate of price change of goods and services purchased by households. Household spending patterns change as tastes, lifestyles, and incomes change, and as the range of goods and services available for households to acquire changes. Spending patterns also change as a result of relative price change. Households tend to buy more of goods and services that become relatively cheaper and less of goods and services that become relatively more expensive. For example, if apple prices increased a lot, but pear prices increased only a little, consumers might be expected to purchase more pears and fewer apples than before. Hence, the CPI needs to be reviewed periodically to ensure it continues to reflect up-to-date household spending patterns.

### Information sources for the review

The main information source for the 2011 review was the 2009/10 Household Economic Survey (HES), which collected detailed information on the spending patterns of about 3,100 households. The survey ran from July 2009 to June 2010. The number of private households covered by the HES grew from 1,569,200 for the 2006/07 survey to 1,623,400 for the 2009/10 survey (up 3.5 percent).

However, because the HES does not provide accurate information for some items, information from a range of other sources, including Statistics New Zealand surveys, government administration data, retail transaction data, and information provided by businesses, was also used.

### Updating the weights

The initial weights for the year to June 2010 (the weight reference period) were 'price updated' to the June 2011 quarter (the price reference period). This updating involved expressing the underlying quantities of the weight reference period in the prices of the price reference period. The initial weights indicated that households spent an estimated \$83.89 billion on goods and services covered by the CPI during the year to June 2010 (2009/10). When the goods and services acquired during 2009/10 are expressed in prices that were current at the June 2011 quarter, that spending rises to \$88.92 billion (6.0 percent higher, mainly due to increased petrol, food, and electricity prices since 2009/10).

The 2011 weights are based on 2009/10 spending patterns, while the 2008 weights were based on 2006/07 spending patterns. Just before 2009/10, the economy emerged from a five-quarter recession (which lasted from the March 2008 quarter to the March 2009 quarter). Consequently, the 2011 CPI weights are affected by the economic situation at the time. There were decreases in the relative importance of the purchase of new housing, professional services associated with buying and selling houses, furniture, household appliances, and cars. The relative importance of food, rentals for housing, and electricity all increased.

### Changes in the weights

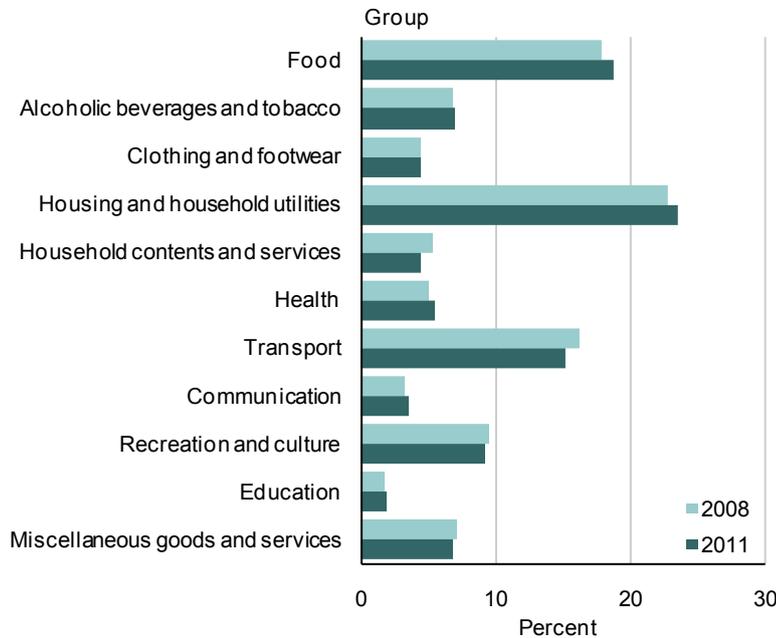
Figure 1 compares the new June 2011 quarter expenditure weights for the 11 CPI groups with the June 2008 quarter weights. The food group and the housing and household utilities group have grown in relative importance.

The figure shows that \$23.55 of every \$100 spent by households on goods and services covered by the CPI is spent on housing and household utilities, compared with \$22.75 in 2008. This reflects increased spending on rent. Food accounts for \$18.79 of every \$100 spent, compared with \$17.83 in 2008. This increase reflects a 14.2 percent rise in food prices from the June 2008 quarter to the June 2011 quarter.

Other groups declined in relative importance, including transport (down from \$16.18 to \$15.12 of every \$100 spent), with lower spending on cars contributing to the fall. Petrol declined from \$5.47 to \$5.27 of every \$100 spent.

**Figure 1**

**Relative importance of consumers price index groups**  
Expenditure weights, June 2008 and 2011 quarters



Source: Statistics New Zealand

**Basket changes**

Goods added to the CPI basket as part of the review include tablet computers, external computer hard drives, e-books, and flatbread. The services added include alarm monitoring and delivery charges. CPI price collection has also been expanded to include more downloadable products, including movie downloads, and electronic video game downloads, reflecting their growing popularity.

Goods that were removed include unflued gas heaters, dictionaries, and recordable compact discs, which have all declined in popularity and are adequately represented by other goods in the basket.

### 3 Publication timetable

The reweighted food price index (FPI) for July 2011 was published on 25 August 2011. The current CPI review will be implemented when the September 2011 quarter CPI is published on 25 October 2011. This 2011 review information paper is published on 10 October 2011.

The release dates for the July 2011 FPI and the September 2011 quarter CPI are later than usual to allow time to implement changes made as part of the review.

An information paper that presents and analyses results of a retrospective superlative index will be published on 28 November 2011. The index will make retrospective use of the 2011 weights, extending the existing analytical series that runs from 2002 to 2008. The index indicates the effect of commodity substitution on the fixed-weight CPI. The paper will also include an analysis of how the CPI would have tracked had the index not been reweighted in 2006 and/or 2008.

## 4 Reselecting the basket

The CPI basket of representative goods and services is reviewed once every three years to ensure it continues to reflect household purchases. These reviews aim 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 goods and services that have declined in importance to the extent that they no longer have a significant share of household spending.

### Basket represents household spending

The items making up the CPI basket represent the much wider range of goods and services that households purchase. To maintain the sample's representativeness, more items are selected for 'classes' and 'sections' where there is relatively high variation in price change (ie where the prices of items in the class or section tend to move differently). By comparison, fewer items are selected for classes and sections where prices move similarly. For example, prices for different fresh fruit and vegetables are highly variable, whereas prices for cigarette and tobacco products tend to move similarly.

### Information sources for the basket review

The current review of the basket was informed by lower-level 2006/07 and 2009/10 HES expenditure data, feedback from CPI price collectors, supermarket scan data from the Nielsen Company, and retail transaction data obtained from GfK for electrical appliances. Table 1 shows items that have been added to the basket.

**Table 1**

<b>Items added to the CPI basket</b>	
<b>2011</b>	
Item	Details
Dried apricots	Mainly from bulk bins, and joins packaged sultanas
Frozen berries	Joins other processed fruit, such as canned peaches
Frozen chicken nuggets	Joins other processed meats, such as sausages
Flatbread	For example, pita bread and tortilla bread, and joins four other bread items
Alarm monitoring services	Added to extend the range of household services directly included in the basket
Delivery charges	Added to reflect the increased prevalence of online purchases
Tablet computers	Joins laptops and netbooks
External computer hard drives	Has grown in importance and joins memory cards and recordable DVD discs in representing the range of digital storage devices households buy
Pre-recorded Blu-ray discs	Joins pre-recorded DVD discs
E-books	Added to reflect growing popularity, and joins standard books; electronic-book readers will be added to the CPI later in 2011
Cellulose tape	Has grown in relative importance and replaces envelopes in the basket
Student loan service fees	Added to cover existing and upcoming administration charges for student loans.

### Price collection scope and channels also reviewed

As part of the 2011 review, the scope of the products and the channels of price collection were reviewed, and updated for a number of the existing goods and services in the CPI basket. As a result, price collection of two items (off-licence ready-to-drink pre-mix spirits, and women's skirts) has been expanded, to ensure adequate representation of the goods. For other items, price collection has been extended to include digital versions of the existing goods (eg digital movie downloads now sit alongside pre-recorded DVD and Blu-ray discs in the CPI basket).

**Table 2**

<b>Expanded price collection for existing CPI items</b>	
<b>2011</b>	
Item	Details
Off-licence ready-to-drink pre-mix spirits	Price collection has been expanded to include a wider range of package sizes
Summer skirts	Joins women's winter skirts
Hybrid electric vehicles	Added to reflect the increased prevalence of hybrid electric vehicles, and joins the existing sample of new cars in the basket
International flights	The sample of destinations has been expanded to include Africa and an additional Asian destination
Digital movie downloads	Joins music downloads, and movies purchased on DVD and Blu-ray discs
Electronic video game downloads	Joins electronic video games purchased on physical discs
Surfboards	Price collection has been extended to include online outlets, joining prices collected from physical stores
Hire of downloadable movies	Joins hire of DVD discs from video stores.

Table 3 shows items that have been removed from the basket.

**Table 3**

<b>Items removed from the CPI basket</b>	
<b>2011</b>	
Item	Details
Unflued gas heaters	Expenditure on unflued gas heaters has declined; heat pumps (added in 2008) and electric heaters remain in the basket
Recordable compact discs	Declining expenditure; recordable DVD discs and camera memory cards remain in the basket, and external computer hard drives have been added
Dictionaries	Declining expenditure, thought to be due to the availability of online alternatives
Envelopes	Declining expenditure, and replaced by cellulose tape.

A list of items in the CPI basket is being made publicly available for the first time since the 1970s.

## 5 Reviewing product specifications

The pricing specifications of the goods and services tracked at retail outlets were reviewed to ensure that surveyed varieties and sizes represent household purchases. The samples of product sizes, brands, and varieties were reselected.

Summary information collated from supermarket scan data (obtained from the Nielsen Company) and retail transaction data for appliances (obtained from GfK) was used to:

- determine representative specifications for goods already in the basket and for basket additions
- 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 reflect market shares.

The new samples of products were selected in February 2011 (for goods and services where prices are collected once each quarter from retail outlets) and in March 2011 (where prices are collected monthly from retail outlets). Price collection for the existing and new samples ran alongside each other until June 2011, when collection for the old index ceased.

Postal questionnaires are used to collect prices for some 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. A new postal questionnaire has been implemented for the alarm monitoring services basket addition.

## 6 Index reference period and additional series

Although the composition and relative importance of the CPI basket have been reviewed, the index will continue to be published on an index reference period of the June 2006 quarter (=1000).

Additions to the CPI basket have resulted in publishing one new index at the class level of the New Zealand Household Expenditure Classification (NZHEC). This class is 'other property related services' (series reference: CPIQ.SE904404). Before the review, expenditure on services within this class was allocated to items within the property maintenance services class. The new class will be expressed on an index reference period of the June 2011 quarter (=1000).

## 7 Regional population weights

As part of the review of the CPI, the regional population weights were 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 15 CPI pricing centres. The population weights ensure that a given price change in Auckland, for example, with a new population weight of 33.43 percent, would have nearly three times the effect on the national CPI than would the same movement in Wellington, which has a new population weight of 11.07 percent.

### **How regional weights are calculated and assigned**

The new population weights, which appear in appendix table 3, were calculated by making use of local government boundaries. The 2011 weights were derived by assigning the usually resident population of each regional council area (at June 2010) to the CPI pricing centre(s) within the region.

Three regional council areas, Bay of Plenty, Manawatu-Wanganui, and Canterbury, have two pricing centres each. 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 have a pricing centre. Their populations were allocated to the nearest pricing centres. 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.

### **Changes in regional weights**

In addition to allocating population weights to the 15 CPI pricing centres, Statistics NZ publishes 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. Auckland and Canterbury have small increases in relative importance, while the remaining three broad regions have decreased slightly in relative importance.

The previous population weights were based on the usually resident population at June 2007.

### **Impact of 2010/11 Canterbury earthquakes**

The 2010/11 Canterbury earthquakes have affected the number of people who are usually resident in Christchurch. However, the most recent subnational population estimates available are at June 2010, before the Christchurch earthquakes.

Statistics NZ conducted a sensitivity analysis on the potential impact of overweighting Christchurch. A scenario where 5 percent of Christchurch's population permanently moved to other parts of New Zealand was examined. Under this scenario, it was assumed that the rest of the country had an annual inflation rate of 3 percent, and the impact of Christchurch facing 5, 6, and 7 percent annual inflation was considered. The analysis showed that it was only when inflation for Christchurch hit 7 percent that there was an impact on the national index (of one index point, or 0.1 percent).

Statistics NZ will monitor subnational population estimates to determine whether an adjustment is warranted before the next scheduled CPI review in 2014.

## 8 Reweighting the basket

### 8.1 Background to reweighting

The CPI is reweighted once every three years, on average. This ensures that the expenditure weights allocated to the basket of representative goods and services continue to reflect the relative importance of goods and services that households acquire for consumption. The time between reweights is within the International Labour Office (ILO) recommendation of at least once every five years.

#### **Data sources for reweighting the CPI basket**

The 2011 reweight was based on information from the 2009/10 HES and other sources. The previous reweight, completed in 2008, was based on the 2006/07 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). Furthermore, large, infrequent purchases (such as new cars) may not be reported frequently enough by the 3,100 households in the survey to provide accurate estimates of total household expenditure.

HES data was complemented by information obtained from other sources, including Statistics NZ surveys, government administration data, retail transaction data, and information provided by businesses.

#### **What the basket represents**

The goods and services in the CPI basket are a sample that represents the wider range of goods and services acquired by households. The expenditure weights assigned to the 710 individual goods and services in the new basket represent expenditure on those goods and services. But they also represent 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 in the basket but lemons are not. Expenditure on lemons (and other citrus fruit not in the basket) is allocated to oranges and to mandarins in proportion to spending directly on each of these two citrus fruits.

Appendix table 4 shows the proportion of the new expenditure weights contributed directly from the HES for the goods and services included in the CPI basket (eg oranges), the proportion 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.

Appendix table 4 shows that 54.5 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 70 percent was spending directly on goods and services in the basket. The remainder was spending on goods and services not directly included in the basket.

## 8.2 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 fewer 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
- 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' is a group of people who share a private dwelling and normally spend four or more nights a week in the household. They must share food consumption or contribute some portion of income towards providing the essentials for living as a group.

### How out-of-scope data is excluded

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 they will not be upwardly biased relative to weights sourced from HES. In addition to 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. However, in practice, 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 using this information to derive expenditure weights.

Excluding out-of-scope expenditure 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 share of expenditure by visitors from overseas, which varied significantly for different parts of the basket.

Table 4 shows some of the information sources used to derive the out-of-scope adjustment factors.

**Table 4**

<b>Information sources for out-of-scope adjustment factors</b>		
Information source	Breakdown	Type of out-of-scope expenditure
National accounts household consumption expenditure	Estimated proportion of total retail spending by the business sector, by retail store type	Business and government
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)

### 8.3 Price updating expenditure

For the 2011 review, the 'weight reference' period is the year to June 2010, which coincides with the 2009/10 HES (although expenditure on some goods and services is collected in the HES on a one-year recall basis, meaning that purchases can span the two-year period from July 2008 to June 2010). When alternative sources were used to derive expenditure weights, information for the year to June 2010 was used where possible.

Expenditure information from the 2009/10 HES and other sources has been 'price updated' to the 'price reference' period of the June 2011 quarter. Price updating is recommended for CPIs by the ILO and is common international practice. The effect of price updating is to express the quantities underlying the 2009/10 expenditure values in the prices of the June 2011 quarter, the new price reference period. In general, the indicators used to price update the expenditure weights were the lower-level CPI indexes that correspond to the goods and services in the new basket.

#### Effect of price updating

Before price updating, estimated expenditure totalled \$83.89 billion for 2009/10. After price updating to the June 2011 quarter, the new CPI expenditure weights totalled \$88.92 billion, which is \$5.03 billion (6.0 percent) higher.

Petrol prices increased about 25 percent from 2009/10 to the June 2011 quarter. This resulted in petrol adding about \$0.95 billion (or 19 percent) of the \$5.03 billion added by price updating. Food prices rose about 6 percent from 2009/10 to the June 2011 quarter, resulting in price updating adding \$1.04 billion (or 21 percent). Electricity prices were up about 9 percent from 2009/10 to the June 2011 quarter, resulting in price updating adding \$0.28 billion.

Goods and services for which price updating resulted in reduced expenditure included audio-visual equipment (down 11.3 percent), and furniture and furnishings (down 4.4 percent). Some price updating indicators for audio-visual equipment and computing equipment were customised to include rather than exclude quality improvements, which helps to explain the relatively modest fall.

For goods and services showing price increases from 2009/10 to the June 2011 quarter, price updating added \$5.71 billion to the expenditure weight. This was partly offset by a \$0.67 billion reduction for goods and services showing price decreases for this period.

## 8.4 Volume adjustments

CPIs are generally calculated using a base-weighted Laspeyres-type (or Lowe) formula that measures the changing cost of acquiring a basket of goods and services. The underlying quantities of the basket's contents relate to some earlier period and are held fixed.

The underlying 2009/10 quantities are fixed in the Laspeyres-type price index formula during the life of the index (from 2011 to 2014). These quantities are assumed to be broadly representative of household purchases during the three-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 2009/10 weight reference period.

As part of the reweights in both 2008 and 2006, volume adjustments were made to the underlying quantities. This occurred selectively where there was strong evidence that a significant trend (rather than short-term) change in volumes had taken place between the weight reference periods and the price reference periods. The 2006 reweight took place a year later than usual. This meant the price reference period was also a year further from the weight reference period, therefore increasing the possibility and magnitude of volume shifts. A wide range of possible adjustments was considered, but the changes actually made were limited to cases that were considered significant and where reliable information was available. In 2008 and 2011 a similar, but slightly more conservative, approach was used.

Although the use of selected adjustments introduces a level of subjectivity to the process, this is considered preferable to steadfastly retaining the underlying 2009/10 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 2011 to 2014).

These 'volume adjustments' were made in two ways: either directly to the 2009/10 expenditures before price updating, or incorporated into the indicator used to price update 2009/10 expenditures.

Table 5 lists the volume adjustments that were made, the reasons for making them, and the data sources used to determine whether to adjust and by how much. Note that volume change encompasses not only change in physical quantities, such as the number of desktop computers acquired, but also change in quality.

Table 5

<b>Volume adjustments</b>		
Good or service	Reason for adjustment	Information source
Butter/margarine	To reflect a shift from butter towards margarine, influenced by price increases for butter	Supermarket scan data, obtained from the Nielsen Company, for the years to June 2010 and June 2011
Cigarettes	To reflect lower volumes, influenced by excise tax increases	Cigarettes available for consumption data for the years to June 2010 and June 2011
Tobacco	To reflect lower volumes, influenced by excise tax increases	Tobacco available for consumption data for the years to June 2010 and June 2011
New cars	To reflect a shift from large and medium cars to small cars since 2009/10, and increases in registrations	Vehicle registration information for the years to June 2010 and June 2011
New motorcycles	To reflect decreases in registrations	Vehicle registration information for the years to June 2010 and June 2011
Cellular phones	To reflect the volume growth of handsets and a shift from standard mobile phones to smartphones	Retail transaction data for the years to June 2010 and June 2011; obtained from GfK
Internet charges	To reflect the growth in Internet subscriber numbers and a continued shift from dial-up to broadband	Broadband and dial-up connection numbers
DVD player/recorders	To reflect a decline in volumes for DVD player/recorders	Retail transaction data for the years to June 2010 and June 2011; obtained from GfK
Television sets	To reflect strong volume growth in 2010/11, influenced by price decreases and new features; the switch-off of analogue television broadcasts, scheduled for 2012-13, is expected to keep volumes at relatively high levels	Retail transaction data for the years to June 2010 and June 2011; obtained from GfK
Free-to-air digital television receivers	To reflect growth in volumes influenced by the switch-off of analogue television broadcasts scheduled for 2012-13	Retail transaction data for the years to June 2010 and June 2011; obtained from GfK
Desktop computers and mobile computers	To reflect a continued shift from desktops towards laptops, and the growth of tablet computers after the year to June 2010 weight reference period	Retail transaction data for the years to June 2010 and June 2011; obtained from GfK

## **Changes in weekly earnings and prices since 2009/10**

It is worth noting that the Quarterly Employment Survey (QES) measure of average weekly earnings (including overtime) increased 5.0 percent from 2009/10 to the June 2011 quarter, roughly in line with the 6.0 percent increase caused by expressing 2009/10 expenditures in June 2011 quarter prices. In October 2010, GST increased from 12.5 percent to 15 percent, which contributed to the 6.0 percent increase in prices. Personal income tax rates were reduced in October 2010, at the same time as the rise in GST.

## **Managing cyclical or volatile expenditure**

Expenditure for some goods and services is highly cyclical or highly volatile. Two important examples 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 at the 2006 review extended the weight reference period to the three years ending with the HES period. This extension makes it possible to partially smooth the impact of cyclical highs or lows (housing) or unusual claims years (insurance). For the 2008 review, information for the three years to June 2007 was used. For the 2011 review, information for the three years to June 2010 was used.

In cases where volume adjustments were made, and for housing and insurance (where an average of three years was used for the weight reference period), volumes for periods after or before the weight reference period of 2009/10 were adjusted to remove the effect of growth in the usually resident population. For example, nominal growth in volumes from the weight reference period of 2009/10 to 2010/11 was deflated by population growth between 2009/10 and 2010/11. This action ensured that any volume adjustments made were above those that may have resulted from population change alone.

## **8.5 Supermarket review**

Food and non-food grocery prices are collected from about 650 outlets in the 15 CPI pricing centres. Of these, about 70 are supermarkets, 30 greengrocers, 30 fish shops, 30 butchers, 50 convenience stores (with about half being service stations and the other half being dairies, grocery stores, and superettes), 120 restaurants (for evening meals), and more than 300 are other suitable outlets (for breakfast, lunch, and takeaway food).

### **Supermarket selection and relative importance**

Prices are collected from a selection of supermarkets in each of the 15 CPI pricing centres. The selection of supermarkets that is sampled was reviewed. Due to there being fewer distinct supermarket chains, the number of supermarkets in the CPI sample has been reduced. The number tracked has fallen by seven to about 70. Before the 2011 review, about 205,000 food prices were collected at supermarkets annually. Now that prices are collected from fewer supermarkets, and four new food items have been added to the CPI basket, this total is about 190,000 prices.

The relative importance of the supermarkets that prices are collected from was reviewed. Information from the Retail Trade Survey was used to update the relative importance of the different supermarket chains in each of the 15 CPI pricing centres.

## 9 Methods used to derive expenditure weights

This chapter outlines the methods used to derive expenditure weights for key parts of the index where information sources other than the HES were used.

As noted earlier, HES expenditure information was complemented by information from other sources, including Statistics NZ surveys, government administration data, retail transaction data, and information provided by businesses.

The HES does not provide accurate expenditure estimates for all goods and services. Respondents tend to under-report expenditure on some goods and services (such as tobacco and alcohol), and large, infrequent purchases (such as new cars) may not be reported frequently enough by the 3,100 households in the survey to provide reliable estimates of total household expenditure. In other cases, such as insurance services, expenditure captured in the HES does not match the concept used in the CPI.

### 9.1 Purchase of housing

Under the 'acquisitions' conceptual approach used to compile 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. Both expenditure on newly constructed dwellings by owner-occupiers and alterations and additions to existing owner-occupied dwellings are included.

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. This shift results in either a net addition (towards owner-occupation) or net reduction (towards renting or business use) to the stock of owner-occupied housing.

The method used in 2006, 2008, and 2011 involved applying an average new private dwelling value to the estimated 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.

Information from the Census of Population and Dwellings, the HES, and other sources indicates a trend over a lengthy period towards lower home-ownership rates.

Information from the 1991, 1996, 2001, and 2006 Censuses, and research by the Reserve Bank on the impact of family trusts on published home-ownership rates, were used to extrapolate tenure proportions (ie home-ownership and renting rates) beyond the 2006 Census. 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 currently hold tenure proportions constant beyond the 2006 Census.

A weight reference period of the three years ending with the HES period is used 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 partially smooth the impact of cyclical highs or lows in activity. For the 2011 review, information for the three years to June 2010 was used.

The derived time series estimates of the number of owner-occupied dwellings for the years to June 2007, 2008, 2009, and 2010 were used to calculate the net annual change for each of the three years to June 2010. These net annual changes were multiplied by the average cost of constructing a new dwelling during the year to June 2010 (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 2010 were averaged.

The values of additions and alterations to established owner-occupied dwellings were taken from the HES. For the 2006 and 2008 CPI reviews, estimates based on three-year averages of the value of building work put in place statistics were used. Because these statistics do not include additions and alterations that do not require a building consent, jobs valued at less than \$5,000, or some finishing work on building projects, it was decided for the 2011 CPI review that the HES would be a more suitable data source.

The final step was to price update to the June 2011 quarter. The price updating indicator used for the part of the estimate relating to new dwellings was the CPI index for the purchase of new housing.

**Note:**

1. To derive 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. The CPI does not include expenditure by landlords on, or relating to, the properties they rent out.

## 9.2 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 2010.

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

As noted under chapter 9.1, a range of information was used to extrapolate tenure proportions beyond the 2006 Census. 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 2006 Census. To estimate expenditure, the resulting figures were multiplied by corresponding average prices from the CPI rented dwellings survey. These average prices excluded Housing New Zealand properties.

Figures for each of the three years to June 2010 were expressed in 2009/10 prices, averaged, then price updated to the June 2011 quarter. In dollar-value terms, the 2011 expenditure weight of rentals for housing is about 23 percent higher than the 2008 weight, reflecting both a relative shift towards renting and rent increases.

**Note:** Educational accommodation is included in rentals for housing.

## 9.3 Purchase of new and second-hand motor cars

Information on new motor cars registered by individuals for private use (disaggregated by make and model) was 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 June 2010 were used initially to derive the expenditure weight. Then volume adjustments, based on registrations for the year to June 2011, were made to reflect volume growth and a relative shift from large and medium cars to small cars since 2009/10. This resulted in a slightly higher overall weight for new motor cars than would have been the case if 2009/10 registrations had been used.

The sample of new car makes and models was reselected as part of the current review. The reselection was based on registrations (disaggregated by make and model) for the year to June 2010. The new sample of car models that prices are collected for includes one fewer large car and two more medium-sized cars, one of which is a hybrid electric vehicle.

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 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).

## 9.4 Domestic air transport

Industry information was used to estimate total revenue from domestic passengers, and the number of domestic passengers carried for the year to June 2010.

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

Trips 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's (TRCNZ) International Visitor Survey was used. This survey gives the estimated number of trips 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 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 years to June 2010 and 2011.

The final step involved removing expenditure by people who are not part of private households living in permanent dwellings (using information sources listed in chapter 8.2).

As part of the 2011 review, the travel routes for which prices are collected each month were reviewed and reweighted – to reflect the changing relative importance of routes. Two additional routes are now included in the sample.

## 9.5 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 were the main data source for deriving 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 passenger volumes at the route level. Out-of-scope trips, such as where the main purpose of travel was business, or conventions and conferences, were removed from the totals.

Information collected as part of the CPI monthly survey of international air transport was used to derive a set of weighted average prices. These average prices took into account the relative importance of airlines for each route, and included 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 information sources listed in chapter 8.2).

As part of the 2011 review, the routes for which prices are collected each month were reweighted to reflect the changing popularity of destinations. Two additional routes were added to the sample, one to Africa and an additional one to Asia. A departure point for one route to the Pacific was removed.

While international air transport is included in the transport group, overseas package holiday and accommodation costs that are prepaid in New Zealand are 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 holidays. An adjustment was made to remove air transport expenditure that related to prepaid packages.

## 9.6 Alcoholic beverages

HES respondents tend to under-report expenditure on alcoholic beverages, so alternative information sources are required to calculate their CPI expenditure weights. Statistics NZ alcohol available for consumption statistics for 2009/10 were used to base the 2011 weights on.

The quantities of alcoholic beverages available for consumption within New Zealand, in the year to June 2010, were used in the calculations as a proxy for purchases in the weight reference period. These were available at a detailed level (eg by type of spirit for full-strength spirits).

### **How expenditure estimates for alcoholic beverages were calculated**

Expenditure estimates were calculated by multiplying the quantities available for consumption by the average prices derived from CPI price collections and from supermarket scan data from the Nielsen Company. The quantities were split into beverages consumed on and off licensed premises, using industry information (beer) and the HES (wine, spirits and liqueurs). This is an important step, since prices for alcoholic beverages consumed on licensed premises are much higher than for beverages consumed off licensed premises. The beer information was available in quantities. But the HES breakdown by storetype related to expenditure shares, so spending on wine and on spirits and liqueurs had to be converted to quantity shares by using corresponding average prices.

The disaggregated alcohol available for consumption figures and supermarket scan 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 chapter 8.2).

In dollar-value terms, the expenditure weight of alcoholic beverages before price updating was more than double what it would have been if based simply on information reported in the 2009/10 HES.

## 9.7 Cigarettes and tobacco

HES respondents also tend to under-report expenditure on cigarettes and tobacco. Tobacco available for consumption information was used to base the 2011 weights on.

The quantities of cigarettes and tobacco available for consumption within New Zealand in the year to June 2010 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 supermarket expenditure and quantity scan 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 chapter 8.2).

Supermarket scan data was used to review the brands in the sample (which represent different market segments) and to review their relative importance.

Volume adjustments were made to reflect declines in the quantities of cigarettes and tobacco available for consumption in the year to June 2011 (compared with the year to June 2010), following large increases in excise duty.

## 9.8 Insurance services

The expenditure weights allocated to the various types of insurance service were estimated on a 'net' basis. Under a net approach, the cost of insurance is only the cost associated with the insurance companies providing administration and risk-pooling services.

The insurance industry is viewed as 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. The pools are managed by the insurance companies, invested to best advantage, and provide a source of funds for policy holders to use when they need to repair or replace insured property, pay for medical services, or obtain income.

### **The net approach**

Under the net approach, the weight given to insurance relates to the administrative costs of providing the service (ie 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. The CPI expenditure weights for life insurance and health insurance were based on national accounts household consumption expenditure (HCE) estimates.

### **Aligning the scope of HCE with CPI**

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 (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.

Some types of life insurance are excluded from the CPI because they 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. For the CPI, the service provided by term life insurance is regarded as protection against the risk of disability, personal accident, or 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, as well as 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. This information was used to adjust the HCE estimate.

Adjustments were also made to exclude the estimated shares of health and life insurance service charges that were attributable to people who are not part of private households living in permanent dwellings (using information from the sources listed in chapter 8.2).

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 chapter 8.2). 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.

### **Allocating claims to goods and services**

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 who repair or replace insured property, this expenditure on behalf of households is not 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. 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 about \$950 million (more than half related to vehicle insurance), and about \$870 million of this was allocated to the weights of insurable goods and services (as the remainder of the claims paid directly to goods and service providers was estimated to have already been included in the independently sourced estimates of insurable goods and services).

A weight reference period of the three years ending with the HES period is used to derive annual average CPI expenditure weights for insurance services. This smoothes the impact of unusual claims years and minimises the risk of negative weights. For the 2011 review, information for the three years to June 2010 was used.

## **9.9 Health services**

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

There have been changes to some of the data sources used to calculate the weights for the 2011 review, and the most significant of these is discussed below.

In 2011, depending on the CPI item, GST sales data or Annual Enterprise Survey (AES) data provided information on the total income of medical service providers, broken down by type of provider. In 2008, only GST sales data was used.

Information from the Ministry of Health and other government organisations was used to remove the part of providers' income funded directly by government (such as subsidies for general practitioner consultations). Due to a change in the format of public funding data, the majority of CPI item weights were calculated using different funding data, compared with 2008. In general, the 2011 estimates are considered more reliable than the 2008 estimates. However, some assumptions and adjustments were required in both 2008 and 2011 to align the funding data with the CPI basket.

The expenditure estimates for health services include health insurance payments that insurance companies make on behalf of households. An adjustment was made to exclude the share of health insurance claims attributable to employers who 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.

## 9.10 Education

For the 2006 CPI review, about two-thirds of the expenditure weight for education was derived from the HES. However, because the 2006/07 HES appeared to provide poor estimates of expenditure on education services, in the 2008 review about 85 percent of the weight for education was estimated from alternative sources. The 2009/10 HES appears to provide better estimates of expenditure on education services than the 2006/07 HES did. For the 2011 review, alternative sources were used for about 55 percent of the weight for education.

For early childhood education, information was obtained from the Ministry of Education on the number of children enrolled in early childhood education, by age and type of provider, and on the distribution of hours children were enrolled for. This was combined with CPI average fees for each type of provider to calculate total expenditure on early childhood education fees, after removing the childcare subsidy administered by Work and Income.

For state and integrated schools, parents' contributions were estimated from Ministry of Education information. The weight for private school fees was based on pupil enrolment numbers supplied by the Ministry of Education, and average prices from the CPI survey of private school fees.

## 9.11 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.

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

1. using the 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 storetype level.

A similar approach was used for the previous three reviews. Benchmarking HES expenditure to the RTS contributed about one-third of the 2011 CPI expenditure weight for clothing and footwear.

## 10 Analysis of expenditure weights

Appendix table 1 gives the new expenditure weights, at the June 2011 quarter, for the reweighted CPI. This table also includes the expenditure weights at the June 2006 and 2008 quarters.

The expenditure weights and corresponding indexes are published at the group, subgroup, and class levels of the NZHEC classification. Weights are fixed, down to the class level, until the next reweight scheduled for 2014. Relative weights below the class level of the NZHEC classification will be monitored and may be adjusted where necessary to reflect volume-related shifts in relative importance.

The initial weights for the year to June 2010 (the weight reference period) were price updated to the June 2011 quarter (the price reference period). This updating involved expressing the underlying quantities of the weight reference period in the prices of the price reference period. The initial weights indicated that households spent \$83.89 billion on goods and services covered by the CPI during the year to June 2010 (2009/10).

When the goods and services acquired during 2009/10 are expressed in prices that were current at the June 2011 quarter, that spending rises to \$88.92 billion (6.0 percent higher, mainly due to increased petrol, food, and electricity prices since 2009/10).

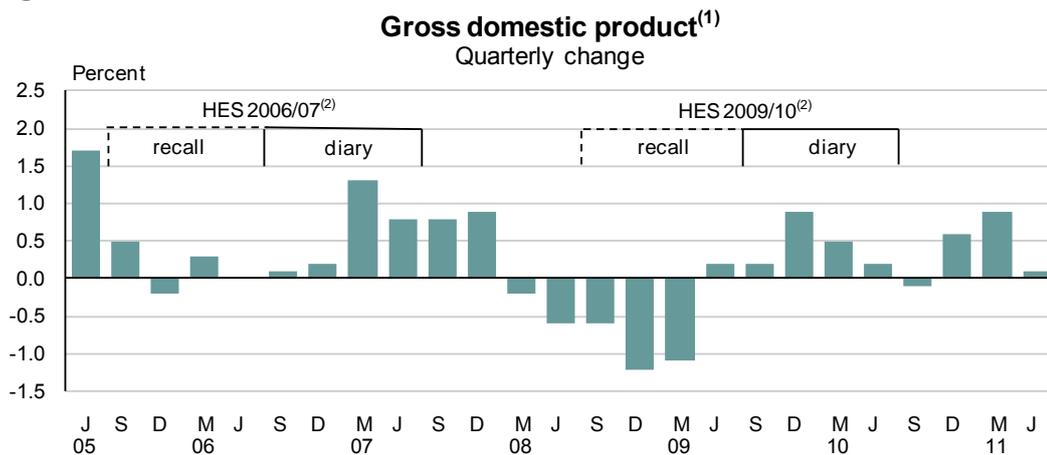
When the goods and services acquired during 2006/07 were expressed in prices that were current at the June 2008 quarter, spending amounted to \$80.98 billion at the previous CPI review in 2008. This means that the total expenditure on which the 2008 and 2011 CPI weights are based increased 9.8 percent from the June 2008 quarter to the June 2011 quarter. Prices increased 9.0 percent from the June 2008 quarter to the June 2011 quarter, which implies an increase of 0.6 percent in the quantity of goods and services acquired by private households from 2006/07 to 2009/10. The number of households increased 3.5 percent between the two HES periods.

The household consumption expenditure (HCE) component of GDP increased 1.2 percent in volume terms from the year to June 2007 to the year to June 2010. When the imputed rents of owner-occupiers are removed from the HCE, the increase in volume is even more in line with that implied by the CPI weights.

Average weekly income, as measured by the New Zealand Income Survey, increased 3.5 percent between the June 2007 quarter and the June 2010 quarter.

QES average weekly earnings (including overtime) of paid employees increased 11.5 percent from 2006/07 to 2009/10, while CPI prices increased 8.5 percent over the same period.

Figure 2



1. Seasonally adjusted chain-volume series expressed in 1995/96 prices.

2. The Household Economic Survey (HES) diary and recall periods were, respectively, the 12 months and 24 months to June 2007, and the 12 months and 24 months to June 2010.

Source: Statistics New Zealand

The 2009/10 weight reference period for the 2011 CPI review started one quarter after the economy emerged from a five-quarter recession (which, figure 2 shows, lasted from the March 2008 quarter to the March 2009 quarter). Gross domestic product figures show that economic activity declined by a total of 3.7 percent during this five-quarter recession. Consequently, the 2011 CPI weights are affected by the economic situation at the time, particularly given that expenditure on some goods and services is collected in the HES on a one-year recall basis, meaning that purchases for some items spanned the two-year period from July 2008 to June 2010. Also, some goods and services have a weight reference period of three years (eg purchase of housing, rents, and insurance).

The 2011 CPI weights show decreases in the relative importance of:

- the purchase of new housing (from 5.51 percent in 2008 to 4.01 percent in 2011)
- professional services associated with buying and selling houses (professional services from 0.24 percent to 0.18 percent; real estate services from 1.11 percent to 0.73 percent)
- furniture and furnishings (from 1.42 percent to 1.01 percent)
- household appliances (from 1.17 percent to 0.88 percent)
- new cars (from 1.39 percent to 1.00 percent)
- second-hand cars (from 2.37 percent to 2.04 percent).

Food, rentals for housing, and electricity all increased in relative importance.

There were also relative shifts within expenditure categories. For example, the relative importance of restaurant dining decreased while the relative importance of ready-to-eat takeaway food increased. There was also a shift from beer being consumed on licensed premises to it being consumed off licensed premises.

## 10.1 Food

The food group has a June 2011 quarter expenditure weight of 18.79 percent, compared with 17.83 percent in 2008.

When the food consumed during 2006/07 and 2009/10 is expressed in June 2008 and June 2011 quarter prices, respectively, spending rose 15.7 percent – from \$14.44 billion to \$16.71 billion. Much of the increase in spending was the result of a 14.2 percent rise in food prices from the June 2008 quarter to the June 2011 quarter.

The main information source used to reweight the food group was the 2009/10 HES. However, because the HES does not provide accurate information for some food items, such as confectionery and soft drinks, information was also sourced from food manufacturers and distributors, and from supermarket scan data (from the Nielsen Company).

The relative importance of grocery food has increased slightly, from 6.88 percent in 2008 to 7.20 percent in 2011. Within this subgroup, the weight of milk, cheese, and eggs increased from 1.84 percent to 1.91 percent, which partly reflects rises in milk and cheese prices. The relative shares of fruit and vegetables, of meat, poultry, and fish, and of non-alcoholic beverages, all grew. The increase in the relative importance of non-alcoholic beverages (from 1.82 percent in 2008 to 2.12 percent in 2011), reflects real growth in consumer spending on beverages such as soft drinks, energy drinks, and packaged coffee, and also the availability of better information sources for soft drinks for the 2011 CPI review.

The relative importance of restaurant meals and ready-to-eat food increased from 3.75 percent in 2008 to 3.96 percent in 2011. Within this subgroup, the weight of restaurant meals decreased from 1.52 percent to 1.45 percent, while ready-to-eat takeaway food increased from 2.23 percent to 2.51 percent.

## 10.2 Alcoholic beverages and tobacco

The alcoholic beverages and tobacco group has a June 2011 quarter expenditure weight of 6.91 percent, compared with 6.76 percent in 2008. In dollar-value terms, spending rose 12.2 percent, from an estimated \$5.48 billion at June 2008 quarter prices to \$6.15 billion at June 2011 quarter prices.

The weight for alcoholic beverages increased from 4.62 percent in 2008 to 4.79 percent in 2011. For beer, there was a relative shift from consumption on licensed premises to consumption off licensed premises.

The weight for cigarettes and tobacco remained about the same, falling slightly from 2.15 percent in 2008 percent to 2.13 percent in 2011. Prices increased 32.2 percent between the June 2008 quarter and the June 2011 quarter, influenced by large increases in excise tax in April 2010 and January 2011. However, spending increased by an estimated 8.8 percent, after an adjustment to reflect lower volumes in the year to June 2011 than in the year to June 2010.

## 10.3 Clothing and footwear

The 2011 weight for clothing and footwear is 4.42 percent, which is down from 4.48 percent in 2008. In dollar terms, spending rose 8.4 percent from the old weights expressed at June 2008 quarter prices to the new weights expressed in June 2011 quarter prices. Prices increased by only 2.1 percent between the June 2008 quarter and the June 2011 quarter.

## 10.4 Housing and household utilities

Housing and household utilities continues to be the highest-weighted group. Its share of the CPI weight has increased from 22.75 percent in 2008 to 23.55 percent in 2011.

The group's increase reflects higher contributions from four of the five subgroups. The weight for housing rentals increased from 7.85 percent to 8.78 percent, reflecting an increase in the proportion of households that rent.

The weight for purchase of housing fell from 5.51 percent in 2008 to 4.01 percent in 2011. The net increase in the number of owner-occupied dwellings used to calculate the 2011

weight was about half that used for the 2008 weight, and the average cost of constructing a new dwelling during the year to June 2010 was about 17 percent higher than in the year to June 2007.

The weight for the property maintenance subgroup is 3.57 percent in 2011, compared with 2.64 percent in 2008. This is largely due to a change in the method used to estimate expenditure for the subgroup. For the 2006 and 2008 reviews, large spending values reported by HES respondents were thought to have fitted better in the property alterations and additions part of the home ownership subgroup; they were reallocated there. For the 2011 review, expenditure values reported under property maintenance and under property alterations and additions by HES respondents were not reallocated between categories.

The weight for electricity increased from 3.54 percent to 3.91 percent, reflecting a 14.8 percent increase in electricity prices from the June 2008 quarter to the June 2011 quarter.

## 10.5 Household contents and services

The relative weight for household contents and services is 4.44 percent in 2011, down from 5.26 percent in 2008. In dollar-value terms, spending on household contents and services fell 7.3 percent.

This lower weight is due to decreases for furniture, furnishings, and floor coverings and for household appliances. These decreases reflect lower house-building activity and the weaker economic situation, and are broadly in line with results from the Retail Trade Survey.

## 10.6 Health

The health group has a June 2011 quarter expenditure weight of 5.44 percent, compared with 5.09 percent in the June 2008 quarter.

The weight for medical services (such as general practitioner consultations and optometrist examinations) increased from 1.97 percent in 2008 to 2.32 percent in 2011. The increase reflects both a 16.8 percent rise in the price of medical services from the June 2008 quarter to the June 2011 quarter, and changes in the data sources and methods for calculating the expenditure weights for items within the class. The changes include using different data sources for some items.

The weight for hospital services also increased, from 0.78 percent in 2008 to 0.85 percent in 2011, reflecting a 16.7 percent rise in the price of hospital services from the June 2008 quarter to the June 2011 quarter.

## 10.7 Transport

The transport group has a June 2011 quarter expenditure weight of 15.12 percent, compared with 16.18 percent in the June 2008 quarter.

The weight for purchase of vehicles decreased from 4.02 percent in 2008 to 3.24 percent in 2011. Within this subgroup, the weight for purchase of new motor cars fell from 1.39 percent to 1.00 percent, reflecting both a fall in the number of new-car registrations and a relative shift from large and medium cars towards small cars.

The weight for second-hand motor cars fell from 2.37 percent to 2.04 percent, based on purchases, sales, and trade-ins reported in the HES. Registration figures show that the number of imported used cars fell 30 percent from 2006/07 to 2009/10.

The weight for petrol decreased from 5.47 percent in 2008 to 5.27 percent in 2011, although actual spending in dollars increased by an estimated 5.8 percent.

The weight for international air transport decreased from 1.68 percent in 2008 to 1.59 percent in 2011. The weight for domestic air transport increased, from 0.64 percent in 2008 to 0.72 percent in 2011, reflecting both price increases and growth in the number of people flying domestically.

For domestic air transport, flights on the main trunk routes of Auckland, Wellington, and Christchurch were allocated just over half of the 2011 expenditure weight.

## 10.8 Communication

The relative weight for communication rose from 3.21 percent to 3.53 percent, reflecting an increase in spending for telecommunication services, particularly for cellphone services and Internet services. The increase for Internet services partly reflects a continued shift from dial-up to broadband.

## 10.9 Recreation and culture

The relative weight for recreation and culture declined from 9.54 percent to 9.12 percent, although actual spending in dollars increased 4.9 percent.

Recreational and cultural services increased from 2.38 percent in 2008 to 2.54 percent in 2011. This reflected an increase in expenditure on subscriber television.

The weight for audio-visual and computing equipment declined from 1.82 percent to 1.51 percent, reflecting lower audio-visual equipment prices, and lower spending on pre-recorded music and movies.

The relative weight of the newspapers, books, and stationery subgroup fell from 1.35 percent in 2008 to 1.22 percent in 2011. This decrease reflects lower estimated expenditure on newspapers and magazines.

## 10.10 Education

The education group is the lowest-weighted group in the CPI, with a weight of 1.84 percent in 2011 (up from 1.78 percent in 2008).

The weight for early childhood education increased from 0.25 percent in 2008 to 0.37 percent in 2011. This change reflects growth in both early childhood education enrolment numbers and average attendance hours, following the introduction in 2007 of 20 hours of free early childhood education for three- and four-year-old children who attend participating early childhood education services. Prices for early childhood education services increased 17.2 percent between the June 2008 quarter and the June 2011 quarter. However, these prices were still 22.8 percent lower at the June 2011 quarter than they were in the year to the June 2007 quarter, before the introduction of 20 hours early childhood education.

## 10.11 Miscellaneous goods and services

The 2011 weight for the miscellaneous goods and services group is 6.85 percent, compared with 7.12 percent in 2008. The weight of the other miscellaneous services subgroup decreased from 1.89 percent in 2008 to 1.53 percent in 2011. This fall reflects decreases in expenditure on real estate services and property conveyancing services, as a result of fewer house sales in the three years to June 2010 compared with the three years to June 2007.

## 10.12 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 available. The interest component of this index has a June 2011 quarter expenditure weight of 8.03 percent, compared with 10.57 percent for the June 2008 quarter. Mortgage interest has a June 2011 quarter expenditure weight of 6.27 percent, compared with 8.52 percent in 2008.

The decrease in the relative weight of interest reflects lower mortgage rates in the June 2011 quarter than in the June 2008 quarter, with the decrease being partly offset by an increase in total mortgage debt.

Money, credit, and financial statistics published by the Reserve Bank were the main source of information used to derive the expenditure weights for interest

The CPI does not include expenditure by landlords on the properties they rent out. An adjustment was made to exclude an estimate of the proportion of mortgage payments that relates to rental properties and for small business purposes.

## 10.13 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 2011 quarter expenditure weight of the tradables component is 44.01 percent, compared with 45.78 percent in 2008. The June 2011 quarter weight of non-tradables is 55.99 percent, compared with 54.22 percent in 2008.

The tradable/non-tradable weights, down to the class level of NZHEC, are in appendix table 5.

## 11 Use of retail transaction data

Substantial use was made of retail transaction data, obtained from the Nielsen Company and from GfK.

The Nielsen Company collects details of sales of barcoded products that are scanned at checkout counters in supermarkets around the country. Aggregate sales information was obtained for about 400 categories, broken down by quarter, leading manufacturer, leading brand and, in some cases, variety.

GfK collects similar information for small and large consumer electronic appliances and computer equipment sold through most of New Zealand's main appliance retailers and department stores. Information was obtained on the volume and value of sales of more than 20 different categories, broken down by feature. For example, the information quantifies the relative importance of TVs with LCD and plasma displays.

The Nielsen Company and GfK information was 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 or quality improvements since 2009/10 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.

The Nielsen Company and GfK data is also monitored 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.

## 12 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 their purchase of goods and services that show higher relative price change. Instead, they buy more of those showing lower relative price change. Under such circumstances, a base-weighted Laspeyres index will be higher 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 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).

In February 2007, a retrospective superlative index calculated between the June 2002 quarter and the June 2006 quarter was published. In 2008, this series was updated to the June 2008 quarter, using the weights calculated as part of the 2008 CPI review. The exercise will be repeated for the period from the June 2008 quarter to the June 2011 quarter. An information paper that presents and analyses results will be published on 28 November 2011.

The index will provide an indication of the effect of commodity substitution on the fixed-weight CPI. However, it will also reflect changes and improvements in the methods and data sources used to derive the 2011 expenditure weights.

The November 2011 paper will also include an analysis of how the CPI would have tracked had the index not been reweighted in 2006 and/or 2008.

# Appendix: Tables

**Appendix table 1**  
**Consumers price index**  
 Expenditure weights  
 Groups, subgroups, and classes

Group, subgroup, or class	Base quarter expenditure weight		
	June 2006	June 2008	June 2011
	Percent <sup>(1)</sup>		
<b>Food group</b>	17.38	17.83	18.79
Fruit and vegetables	2.20	2.41	2.48
Fruit	0.87	0.91	1.01
Vegetables	1.33	1.49	1.46
Meat, poultry, and fish	2.82	2.98	3.03
Meat and poultry	2.48	2.55	2.57
Fish and other seafood	0.34	0.42	0.46
Grocery food	6.70	6.88	7.20
Bread and cereals	2.01	1.97	2.10
Milk, cheese, and eggs	1.57	1.84	1.91
Oils and fats	0.31	0.32	0.35
Food additives and condiments	0.46	0.44	0.54
Confectionery, nuts, and snacks	1.65	1.63	1.68
Other grocery food	0.70	0.68	0.62
Non-alcoholic beverages	1.62	1.82	2.12
Coffee, tea, and other hot drinks	0.32	0.34	0.38
Soft drinks, waters, and juices	1.30	1.48	1.74
Restaurant meals and ready-to-eat food	4.03	3.75	3.96
Restaurant meals	1.79	1.52	1.45
Ready-to-eat food	2.24	2.23	2.51
<b>Alcoholic beverages and tobacco group</b>	7.20	6.76	6.91
Alcoholic beverages	4.97	4.62	4.79
Beer	2.18	1.83	1.98
Wine	1.51	1.57	1.48
Spirits and liqueurs	1.28	1.21	1.32
Cigarettes and tobacco	2.23	2.15	2.13
<b>Clothing and footwear group</b>	4.75	4.48	4.42
Clothing	3.95	3.67	3.58
Men's clothing	1.08	0.94	0.84
Women's clothing	2.00	1.88	1.91
Children's and infants' clothing	0.73	0.56	0.52
Clothing accessories	...	0.13	0.15
Knitting and sewing supplies	0.07	0.07	0.08
Clothing services	0.07	0.09	0.08
Footwear	0.80	0.81	0.84
Men's footwear	0.24	0.21	0.18
Women's footwear	0.43	0.51	0.54
Children's and infants' footwear	0.12	0.09	0.12
<b>Housing and household utilities group</b>	20.02	22.75	23.55
Actual rentals for housing	6.87	7.85	8.78
Home ownership	4.66	5.51	4.01
Purchase of new housing	4.66	5.51	4.01
Property maintenance	2.24	2.64	3.57
Property maintenance materials	0.63	0.67	0.61
Property maintenance services	1.61	1.98	2.96
Property rates and related services	2.44	2.68	2.74
Water supply	0.16	0.23	0.26
Refuse disposal and recycling	0.12	0.13	0.14
Local authority rates and payments	2.16	2.32	2.32
Other property related services	...	...	0.03
Household energy	3.82	4.06	4.45
Electricity	3.29	3.54	3.91
Gas	0.40	0.41	0.43
Solid fuels	0.13	0.11	0.11

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

**Appendix table 1 (continued)****Consumers price index**  
Expenditure weights  
Groups, subgroups, and classes

Group, subgroup, or class	Base quarter expenditure weight		
	June 2006	June 2008	June 2011
	Percent <sup>(1)</sup>		
<b>Household contents and services group</b>	5.49	5.26	4.44
Furniture, furnishings, and floor coverings	2.07	1.94	1.37
Furniture and furnishings	1.59	1.42	1.01
Carpets and other floor coverings	0.49	0.51	0.36
Household textiles	0.53	0.44	0.42
Household appliances	1.16	1.17	0.88
Major household appliances	0.89	0.95	0.69
Small electrical household appliances	0.15	0.12	0.12
Repair and hire of household appliances	0.13	0.10	0.07
Glass are, tableware, and household utensils	0.35	0.30	0.33
Tools and equipment for house and garden	0.45	0.53	0.60
Major tools and equipment for the house and garden	0.18	0.25	0.31
Small tools and accessories for the house and garden	0.27	0.28	0.29
Other household supplies and services	0.93	0.89	0.84
Cleaning products and other household supplies	0.77	0.67	0.66
Other household services	0.16	0.22	0.18
<b>Health group</b>	5.23	5.09	5.44
Medical products, appliances, and equipment	1.13	0.98	1.00
Pharmaceutical products	0.77	0.61	0.62
Other medical products	0.04	0.03	0.04
Therapeutic appliances and equipment	0.33	0.34	0.33
Out-patient services	3.42	3.32	3.59
Medical services	2.09	1.97	2.32
Dental services	0.86	0.94	0.95
Paramedical services	0.47	0.41	0.33
Hospital services	0.68	0.78	0.85
<b>Transport group</b>	17.24	16.18	15.12
Purchase of vehicles	5.24	4.02	3.24
Purchase of new motor cars	1.69	1.39	1.00
Purchase of second-hand motor cars	3.30	2.37	2.04
Purchase of motorcycles	0.19	0.20	0.14
Purchase of bicycles	0.05	0.06	0.06
Private transport supplies and services	9.27	9.24	8.96
Vehicle parts and accessories	0.72	0.76	0.58
Petrol	5.38	5.47	5.27
Other vehicle fuels and lubricants	0.44	0.58	0.46
Vehicle servicing and repairs	1.48	1.36	1.33
Other private transport services	1.27	1.07	1.32
Passenger transport services	2.73	2.92	2.92
Rail passenger transport	0.08	0.07	0.09
Road passenger transport	0.46	0.43	0.42
Domestic air transport	0.73	0.64	0.72
International air transport	1.36	1.68	1.59
Sea passenger transport	0.10	0.10	0.10
<b>Communication group</b>	3.26	3.21	3.53
Postal services	0.16	0.17	0.17
Telecommunication equipment	0.15	0.20	0.20
Telecommunication services	2.96	2.84	3.16

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

**Appendix table 1 (continued)****Consumers price index**  
Expenditure weights  
Groups, subgroups, and classes

Group, subgroup, or class	Base quarter expenditure weight		
	June 2006	June 2008	June 2011
	Percent <sup>(1)</sup>		
<b>Recreation and culture group</b>	10.21	9.54	9.12
Audio-visual and computing equipment	1.83	1.82	1.51
Audio-visual equipment	0.94	1.01	0.81
Computing equipment	0.49	0.45	0.45
Recording media	0.40	0.36	0.25
Major recreational and cultural equipment	0.42	0.37	0.30
Other recreational equipment and supplies	2.01	2.04	2.07
Games, toys, and hobbies	0.37	0.52	0.50
Equipment for sport, camping, and outdoor recreation	0.47	0.45	0.38
Plants, flow ers, and gardening supplies	0.57	0.51	0.56
Pet-related products	0.59	0.56	0.63
Recreational and cultural services	2.88	2.38	2.54
Recreational and sporting services	1.01	0.95	0.93
Cultural services	1.63	1.20	1.42
Veterinary services	0.24	0.22	0.19
New spapers, books, and stationery	1.58	1.35	1.22
Books	0.45	0.40	0.39
New spapers and magazines	0.87	0.66	0.56
Stationery and draw ing materials	0.26	0.29	0.27
Accommodation services	0.66	0.65	0.49
Package holidays	0.84	0.92	1.00
<b>Education group</b>	2.08	1.78	1.84
Early childhood education	0.35	0.25	0.37
Primary and secondary education	0.70	0.66	0.66
Tertiary and other post-school education	1.03	0.83	0.77
Other education	...	0.04	0.03
<b>Miscellaneous goods and services group</b>	7.13	7.12	6.85
Personal care	2.14	2.32	2.37
Hairdressing and personal grooming services	0.67	0.75	0.78
Electrical appliances for personal care	0.02	0.06	0.04
Other appliances, articles, and products for personal care	1.44	1.51	1.55
Personal effects	0.58	0.47	0.48
Jew ellery and w atches	0.37	0.35	0.31
Other personal effects	0.22	0.12	0.17
Insurance	1.70	1.82	1.97
Life insurance	0.69	0.83	0.92
Dw elling insurance	0.19	0.12	0.19
Contents insurance	0.25	0.24	0.21
Health insurance	0.18	0.23	0.27
Vehicle insurance	0.38	0.40	0.38
Credit services	0.76	0.62	0.49
Other miscellaneous services	1.95	1.89	1.53
Vocational services	0.30	0.25	0.28
Professional services	0.35	0.24	0.18
Real estate services	1.11	1.11	0.73
Other miscellaneous services not elsew here classified	0.19	0.30	0.35
<b>All groups</b>	100.00	100.00	100.00

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

Symbol: ... not applicable

**Appendix table 2****Consumers price index**

## Expenditure weights

## Group

Group	Base expenditure weight	
	June 2008 quarter	June 2011 quarter
	Percent <sup>(1)</sup>	
Food	17.83	18.79
Alcoholic beverages and tobacco	6.76	6.91
Clothing and footwear	4.48	4.42
Housing and household utilities	22.75	23.55
Household contents and services	5.26	4.44
Health	5.09	5.44
Transport	16.18	15.12
Communication	3.21	3.53
Recreation and culture	9.54	9.12
Education	1.78	1.84
Miscellaneous goods and services	7.12	6.85
<b>All groups</b>	<b>100.00</b>	<b>100.00</b>

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

**Appendix table 3****Consumers price index**Population weights<sup>(1)</sup>

Region / pricing centre

Region / pricing centre	Base population weight	
	June 2008 quarter	June 2011 quarter
	Percent <sup>(2)</sup>	
<b>Auckland</b>	32.98	33.43
<b>Wellington</b>	11.13	11.07
<b>Rest of North Island</b>	32.04	31.73
Whangarei	3.64	3.60
Hamilton	9.43	9.42
Tauranga	4.45	4.48
Rotorua	1.88	1.82
Napier-Hastings	4.69	4.61
New Plymouth	2.54	2.50
Wanganui	1.56	1.49
Palmerston North	3.86	3.81
<b>Canterbury</b>	12.94	12.96
Christchurch	11.55	11.59
Timaru	1.39	1.37
<b>Rest of South Island</b>	10.92	10.82
Nelson	3.95	3.91
Dunedin	4.77	4.75
Invercargill	2.20	2.16
<b>Total</b>	100.00	100.00

1. 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.
2. Figures may not add to totals due to rounding.

**Appendix table 4****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	42.8	25.2	67.9	32.1	100.0
Alcoholic beverages and tobacco	0.0	0.2	0.2	99.8	100.0
Clothing and footwear	0.8	2.1	2.9	97.1	100.0
Housing and household utilities	35.3	10.7	46.0	54.0	100.0
Household contents and services	57.8	40.1	98.0	2.0	100.0
Health	6.9	4.7	11.6	88.4	100.0
Transport	60.4	9.9	70.3	29.7	100.0
Communication	83.4	14.2	97.5	2.5	100.0
Recreation and culture	56.2	25.6	81.8	18.2	100.0
Education	39.2	7.3	46.5	53.5	100.0
Miscellaneous goods and services	32.7	14.8	47.5	52.5	100.0
<b>All groups</b>	<b>39.4</b>	<b>15.0</b>	<b>54.5</b>	<b>45.5</b>	<b>100.0</b>

1. HES expenditure on goods and services directly included in the CPI basket.
2. HES expenditure on goods and services not directly included in the CPI basket.
3. Figures may not add to totals due to rounding.

## Appendix table 5

## Consumers price index tradable and non-tradable component series

## Expenditure weights

## Groups, subgroups, and classes

Group, subgroup, or class	June 2011 quarter base expenditure weight		
	Tradables	Non-tradables	All groups
	Percent of total expenditure (weight) <sup>(1)</sup>		
<b>Food group</b>	12.75	6.04	18.79
Fruit and vegetables	2.48	...	2.48
Fruit	1.01	...	1.01
Vegetables	1.46	...	1.46
Meat, poultry, and fish	2.23	0.81	3.03
Meat and poultry	1.76	0.81	2.57
Fish and other seafood	0.46	...	0.46
Grocery food	6.15	1.06	7.20
Bread and cereals	1.22	0.87	2.10
Milk, cheese and eggs	1.73	0.18	1.91
Oils and fats	0.35	...	0.35
Food additives and condiments	0.54	...	0.54
Confectionery, nuts, and snacks	1.68	...	1.68
Other grocery food	0.62	...	0.62
Non-alcoholic beverages	1.90	0.21	2.12
Coffee, tea, and other hot drinks	0.38	...	0.38
Soft drinks, waters, and juices	1.53	0.21	1.74
Restaurant meals and ready-to-eat food	...	3.96	3.96
Restaurant meals	...	1.45	1.45
Ready-to-eat food	...	2.51	2.51
<b>Alcoholic beverages and tobacco group</b>	2.09	4.82	6.91
Alcoholic beverages	2.09	2.70	4.79
Beer	...	1.98	1.98
Wine	1.15	0.33	1.48
Spirits and liqueurs	0.94	0.38	1.32
Cigarettes and tobacco	...	2.13	2.13
<b>Clothing and footwear group</b>	4.34	0.08	4.42
Clothing	3.50	0.08	3.58
Men's clothing	0.84	...	0.84
Women's clothing	1.91	...	1.91
Children's and infants' clothing	0.52	...	0.52
Clothing accessories	0.15	...	0.15
Knitting and sewing supplies	0.08	...	0.08
Clothing services	...	0.08	0.08
Footwear	0.84	...	0.84
Men's footwear	0.18	...	0.18
Women's footwear	0.54	...	0.54
Children's and infants' footwear	0.12	...	0.12
<b>Housing and household utilities group</b>	0.72	22.83	23.55
Actual rentals for housing	...	8.78	8.78
Home ownership	...	4.01	4.01
Purchase of new housing	...	4.01	4.01
Property maintenance	0.61	2.96	3.57
Property maintenance materials	0.61	...	0.61
Property maintenance services	...	2.96	2.96
Property rates and related services	...	2.74	2.74
Water supply	...	0.26	0.26
Refuse disposal and recycling	...	0.14	0.14
Local authority rates and payments	...	2.32	2.32
Other property related services	...	0.03	0.03
Household energy	0.11	4.34	4.45
Electricity	...	3.91	3.91
Gas	...	0.43	0.43
Solid fuels	0.11	...	0.11

Note: For footnotes, see end of table.

**Appendix table 5 (continued)****Consumers price index tradable and non-tradable component series**

Expenditure weights

Groups, subgroups, and classes

Group, subgroup, or class	June 2011 quarter base expenditure weight		
	Tradables	Non-tradables	All groups
	Percent of total expenditure (weight) <sup>(1)</sup>		
<b>Household contents and services group</b>	4.14	0.30	4.44
Furniture, furnishings, and floor coverings	1.37	...	1.37
Furniture and furnishings	1.01	...	1.01
Carpets and other floor coverings	0.36	...	0.36
Household textiles	0.42	...	0.42
Household appliances	0.80	0.07	0.88
Major household appliances	0.69	...	0.69
Small electrical household appliances	0.12	...	0.12
Repair and hire of household appliances	...	0.07	0.07
Glassware, tableware, and household utensils	0.33	...	0.33
Tools and equipment for house and garden	0.56	0.04	0.60
Major tools and equipment for the house and garden	0.27	0.04	0.31
Small tools and accessories for the house and garden	0.29	...	0.29
Other household supplies and services	0.66	0.18	0.84
Cleaning products and other household supplies	0.66	...	0.66
Other household services	...	0.18	0.18
<b>Health group</b>	0.88	4.56	5.44
Medical products, appliances, and equipment	0.88	0.11	1.00
Pharmaceutical products	0.51	0.11	0.62
Other medical products	0.04	...	0.04
Therapeutic appliances and equipment	0.33	...	0.33
Out-patient services	...	3.59	3.59
Medical services	...	2.32	2.32
Dental services	...	0.95	0.95
Paramedical services	...	0.33	0.33
Hospital services	...	0.85	0.85
<b>Transport group</b>	11.15	3.97	15.12
Purchase of vehicles	3.24	...	3.24
Purchase of new motor cars	1.00	...	1.00
Purchase of second-hand motor cars	2.04	...	2.04
Purchase of motorcycles	0.14	...	0.14
Purchase of bicycles	0.06	...	0.06
Private transport supplies and services	6.31	2.64	8.96
Vehicle parts and accessories	0.58	...	0.58
Petrol	5.27	...	5.27
Other vehicle fuels and lubricants	0.46	...	0.46
Vehicle servicing and repairs	...	1.33	1.33
Other private transport services	...	1.32	1.32
Passenger transport services	1.59	1.32	2.92
Rail passenger transport	...	0.09	0.09
Road passenger transport	...	0.42	0.42
Domestic air transport	...	0.72	0.72
International air transport	1.59	...	1.59
Sea passenger transport	...	0.10	0.10
<b>Communication group</b>	0.20	3.33	3.53
Postal services	...	0.17	0.17
Telecommunication equipment	0.20	...	0.20
Telecommunication services	...	3.16	3.16

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

## Appendix table 5 (continued)

## Consumers price index tradable and non-tradable component series

## Expenditure weights

## Groups, subgroups, and classes

Group, subgroup, or class	June 2011 quarter base expenditure weight		
	Tradables	Non-tradables	All groups
	Percent of total expenditure (weight) <sup>(1)</sup>		
<b>Recreation and culture group</b>	5.71	3.41	9.12
Audio-visual and computing equipment	1.51	...	1.51
Audio-visual equipment	0.81	...	0.81
Computing equipment	0.45	...	0.45
Recording media	0.25	...	0.25
Major recreational and cultural equipment	0.30	...	0.30
Other recreational equipment and supplies	2.07	...	2.07
Games, toys, and hobbies	0.50	...	0.50
Equipment for sport, camping, and outdoor recreation	0.38	...	0.38
Plants, flowers, and gardening supplies	0.56	...	0.56
Pet-related products	0.63	...	0.63
Recreational and cultural services	...	2.54	2.54
Recreational and sporting services	...	0.93	0.93
Cultural services	...	1.42	1.42
Veterinary services	...	0.19	0.19
New spapers, books, and stationery	0.87	0.35	1.22
Books	0.39	...	0.39
New spapers and magazines	0.21	0.35	0.56
Stationery and drawing materials	0.27	...	0.27
Accommodation services	...	0.49	0.49
Package holidays	0.96	0.04	1.00
<b>Education group</b>	...	1.84	1.84
Early childhood education	...	0.37	0.37
Primary and secondary education	...	0.66	0.66
Tertiary and other post-school education	...	0.77	0.77
Other education	...	0.03	0.03
<b>Miscellaneous goods and services group</b>	2.04	4.81	6.85
Personal care	1.59	0.78	2.37
Hairdressing and personal grooming services	...	0.78	0.78
Electrical appliances for personal care	0.04	...	0.04
Other appliances, articles, and products for personal care	1.55	...	1.55
Personal effects	0.45	0.04	0.48
Jewellery and watches	0.28	0.04	0.31
Other personal effects	0.17	...	0.17
Insurance	...	1.97	1.97
Life insurance	...	0.92	0.92
Dwelling insurance	...	0.19	0.19
Contents insurance	...	0.21	0.21
Health insurance	...	0.27	0.27
Vehicle insurance	...	0.38	0.38
Credit services	...	0.49	0.49
Other miscellaneous services	...	1.53	1.53
Vocational services	...	0.28	0.28
Professional services	...	0.18	0.18
Real estate services	...	0.73	0.73
Other miscellaneous services not elsewhere classified	...	0.35	0.35
<b>All groups</b>	<b>44.01</b>	<b>55.99</b>	<b>100.00</b>

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

Symbol: ... not applicable