

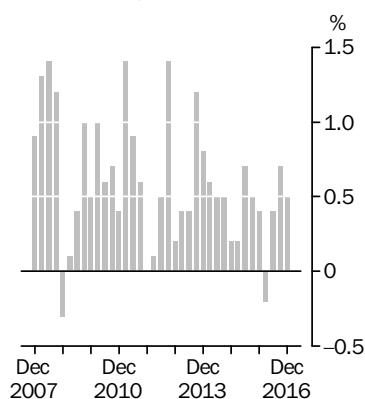
**CONSUMER PRICE INDEX**

AUSTRALIA

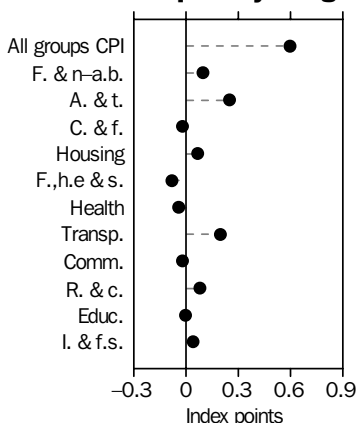
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**All Groups CPI**

Quarterly change



**Contribution to quarterly change**



**KEY FIGURES**

**WEIGHTED AVERAGE OF EIGHT CAPITAL CITIES**

	<i>Sep Qtr 2016 to Dec Qtr 2016</i> % change	<i>Dec Qtr 2015 to Dec Qtr 2016</i> % change
<b>All groups CPI</b>	<b>0.5</b>	<b>1.5</b>
Food and non-alcoholic beverages	0.6	1.8
Alcohol and tobacco	2.8	5.9
Clothing and footwear	-0.5	-0.9
Housing	0.3	1.9
Furnishings, household equipment and services	-0.8	0.6
Health	-0.6	3.7
Transport	1.7	-0.3
Communication	-0.8	-5.9
Recreation and culture	0.6	-0.5
Education	0.0	3.3
Insurance and financial services	0.6	2.7
<b>CPI analytical series</b>		
All groups CPI, seasonally adjusted	0.5	1.5
Trimmed mean	0.4	1.6
Weighted median	0.4	1.5

**KEY POINTS**

**THE ALL GROUPS CPI**

- rose 0.5% this quarter, compared with a rise of 0.7% in the September quarter 2016.
- rose 1.5% over the twelve months to the December quarter 2016, compared with a rise of 1.3% over the twelve months to the September quarter 2016.

**OVERVIEW OF CPI MOVEMENTS**

- The most significant price rises this quarter are tobacco (+7.4%), automotive fuel (+6.7%), domestic holiday travel and accommodation (+5.5%) and new dwelling purchase by owner-occupiers (+0.5%).
- The most significant offsetting price falls this quarter are international holiday travel and accommodation (-2.6%), accessories (-5.1%) and waters, soft drinks and juices (-3.2%).

**INQUIRIES**

For further information about these and related statistics, contact the National Information and Referral Service on 1300 135 070.

# NOTES

## FORTHCOMING ISSUES

<i>ISSUE (Quarter)</i>	<i>RELEASE DATE</i>
March 2017	26 April 2017
June 2017	26 July 2017
September 2017	25 October 2017
December 2017	31 January 2018

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## CHANGES IN THIS ISSUE

This issue includes the following:

### *Tradables and Non-tradables*

Implementation of the changes outlined in the September quarter 2016 feature article 'Review of the Consumer Price Index International Trade Exposure Series' are included in this publication. As a result of the review, the following changes have been made:

- Expenditure classes changing from Non-tradables to Tradables include: Breakfast cereals; Waters, soft drinks and juices; Gas and other household fuels; Therapeutic appliances and equipment; and Newspaper, magazines and stationery.
- Expenditure classes changing from Tradables to Non-tradables include: Spirits; Tobacco; and Pharmaceutical products.

The International trade exposure series are located in Table 8. Reflecting these changes, the 'Contribution to Total CPI' series for Tradables and Non-tradables are available from September quarter 2016.

### *Attached dwellings*

This issue contains a feature article: 'Measuring Price Change of Attached Dwellings in the CPI'. The changes outlined in this review will be implemented in the March quarter 2017 issue of the CPI, which is scheduled for release 26 April 2017.

## ROUNDING

Any discrepancies between totals and sums of components in this publication are due to rounding.

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## ABBREVIATIONS

ABS Australian Bureau of Statistics  
CPI Consumer Price Index  
n.e.c. not elsewhere classified

David W. Kalisch  
Australian Statistician

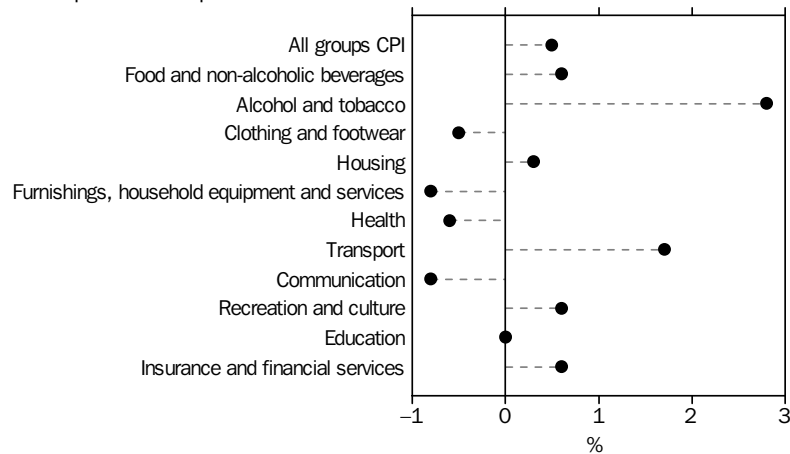
## MAIN CONTRIBUTORS TO CHANGE

### MAIN CONTRIBUTORS TO CHANGE

#### CPI GROUPS

The discussion of the CPI groups below is ordered in terms of their absolute significance to the change in All groups index points for the quarter (see Tables 6 and 7). Unless otherwise stated, the analysis is in original terms.

WEIGHTED AVERAGE OF EIGHT CAPITAL CITIES, Percentage change from previous quarter



#### ALCOHOL AND TOBACCO GROUP (+2.8%)

The main contributor to the rise in the alcohol and tobacco group this quarter is tobacco (+7.4%). The rise in tobacco is mainly due to flow on effects from the federal excise tax increase effective 1 September 2016.

Over the last twelve months, the alcohol and tobacco group rose 5.9%. The main contributor to the rise is tobacco (+13.2%).

In seasonally adjusted terms, the alcohol and tobacco group rose 1.3% this quarter. The main contributor to the rise is tobacco (+3.4%).

#### TRANSPORT GROUP (+1.7%)

The main contributor to the rise in the transport group this quarter is automotive fuel (+6.7%). Automotive fuel rose in October (+2.4%), November (+2.6%) and December (+3.7%). All fuel types recorded rises this quarter. The rise is partially offset by a fall in motor vehicles (-0.6%).

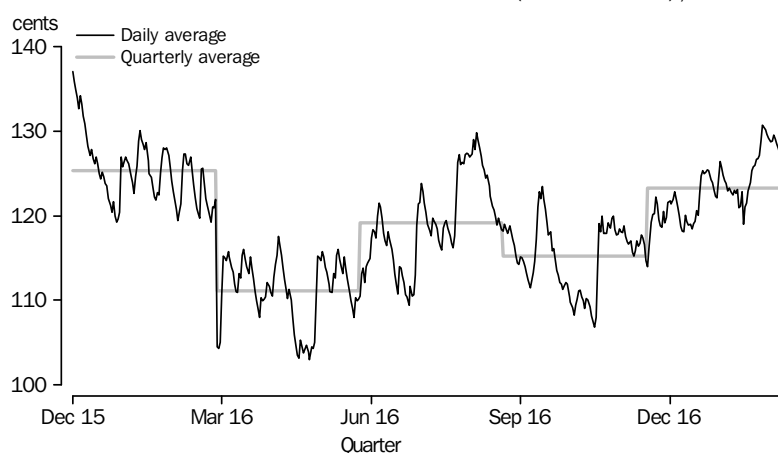
The following graph shows the pattern of the average daily prices for unleaded petrol for the eight capital cities over the last fifteen months.

## MAIN CONTRIBUTORS TO CHANGE *continued*

### TRANSPORT GROUP

(+1.7%) *continued*

AVERAGE PRICE OF UNLEADED PETROL (91 OCTANE), cents per litre



Over the last twelve months, the transport group fell 0.3%. The main contributors to the fall are motor vehicles (-1.9%) and automotive fuel (-1.1%). This fall is partially offset by rises in other services in respect of motor vehicles (+1.4%) and urban transport fares (+2.3%).

In seasonally adjusted terms, the transport group rose 1.9% this quarter. The main contributor to the rise is automotive fuel (+6.7%).

### FOOD AND NON-ALCOHOLIC BEVERAGES GROUP

(+0.6%)

The main contributors to the rise in the food and non-alcoholic beverages group this quarter are restaurant meals (+1.1%), other food products n.e.c. (+5.4%) and vegetables (+2.5%).

Over the last twelve months, the food and non-alcoholic beverages group rose 1.8%. The main contributors to the rise are vegetables (+12.5%), fruit (+6.9%) and restaurant meals (+2.4%).

In seasonally adjusted terms, the food and non-alcoholic beverages group rose 0.3% this quarter. The main contributors to the rise are restaurant meals (+1.1%) and vegetables (+1.6%).

### FURNISHINGS, HOUSEHOLD EQUIPMENT AND SERVICES GROUP

(-0.8%)

The main contributor to the fall in the furnishings, household equipment and services group this quarter is furniture (-1.5%).

Over the last twelve months, the furnishings, household equipment and services group rose 0.6%. The main contributor to the rise is child care (+8.1%).

In seasonally adjusted terms, the furnishings, household equipment and services group fell 0.6%. The main contributor to the fall is household textiles (-4.8%).

### RECREATION AND CULTURE GROUP (+0.6%)

The main contributor to the rise in the recreation and culture group this quarter is domestic holiday travel and accommodation (+5.5%). The rise in domestic holiday travel and accommodation is due to the October school holidays and the lead up to the peak summer holiday period.

Over the last twelve months, the recreation and culture group fell 0.5%. The main contributors to the fall are audio, visual and computing equipment (-9.9%) and international holiday travel and accommodation (-2.5%).

## MAIN CONTRIBUTORS TO CHANGE *continued*

### RECREATION AND CULTURE GROUP (+0.6%) *continued*

In the CPI, airfares are collected in advance (at the time of payment), but are only used in the CPI in the quarter in which the trip is undertaken. International airfares are collected two months in advance (October for travel in December) and domestic airfares are collected one month in advance (November for travel in December).

In seasonally adjusted terms, the recreation and culture group fell 0.6% this quarter. The main contributor to the fall is international holiday travel and accommodation (-3.3%).

### HOUSING (+0.3%)

The main contributors to the rise in the housing group this quarter are new dwelling purchase by owner-occupiers (+0.5%) and maintenance and repair of the dwelling (+1.0%). The rise in new dwelling purchase by owner-occupiers is being driven by rises in input costs.

Over the last twelve months, the housing group rose 1.9%. The main contributor to the rise is new dwelling purchase by owner-occupiers (+2.0%).

In seasonally adjusted terms, the housing group rose 0.6% this quarter. The main contributor to the rise is new dwelling purchase by owner-occupiers (+0.5%).

### INSURANCE AND FINANCIAL SERVICES GROUP (+0.6%)

The main contributor to the rise in the insurance and financial services group this quarter is insurance (+2.0%).

Over the last twelve months, the insurance and financial services group rose 2.7%. The main contributor to the rise is insurance (+7.7%).

In seasonally adjusted terms, the insurance and financial services group rose 0.5% this quarter. The main contributor to the rise is insurance (+1.2%).

### HEALTH GROUP (-0.6%)

The main contributor to the fall in the health group this quarter is pharmaceutical products (-2.6%), which mainly fell due to the cyclical effect of a greater proportion of consumers exceeding the Pharmaceutical Benefits Scheme (PBS) safety net.

Over the last twelve months, the health group rose 3.7%. The main contributor to the rise is medical and hospital services (+5.4%).

In seasonally adjusted terms, the health group rose 1.0% this quarter. The main contributor to the rise is medical and hospital services (+1.6%).

### COMMUNICATION GROUP (-0.8%)

The main contributor to the fall in the communication group this quarter is telecommunication equipment and services (-0.8%).

Over the last twelve months, the communication group fell 5.9%. The main contributor to the fall is telecommunication equipment and services (-6.4%).

The communication group is not seasonally adjusted.

### CLOTHING AND FOOTWEAR GROUP (-0.5%)

The main contributor to the fall in the clothing and footwear group this quarter is accessories (-5.1%).

Over the last twelve months, the clothing and footwear group fell 0.9%. The main contributor to the fall is garments for women (-1.8%).

## MAIN CONTRIBUTORS TO CHANGE *continued*

### CLOTHING AND FOOTWEAR GROUP (-0.5%) *continued*

In seasonally adjusted terms, the clothing and footwear group fell 0.2% this quarter. The main contributor to the fall is garments for women (-0.3%)

### EDUCATION GROUP (0.0%)

The education group recorded no change this quarter.

Over the last twelve months, the education group rose 3.3%. The main contributor to the rise is secondary education (+4.6%).

In seasonally adjusted terms, the education group rose 1.2% this quarter. The main contributors to the rise is secondary education (+1.2%).

### INTERNATIONAL TRADE EXPOSURE - TRADABLES AND NON-TRADABLES

Implementation of the changes outlined in the September quarter 2016 feature article 'Review of the Consumer Price Index International Trade Exposure Series' are included in this publication. The largest impact of these changes this quarter is the contribution of tobacco (+7.4%), which was re-classified from tradables to non-tradables.

The tradables component (see Table 8) of the All groups CPI fell 0.1% this quarter. Price changes for the goods and services in this component are largely determined on the world market. The tradables component represents approximately 35% of the weight of the CPI. The most significant contributor to the 0.2% rise in the tradable goods component is automotive fuel (+6.7%). The most significant offsetting fall in the tradable goods component is accessories (-5.1%). The fall in the tradable services component of 2.5% is driven by international holiday travel and accommodation (-2.6%).

The non-tradables component of the All groups CPI rose 0.8% this quarter. Price changes for the goods and services in this component are largely determined by domestic price pressures. The non-tradables component represents approximately 65% of the weight of the CPI. The most significant contributor to the 1.1% rise in the non-tradable goods component is tobacco (+7.4%). The most significant offsetting fall in the non-tradable goods component is pharmaceutical products (-2.6%). The rise in the non-tradable services component of 0.6% is driven by domestic holiday travel and accommodation (+5.5%). The most significant offsetting fall in the non-tradable services component is telecommunication equipment and services (-0.8%).

Over the last twelve months, the tradables component rose 0.1%, while the non-tradables component rose 2.1%. This compares to a rise of 0.7% and 1.7% respectively over the twelve months to the September quarter 2016.

In seasonally adjusted terms, the tradables component of the All groups CPI recorded no movement this quarter, while the non-tradables component rose 0.8%.

A detailed description of which expenditure classes are now classified as tradable and non-tradable is shown in the Appendix of the December quarter 2016 issue of Consumer Price Index, Australia (cat. no 6401.0).

### SEASONALLY ADJUSTED ANALYTICAL SERIES

The All groups CPI seasonally adjusted rose 0.5% this quarter, compared to the original All groups CPI which recorded a rise of 0.5%.

## MAIN CONTRIBUTORS TO CHANGE *continued*

SEASONALLY ADJUSTED  
ANALYTICAL SERIES  
*continued*

The trimmed mean rose 0.4% this quarter, compared to a rise of 0.4% in the September quarter 2016. Over the last twelve months, the trimmed mean rose 1.6%, compared to a rise of 1.7% over the twelve months to the September quarter 2016.

The weighted median rose 0.4% this quarter, compared to a revised rise of 0.4% in the September quarter 2016. Over the last twelve months, the weighted median rose 1.5%, compared to a revised rise of 1.3% over the twelve months to the September quarter 2016.

	ORIGINAL .....	SEASONALLY ADJUSTED .....
	Sep Qtr 2016 to Dec Qtr 2016	Sep Qtr 2016 to Dec Qtr 2016
	%	%
<b>All groups CPI</b>	<b>0.5</b>	<b>0.5</b>
Food and non-alcoholic beverages	0.6	0.3
Alcohol and tobacco	2.8	1.3
Clothing and footwear	-0.5	-0.2
Housing	0.3	0.6
Furnishings, household equipment and services	-0.8	-0.6
Health	-0.6	1.0
Transport	1.7	1.9
Communication(a)	-0.8	-0.8
Recreation and culture	0.6	-0.6
Education	0.0	1.2
Insurance and financial services	0.6	0.5
International trade exposure series		
Tradables	-0.1	0.0
Non-tradables	0.8	0.8

(a) not seasonally adjusted

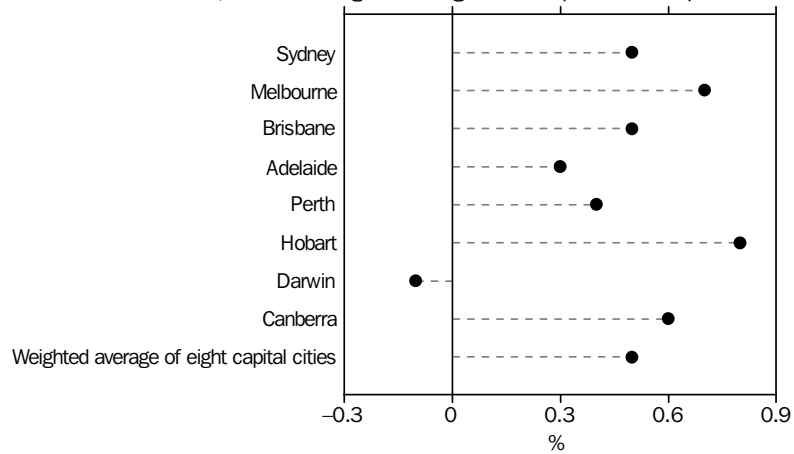
A detailed explanation of the seasonal adjustment of the All Groups CPI and calculation of the trimmed mean and weighted median measures is available in *Information Paper: Seasonal Adjustment of Consumer Price Indexes, 2011* (cat. no. 6401.0.55.003) available on the ABS website. Revisions to the seasonally adjusted estimates can be the result of the application of concurrent seasonal adjustment, described in paragraph 15 of the Explanatory Notes.

## CAPITAL CITIES COMPARISON

### CAPITAL CITIES COMPARISON

ALL GROUPS CPI

ALL GROUPS CPI, Percentage change from previous quarter



At the All groups level, the CPI rose in all capital cities except Darwin this quarter.

The alcohol and tobacco group (+2.8%) is the most significant positive contributor to the All groups quarterly movement, with rises across all eight capital cities. This is driven by a rise in tobacco (+7.4%), due to the flow on effects of the federal excise tax increase effective 1 September 2016.

The transport group (+1.7%) is the second most significant positive contributor to the All groups quarterly movement, with rises across all eight capital cities. This is driven by a rise in automotive fuel (+6.7%), due to a rise in world oil prices.

The food and non-alcoholic beverages group (+0.6%) is the third most significant positive contributor to the All groups quarterly movement, with rises in all eight capital cities. The rise is driven by restaurant meals (+1.1%), as increased input costs, in particular the minimum wage increase and sustained high beef prices are passed on to consumers.

The most significant offsetting negative contributor to the All groups quarterly movement is the furnishings, household equipment and services group (-0.8%), with falls in seven of the eight capital cities. The fall is driven by furniture (-1.5%), due to competition between retailers and lower import prices.

Over the last twelve months to December quarter 2016, the All groups CPI has risen in seven out of eight capital cities, with Sydney (+1.8%) and Canberra (+1.8%) recording the largest positive movements. Darwin (-0.4%) recorded the only negative movement.



## CAPITAL CITIES COMPARISON *continued*

### ALL GROUPS CPI *continued*

#### ALL GROUPS CPI, All groups index numbers and percentage changes

	INDEX	PERCENTAGE CHANGE	
	NUMBER(a)		
	<i>Dec Qtr 2016</i>	<i>Sep Qtr 2016 to Dec Qtr 2016</i>	<i>Dec Qtr 2015 to Dec Qtr 2016</i>
Sydney	110.9	0.5	1.8
Melbourne	109.9	0.7	1.5
Brisbane	110.2	0.5	1.6
Adelaide	108.7	0.3	1.3
Perth	109.0	0.4	0.4
Hobart	108.0	0.8	1.3
Darwin	108.6	-0.1	-0.4
Canberra	107.9	0.6	1.8
Weighted average of eight capital cities	110.0	0.5	1.5

(a) Index reference period: 2011–12 = 100.0.

#### SYDNEY (+0.5%)

The main contributors to the rise in Sydney this quarter are tobacco (+7.7%), automotive fuel (+5.4%) and domestic holiday travel and accommodation (+5.0%). The rise in domestic holiday travel and accommodation is due to the October school holidays and the lead up to the peak summer holiday period. The rise is partially offset by a fall in international holiday travel and accommodation (-3.3%) due to the northern hemisphere entering low holiday season .

#### MELBOURNE (+0.7%)

The main contributors to the rise in Melbourne this quarter are tobacco (+7.5%), automotive fuel (+8.3%) and domestic holiday travel and accommodation (+7.0%). Melbourne recorded the largest movement of the capital cities for automotive fuel this quarter. The rise is partially offset by falls in international holiday travel and accommodation (-2.3%), accessories (-5.6%) and gas and other household fuels (-2.7%). The fall in gas and other household fuels is due to the seasonal shift from peak to off-peak pricing for summer.

#### BRISBANE (+0.5%)

The main contributors to the rise in Brisbane this quarter are tobacco (+8.2%), automotive fuel (+7.6%), domestic holiday travel and accommodation (+5.4%) and insurance (+6.7%). The rise in insurance is due to the introduction of the National Injury Insurance Scheme Queensland (NIISQ) levy being placed on all new and existing Comprehensive Third Party premiums. The rise is partially offset by falls in garments for women (-4.8%) and international holiday travel and accommodation (-2.3%).

#### ADELAIDE (+0.3%)

The main contributors to the rise in Adelaide this quarter are tobacco (+6.5%), automotive fuel (+6.6%), domestic holiday travel and accommodation (+3.1%) and vegetables (+4.1%). The rise in vegetables is due to adverse weather conditions, including floods in major growing areas, impacting supply. The rise is partially offset by falls in accessories (-7.9%), glassware, tableware and household utensils (-11.0%) and household textiles (-6.5%).

## CAPITAL CITIES COMPARISON *continued*

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### PERTH (+0.4%)

The main contributors to the rise in Perth this quarter are tobacco (+7.1%), automotive fuel (+7.3%) and domestic holiday travel and accommodation (+5.1%). The rise is partially offset by falls in rents (-2.2%), motor vehicles (-2.2%) and international holiday travel and accommodation (-2.4%). The fall in rents is due to an oversupply of rental properties which is leading to high vacancy rates.

### HOBART (+0.8%)

The main contributors to the rise in Hobart this quarter are domestic holiday travel and accommodation (+12.1%), tobacco (+6.6%) and vegetables (+9.3%). The rise in domestic holiday travel and accommodation is due to increased demand as a result of Hobart's increasing popularity as a holiday destination. The rise is partially offset by a fall in international holiday travel and accommodation (-3.5%).

### DARWIN (-0.1%)

The main contributors to the fall in Darwin this quarter are domestic holiday travel and accommodation (-8.5%) and rents (-1.8%). The fall in domestic holiday travel and accommodation is due to the low tourist season coinciding with the wet season in Darwin. The fall is partially offset by rises in tobacco (+6.3%) and automotive fuel (+7.5%).

### CANBERRA (+0.6%)

The main contributors to the rise in Canberra this quarter are domestic holiday travel and accommodation (+7.7%), tobacco (+7.1%) and automotive fuel (+4.1%). The rise is partially offset by falls in international holiday travel and accommodation (-3.2%) and motor vehicles (-2.2%).

## FEATURE ARTICLE

### MEASURING PRICE CHANGE OF ATTACHED DWELLINGS IN THE CPI

#### SUMMARY

This article outlines the concepts, data sources and methods that will be used to price attached dwellings in the Australian Consumer Price Index (CPI). The measurement of price change for attached dwellings will be implemented in the March quarter 2017 issue of the CPI, which is scheduled for release 26 April 2017. For further information on these changes please contact [prices.statistics@abs.gov.au](mailto:prices.statistics@abs.gov.au).

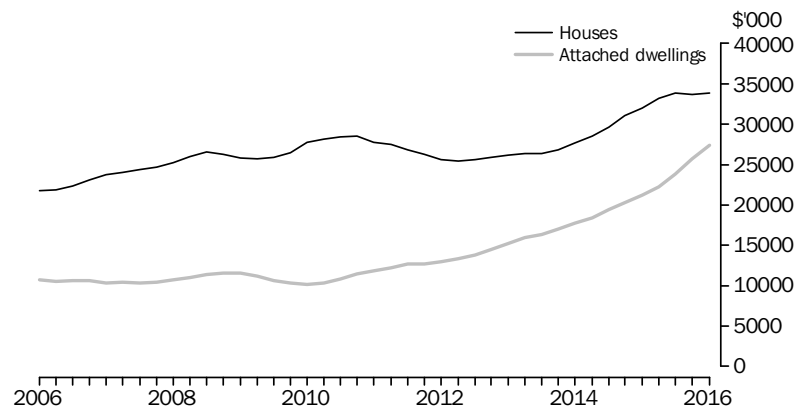
#### INTRODUCTION

This feature article examines the measurement of the price change of owner-occupied housing (OOH) in the context of the Australian Consumer Price Index (CPI). The inclusion of attached dwellings<sup>1</sup> in the CPI is an enhancement to the coverage and measurement for the New dwelling purchase by owner-occupiers series.

The landscape of Australia's housing market has changed considerably over the past five years where there has been a significant shift of building activity towards high density dwellings. A recent RBA Bulletin article noted: "apartments have become an increasingly important contributor to new dwelling construction over recent years" (Shoory 2016). There are a range of reasons for the shift towards high density dwellings: the cost and availability of land; strong population growth in Australia's major capital cities; and an increasing propensity for both owner-occupiers and renters to live closer to where they work and have access to services such as public transport.

Australian Bureau of Statistics (ABS) building activity data shows a significant increase in attached dwelling building activity in Australia over recent years. Figure 1 shows in the five years to the end of the 2015-16 financial year, the value of building activity for attached dwellings in Australia increased by 130 per cent, compared to an increase of 22 per cent in detached houses; while figure 2 shows the contribution of attached dwelling construction to total residential construction has increased significantly. For Australia as a whole, attached dwelling building activity has increased from less than 30 per cent of the total value in 2009, to 45 per cent in more recent times.

FIGURE 1: VALUE OF BUILDING ACTIVITY, AUSTRALIA (4 QTR SUM)

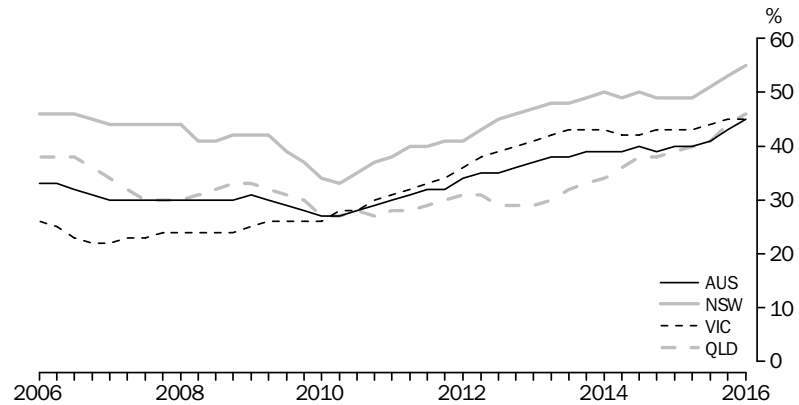


Source: *Building Activity, Australia* (cat. no. 8752.0), table 21

1 The ABS uses the Functional Classification of Buildings (cat. no. 1268.0.55.001) to classify residential dwellings into three categories: detached houses; semi-detached, row or terrace houses; and flats, units or apartments. When discussing attached dwellings for this article, it is referring to the latter two categories: where the dwelling is either semi-detached or fully attached to another building.

INTRODUCTION *continued*

FIGURE 2: CONTRIBUTION OF THE VALUE OF ATTACHED DWELLING BUILDING ACTIVITY TO TOTAL RESIDENTIAL BUILDING ACTIVITY



Source: *Building Activity, Australia* (cat. no. 8752.0), tables 21-24

OWNER-OCCUPIED HOUSING IN THE CPI

The measurement of OOH in the CPI is both important and complex. OOH contributes 9.0 per cent to the total CPI: the highest weighted expenditure class (EC) in the Australian CPI. There are many challenges in measuring the price change of OOH, with the CPI international manual stating: "the treatment of owner-occupied housing is arguably the most difficult issue faced by CPI compilers." (ILO 2004, para. 10.4).

The measurement of price change for owner-occupied dwellings should align with the conceptual basis that best satisfies the principal purpose of the CPI. The Australian CPI adopts the acquisitions approach which aligns to the principal purpose of the CPI, that is, being a general measure of household inflation. For OOH this means the CPI measures the cost of net additions of dwellings to the household sector, which includes new dwellings (excluding land) and major improvements. The treatment of OOH under the acquisitions approach requires the separation of the consumption and investment elements of OOH: that is, land is treated as an investment item not a consumable item, and is therefore excluded from measurement in the CPI. Sales of dwellings that take place between households (generally established dwellings) are excluded so that the weights relate only to net additions to the housing stock.

The New dwelling purchase by owner-occupiers EC in the CPI includes the measurement of price change for detached houses. A matched model approach is used where project home builders are surveyed to obtain prices for specific types of homes each period. The types of project homes selected are those most commonly constructed in each capital city. This method ensures pricing to constant quality and enables adjustments to be applied for any changes in quality, such as the inclusion of bonus offers.

A matched model approach is particularly problematic when attempting to measure price change of attached dwellings: this is primarily due to difficulty in pricing to constant quality. Therefore, the measurement of price change for detached houses is currently used as a proxy for attached dwellings. As a result of the recent increase in building activity of attached dwellings, the ABS has developed an approach to directly measure the price change of attached dwellings purchased by owner-occupiers for use in the Australian CPI.

MEASUREMENT OF  
ATTACHED DWELLINGS IN  
THE CPI

The matched model approach is used to measure the price change of goods and services throughout the CPI, including for detached houses. This approach aims to obtain prices for the same goods and services each period, where the quality of the goods and services is held constant. However, the measurement of price change in the purchase of attached dwellings by owner-occupiers is particularly challenging due to the heterogeneity of the attached dwelling market. Namely, as the same quality newly built townhouse or apartment is not available each period, there is an inability to price to constant quality. Therefore, the matched model approach is unable to be used for measuring price change of attached dwellings in the New dwelling purchase by owner-occupiers series.

For this reason, the ABS has investigated the use of the component cost approach to measure the price for attached dwellings in the CPI. The component cost approach is based on the principle that the price change for a product is determined by the price change of the components (or inputs) that are used in the production of the product. The Producer Price Index (PPI) international manual explains how the component cost method treats building output as a set of standardised homogeneous components representing subcontracted work-in-place (IMF 2004, para. 10.150).

The component cost approach is adopted in the PPI output series Other residential building construction, where residential building construction projects are priced each period by updating the unit rate of each component while holding the quantity and quality constant. The component values are then aggregated to produce a current period project value for the output of Other residential building construction series. This series is published quarterly in table 17 of Producer Price Indexes, Australia (cat. no. 6427.0).

For the measurement of the price change of attached dwelling purchase by owner-occupiers in the CPI, the ABS will adopt the component cost approach for apartments and units. In this case a quarterly movement for each capital city will be sourced from the PPI output series Other residential building construction. Differences in quarterly movements between the CPI and PPI series will reflect any changes in the margin in the purchase of attached dwellings faced by consumers. This is discussed further in the next section.

For the measurement of price change of semi-detached dwellings purchase by owner-occupiers, such as townhouses, this will continue to source the existing CPI series for detached houses, as their price change more closely resembles that of detached houses rather than large scale apartment construction projects.

MARGINS FOR ATTACHED  
DWELLINGS

For CPI purposes, the component cost approach captures price change in the cost of constructing an attached dwelling. This includes measuring the price change of both materials and the labour required as part of construction of the building. ABS liaison with the residential construction industry indicates that the cost of the construction for dwellings contributes approximately 75-80 per cent of the price paid by the consumer (excluding the value of land). The remaining 20-25 per cent of the price paid by the consumer is predominantly the builder or property developer margin. This margin covers expenses such as land preparation and overheads, and a return on investment.

MARGINS FOR ATTACHED DWELLINGS *continued*

When discussing margins for CPI purposes, it is important to understand what constitutes a margin for attached dwellings. The 2008 System of National Accounts defines a margin as the difference between the actual or imputed price realized on a good purchased for resale and the price that would have to be paid by the distributor to replace the good at the time it is sold or otherwise disposed of." (UNSD 2009). More simply, the margin can be thought of as sales minus the cost of goods sold. In the case of attached dwellings, the margin represents the difference between the sales generated from the purchase of dwellings and the costs to develop the land and construct the building.

For CPI purposes, the value of an attached dwelling excluding the value of land and location is required to align to the acquisitions approach mentioned previously. However, there are no such data available separating the value of land or location from the price paid by the consumer<sup>2</sup>. Equally as difficult to obtain is data on the replacement cost, or cost of goods sold, at the time of sale, particularly given the lag between the sale of the dwelling and the time it takes to construct the dwelling<sup>3</sup>.

With limited data available to derive a margin, the ABS will monitor property developer margins through regular liaison with the construction industry and contact with data providers to ensure any changes in margins are captured in the attached dwelling series. Previous liaison indicates attempts are made to maintain margins within a narrow target range through varying the level of dwelling features and inclusions as part of the land development and construction process, and altering variable expenses such as their overheads. Confronting with statistics such as the ABS's Residential Property Price Index (cat no. 6416.0) and other available statistics will be used to measure the change in margins in the attached dwelling series.

Depending on appropriate data sources, future work by the ABS will investigate the use of hedonic modelling to measure price change for attached dwellings purchase by owner-occupiers. Hedonics will explore whether the value of land or location can be separated from the sale price in the case of attached dwellings.

WEIGHTS

Data from the ABS's Building Activity Survey (cat. no. 8752.0) was used to derive weights for residential dwellings and classified into three categories: houses, apartments and semi-detached dwellings. Some of the smaller states and territories experience quite varying levels of building activity from year to year, particularly in large scale apartment projects. Therefore, a three year average (2013-2015) of the value of completion data was deemed a sufficient period to ensure a representative level of building activity across the three types of dwellings.

The CPI weights for the New dwelling purchase by owner-occupiers series are required to reflect dwellings purchased for owner-occupier purposes. 2011 ABS Census data was used to estimate the number of new dwellings purchased for investment purposes (this will be updated using the most recent Census data available). The weights derived from the building activity data were then adjusted to remove the estimated number of newly

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<sup>2</sup> The value of location needs to be excluded because, in the case of multi-storey apartments where there is no land associated with the purchase of the dwelling, aspects such as the view from the apartment, or the proximity to amenities or a particular attraction such as the beach will impact on the purchase price.

<sup>3</sup> Recent analysis by the ABS showed that the average completion times for apartment buildings is approximately 18 months (ABS June 2016).

WEIGHTS *continued*

constructed dwellings purchased by investors. This had the effect of lowering the weight for apartments and increasing the weight for houses seen in figure 2, as the former are more likely to be purchased for investment purposes.

Table 1 shows the contribution of each of the dwelling types by capital city. For Australia as a whole, attached dwellings (apartments plus semi-detached) contributes nearly 30 per cent of the value of newly built dwelling purchases by owner-occupiers. Table 1 highlights the differences in the composition of the newly built residential housing market across Australia's capital cities. In Sydney and Melbourne attached dwellings contribute 40 per cent and 34 per cent respectively, while for cities such as Adelaide, Perth and Hobart it is below 15 per cent.

TABLE 1: OOH WEIGHTS BY DWELLING TYPE (PER CENT)

	<i>Houses</i>	<i>Apartments</i>	<i>Semi-detached</i>
Sydney	60.6	30.1	9.3
Melbourne	66.3	20.3	13.4
Brisbane	74.9	15.2	9.9
Adelaide	85.7	5.1	9.2
Perth	88.2	6.3	5.5
Hobart	93.6	4.1	2.3
Darwin	64.5	25.1	10.4
Canberra	62.0	28.6	9.4
Weighted average of eight capital cities	70.8	19.2	10.0

RESULTS

Analysis conducted by the ABS indicates that the price change of attached dwellings has consistently been lower than detached houses since the recent increase of building activity of attached dwellings. As part of a recent liaison program with builders and property developers conducted by the ABS, there were a range of reasons as to why price change for newly built attached dwellings has been lower compared to detached houses, including:

- large attached dwelling construction projects allow for greater economies of scale;
- a greater level of innovation in large attached dwelling construction projects has resulted in improved productivity;
- large attached dwelling construction projects consist of a higher proportion of imported materials, which have become cheaper relative to domestically produced materials.

CONCLUSION

Over the past five years there has been a significant shift in the level of building activity from detached houses to high density dwellings. There are many reasons for this shift in dwelling composition, in particular the cost of land and a change in consumer preferences.

The measurement of OOH is important to the relevance of the CPI in reflecting the inflation experiences of Australian households. Attached dwellings have become a significant component of new dwelling construction in the majority of Australian capital cities. The inclusion of attached dwellings in the CPI is an enhancement to the coverage and measurement for the New dwelling purchase by owner-occupiers series.

CONCLUSION *continued*

The ABS will continue to assess the method used for measuring the price change of attached dwellings purchased by owner-occupiers and look for enhancements that, in particular, capture price change in the margin faced by consumers.

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## ALL GROUPS CPI, Index numbers(a)

<i>Period</i>	<i>Sydney</i>	<i>Melbourne</i>	<i>Brisbane</i>	<i>Adelaide</i>	<i>Perth</i>	<i>Hobart</i>	<i>Darwin</i>	<i>Canberra</i>	<i>Weighted average of eight capital cities</i>
<b>2012-13</b>	102.6	102.2	102.0	102.1	102.2	101.2	103.1	101.9	102.3
<b>2013-14</b>	105.2	105.0	104.9	104.7	105.3	103.7	106.9	104.2	105.0
<b>2014-15</b>	107.3	106.5	106.8	106.3	107.2	104.9	108.4	105.3	106.8
<b>2015-16</b>	108.9	108.2	108.5	107.2	108.2	106.3	108.5	106.1	108.3
<b>2012</b>									
December	102.3	102.0	101.9	102.1	101.9	101.0	102.0	101.8	102.0
<b>2013</b>									
March	102.7	102.4	102.0	102.1	102.4	101.3	103.7	101.9	102.4
June	103.1	102.6	102.5	102.3	103.0	101.7	104.6	102.5	102.8
September	104.3	104.0	103.8	103.7	104.2	102.6	105.5	103.1	104.0
December	105.0	104.8	104.6	104.4	104.9	103.6	106.5	104.1	104.8
<b>2014</b>									
March	105.6	105.3	105.2	105.1	105.6	104.1	107.4	104.6	105.4
June	106.0	105.9	105.8	105.5	106.4	104.5	108.1	104.8	105.9
September	106.6	106.1	106.5	105.9	106.9	104.6	108.3	105.2	106.4
December	106.8	106.3	106.7	106.2	107.0	104.7	108.5	105.3	106.6
<b>2015</b>									
March	107.3	106.4	106.7	106.3	107.1	105.0	108.3	105.2	106.8
June	108.3	107.1	107.4	106.8	107.7	105.1	108.3	105.6	107.5
September	108.6	107.6	108.1	107.1	108.1	105.7	108.7	105.8	108.0
December	108.9	108.3	108.5	107.3	108.6	106.6	109.0	106.0	108.4
<b>2016</b>									
March	108.7	108.2	108.5	107.0	107.9	106.4	108.0	106.2	108.2
June	109.3	108.6	109.0	107.5	108.2	106.4	108.3	106.4	108.6
September	110.4	109.1	109.7	108.4	108.6	107.1	108.7	107.3	109.4
December	110.9	109.9	110.2	108.7	109.0	108.0	108.6	107.9	110.0

(a) Unless otherwise specified, reference period of each index: 2011-12 = 100.0.

## ALL GROUPS CPI, Percentage changes

<i>Period</i>	<i>Sydney</i>	<i>Melbourne</i>	<i>Brisbane</i>	<i>Adelaide</i>	<i>Perth</i>	<i>Hobart</i>	<i>Darwin</i>	<i>Canberra</i>	<i>Weighted average of eight capital cities</i>
PERCENTAGE CHANGE (from previous financial year)									
<b>2012-13</b>	2.6	2.2	2.0	2.1	2.2	1.2	3.1	1.9	2.3
<b>2013-14</b>	2.5	2.7	2.8	2.5	3.0	2.5	3.7	2.3	2.6
<b>2014-15</b>	2.0	1.4	1.8	1.5	1.8	1.2	1.4	1.1	1.7
<b>2015-16</b>	1.5	1.6	1.6	0.8	0.9	1.3	0.1	0.8	1.4
PERCENTAGE CHANGE (from corresponding quarter of previous year)									
<b>2012</b>									
December	2.5	2.1	2.2	2.1	2.1	1.0	2.5	1.7	2.2
<b>2013</b>									
March	2.8	2.5	2.1	2.2	2.4	1.0	3.8	2.2	2.5
June	2.6	2.2	2.0	2.1	2.5	1.8	3.9	2.2	2.4
September	2.1	2.4	2.2	2.0	2.6	2.0	3.4	1.7	2.2
December	2.6	2.7	2.6	2.3	2.9	2.6	4.4	2.3	2.7
<b>2014</b>									
March	2.8	2.8	3.1	2.9	3.1	2.8	3.6	2.6	2.9
June	2.8	3.2	3.2	3.1	3.3	2.8	3.3	2.2	3.0
September	2.2	2.0	2.6	2.1	2.6	1.9	2.7	2.0	2.3
December	1.7	1.4	2.0	1.7	2.0	1.1	1.9	1.2	1.7
<b>2015</b>									
March	1.6	1.0	1.4	1.1	1.4	0.9	0.8	0.6	1.3
June	2.2	1.1	1.5	1.2	1.2	0.6	0.2	0.8	1.5
September	1.9	1.4	1.5	1.1	1.1	1.1	0.4	0.6	1.5
December	2.0	1.9	1.7	1.0	1.5	1.8	0.5	0.7	1.7
<b>2016</b>									
March	1.3	1.7	1.7	0.7	0.7	1.3	-0.3	1.0	1.3
June	0.9	1.4	1.5	0.7	0.5	1.2	0.0	0.8	1.0
September	1.7	1.4	1.5	1.2	0.5	1.3	0.0	1.4	1.3
December	1.8	1.5	1.6	1.3	0.4	1.3	-0.4	1.8	1.5
PERCENTAGE CHANGE (from previous quarter)									
<b>2012</b>									
December	0.1	0.4	0.3	0.4	0.3	0.4	0.0	0.4	0.2
<b>2013</b>									
March	0.4	0.4	0.1	0.0	0.5	0.3	1.7	0.1	0.4
June	0.4	0.2	0.5	0.2	0.6	0.4	0.9	0.6	0.4
September	1.2	1.4	1.3	1.4	1.2	0.9	0.9	0.6	1.2
December	0.7	0.8	0.8	0.7	0.7	1.0	0.9	1.0	0.8
<b>2014</b>									
March	0.6	0.5	0.6	0.7	0.7	0.5	0.8	0.5	0.6
June	0.4	0.6	0.6	0.4	0.8	0.4	0.7	0.2	0.5
September	0.6	0.2	0.7	0.4	0.5	0.1	0.2	0.4	0.5
December	0.2	0.2	0.2	0.3	0.1	0.1	0.2	0.1	0.2
<b>2015</b>									
March	0.5	0.1	0.0	0.1	0.1	0.3	-0.2	-0.1	0.2
June	0.9	0.7	0.7	0.5	0.6	0.1	0.0	0.4	0.7
September	0.3	0.5	0.7	0.3	0.4	0.6	0.4	0.2	0.5
December	0.3	0.7	0.4	0.2	0.5	0.9	0.3	0.2	0.4
<b>2016</b>									
March	-0.2	-0.1	0.0	-0.3	-0.6	-0.2	-0.9	0.2	-0.2
June	0.6	0.4	0.5	0.5	0.3	0.0	0.3	0.2	0.4
September	1.0	0.5	0.6	0.8	0.4	0.7	0.4	0.8	0.7
December	0.5	0.7	0.5	0.3	0.4	0.8	-0.1	0.6	0.5

CPI GROUPS, Weighted average of eight capital cities—Index numbers(a)

<i>Period</i>	<i>Food and non-alcoholic beverages</i>	<i>Alcohol and tobacco</i>	<i>Clothing and footwear</i>	<i>Housing</i>	<i>Furnishings, household equipment and services</i>	<i>Health</i>
<b>2012–13</b>	100.5	103.9	99.5	104.9	100.8	106.9
<b>2013–14</b>	101.8	110.0	99.3	109.0	101.5	111.6
<b>2014–15</b>	103.9	116.7	97.9	111.7	102.5	116.5
<b>2015–16</b>	104.1	123.5	97.5	113.9	104.3	122.1
<b>2012</b>						
December	100.8	102.8	101.0	104.1	101.0	104.6
<b>2013</b>						
March	100.0	104.4	97.1	105.4	99.7	107.7
June	100.1	105.8	99.7	106.0	100.7	109.8
September	100.3	106.7	100.8	108.1	101.7	109.8
December	101.9	108.4	99.7	108.6	102.1	109.2
<b>2014</b>						
March	102.2	111.5	97.6	109.2	100.6	112.0
June	102.6	113.3	99.1	110.1	101.7	115.2
September	103.8	114.5	98.1	110.6	102.1	115.0
December	103.9	116.4	98.2	111.2	102.6	114.0
<b>2015</b>						
March	104.1	117.3	96.9	112.1	102.1	116.9
June	103.9	118.7	98.2	112.9	103.1	120.1
September	104.0	120.2	97.1	113.6	103.9	120.5
December	104.3	123.4	98.7	113.7	104.5	120.0
<b>2016</b>						
March	104.1	124.5	96.1	114.0	104.1	122.3
June	103.8	125.7	98.0	114.4	104.7	125.5
September	105.6	127.1	98.3	115.6	105.9	125.2
December	106.2	130.7	97.8	115.9	105.1	124.4

(a) Unless otherwise specified, reference period of each index: 2011–12 = 100.0.

CPI GROUPS, Weighted average of eight capital cities—Index numbers(a) *continued*

<i>Period</i>	<i>Transport</i>	<i>Communication</i>	<i>Recreation and culture</i>	<i>Education</i>	<i>Insurance and financial services</i>	<i>All groups CPI</i>
<b>2012–13</b>	101.1	101.7	99.1	105.9	102.8	102.3
<b>2013–14</b>	103.5	103.0	101.4	111.6	104.5	105.0
<b>2014–15</b>	100.8	99.7	102.8	117.6	106.3	106.8
<b>2015–16</b>	99.1	93.7	103.7	122.7	108.6	108.3
<b>2012</b>						
December	101.2	101.9	99.8	103.0	102.7	102.0
<b>2013</b>						
March	101.7	101.9	99.0	108.9	103.4	102.4
June	100.8	102.3	98.2	108.8	103.7	102.8
September	103.2	102.4	100.1	108.8	104.1	104.0
December	103.1	103.6	102.2	108.8	104.3	104.8
<b>2014</b>						
March	104.2	103.8	101.7	114.4	104.7	105.4
June	103.5	102.0	101.4	114.4	104.7	105.9
September	103.4	100.6	102.0	114.5	105.3	106.4
December	101.1	100.5	103.0	114.5	106.4	106.6
<b>2015</b>						
March	97.7	99.1	103.7	120.6	106.6	106.8
June	101.0	98.5	102.3	120.6	106.9	107.5
September	101.1	96.5	103.1	120.8	107.4	108.0
December	99.7	94.2	104.8	120.8	108.3	108.4
<b>2016</b>						
March	97.2	92.8	103.8	124.6	109.0	108.2
June	98.2	91.4	103.1	124.6	109.5	108.6
September	97.7	89.3	103.7	124.8	110.5	109.4
December	99.4	88.6	104.3	124.8	111.2	110.0

(a) Unless otherwise specified, reference period of each index: 2011–12 = 100.0.

## CPI GROUPS, Weighted average of eight capital cities—Percentage changes

	<i>Food and non-alcoholic beverages</i>	<i>Alcohol and tobacco</i>	<i>Clothing and footwear</i>	<i>Housing</i>	<i>Furnishings, household equipment and services</i>	<i>Health</i>
PERCENTAGE CHANGE (from previous financial year)						
<b>2012–13</b>	0.5	3.9	-0.5	4.9	0.8	6.9
<b>2013–14</b>	1.3	5.9	-0.2	3.9	0.7	4.4
<b>2014–15</b>	2.1	6.1	-1.4	2.5	1.0	4.4
<b>2015–16</b>	0.2	5.8	-0.4	2.0	1.8	4.8
PERCENTAGE CHANGE (from corresponding quarter of previous year)						
<b>2012</b>						
December	0.3	3.5	0.6	4.4	0.8	7.7
<b>2013</b>						
March	1.6	3.7	-1.5	5.1	0.6	6.1
June	1.1	4.0	-0.3	5.3	0.1	6.6
September	-0.6	4.0	0.6	4.0	0.1	4.1
December	1.1	5.4	-1.3	4.3	1.1	4.4
<b>2014</b>						
March	2.2	6.8	0.5	3.6	0.9	4.0
June	2.5	7.1	-0.6	3.9	1.0	4.9
September	3.5	7.3	-2.7	2.3	0.4	4.7
December	2.0	7.4	-1.5	2.4	0.5	4.4
<b>2015</b>						
March	1.9	5.2	-0.7	2.7	1.5	4.4
June	1.3	4.8	-0.9	2.5	1.4	4.3
September	0.2	5.0	-1.0	2.7	1.8	4.8
December	0.4	6.0	0.5	2.2	1.9	5.3
<b>2016</b>						
March	0.0	6.1	-0.8	1.7	2.0	4.6
June	-0.1	5.9	-0.2	1.3	1.6	4.5
September	1.5	5.7	1.2	1.8	1.9	3.9
December	1.8	5.9	-0.9	1.9	0.6	3.7
PERCENTAGE CHANGE (from previous quarter)						
<b>2012</b>						
December	-0.1	0.2	0.8	0.2	-0.6	-0.9
<b>2013</b>						
March	-0.8	1.6	-3.9	1.2	-1.3	3.0
June	0.1	1.3	2.7	0.6	1.0	1.9
September	0.2	0.9	1.1	2.0	1.0	0.0
December	1.6	1.6	-1.1	0.5	0.4	-0.5
<b>2014</b>						
March	0.3	2.9	-2.1	0.6	-1.5	2.6
June	0.4	1.6	1.5	0.8	1.1	2.9
September	1.2	1.1	-1.0	0.5	0.4	-0.2
December	0.1	1.7	0.1	0.5	0.5	-0.9
<b>2015</b>						
March	0.2	0.8	-1.3	0.8	-0.5	2.5
June	-0.2	1.2	1.3	0.7	1.0	2.7
September	0.1	1.3	-1.1	0.6	0.8	0.3
December	0.3	2.7	1.6	0.1	0.6	-0.4
<b>2016</b>						
March	-0.2	0.9	-2.6	0.3	-0.4	1.9
June	-0.3	1.0	2.0	0.4	0.6	2.6
September	1.7	1.1	0.3	1.0	1.1	-0.2
December	0.6	2.8	-0.5	0.3	-0.8	-0.6

	<i>Transport</i>	<i>Communication</i>	<i>Recreation and culture</i>	<i>Education</i>	<i>Insurance and financial services</i>	<i>All groups CPI</i>
PERCENTAGE CHANGE (from previous financial year)						
<b>2012-13</b>	1.1	1.7	-0.9	5.9	2.8	2.3
<b>2013-14</b>	2.4	1.3	2.3	5.4	1.7	2.6
<b>2014-15</b>	-2.6	-3.2	1.4	5.4	1.7	1.7
<b>2015-16</b>	-1.7	-6.0	0.9	4.3	2.2	1.4
PERCENTAGE CHANGE (from corresponding quarter of previous year)						
<b>2012</b>						
December	2.0	1.6	-1.7	6.1	3.1	2.2
<b>2013</b>						
March	1.4	1.5	-0.5	5.8	2.9	2.5
June	-0.5	2.2	-0.1	5.7	2.7	2.4
September	2.7	1.8	0.9	5.6	2.9	2.2
December	1.9	1.7	2.4	5.6	1.6	2.7
<b>2014</b>						
March	2.5	1.9	2.7	5.1	1.3	2.9
June	2.7	-0.3	3.3	5.1	1.0	3.0
September	0.2	-1.8	1.9	5.2	1.2	2.3
December	-1.9	-3.0	0.8	5.2	2.0	1.7
<b>2015</b>						
March	-6.2	-4.5	2.0	5.4	1.8	1.3
June	-2.4	-3.4	0.9	5.4	2.1	1.5
September	-2.2	-4.1	1.1	5.5	2.0	1.5
December	-1.4	-6.3	1.7	5.5	1.8	1.7
<b>2016</b>						
March	-0.5	-6.4	0.1	3.3	2.3	1.3
June	-2.8	-7.2	0.8	3.3	2.4	1.0
September	-3.4	-7.5	0.6	3.3	2.9	1.3
December	-0.3	-5.9	-0.5	3.3	2.7	1.5
PERCENTAGE CHANGE (from previous quarter)						
<b>2012</b>						
December	0.7	1.3	0.6	0.0	1.5	0.2
<b>2013</b>						
March	0.5	0.0	-0.8	5.7	0.7	0.4
June	-0.9	0.4	-0.8	-0.1	0.3	0.4
September	2.4	0.1	1.9	0.0	0.4	1.2
December	-0.1	1.2	2.1	0.0	0.2	0.8
<b>2014</b>						
March	1.1	0.2	-0.5	5.1	0.4	0.6
June	-0.7	-1.7	-0.3	0.0	0.0	0.5
September	-0.1	-1.4	0.6	0.1	0.6	0.5
December	-2.2	-0.1	1.0	0.0	1.0	0.2
<b>2015</b>						
March	-3.4	-1.4	0.7	5.3	0.2	0.2
June	3.4	-0.6	-1.4	0.0	0.3	0.7
September	0.1	-2.0	0.8	0.2	0.5	0.5
December	-1.4	-2.4	1.6	0.0	0.8	0.4
<b>2016</b>						
March	-2.5	-1.5	-1.0	3.1	0.6	-0.2
June	1.0	-1.5	-0.7	0.0	0.5	0.4
September	-0.5	-2.3	0.6	0.2	0.9	0.7
December	1.7	-0.8	0.6	0.0	0.6	0.5

Quarters	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra	Weighted average of eight capital cities
FOOD AND NON-ALCOHOLIC BEVERAGES									
<b>2014</b>									
December	104.2	103.9	103.9	103.4	103.2	103.9	104.6	104.0	103.9
<b>2015</b>									
March	104.8	103.8	104.3	103.8	103.1	103.8	104.3	104.2	104.1
June	104.7	103.7	103.5	103.3	103.3	102.4	103.5	103.3	103.9
September	104.5	104.3	103.7	103.3	102.6	102.5	103.6	103.4	104.0
December	104.9	104.2	104.3	103.7	103.2	103.0	104.6	103.6	104.3
<b>2016</b>									
March	104.7	103.8	104.4	103.1	103.4	102.9	104.4	103.7	104.1
June	104.4	103.9	103.9	102.9	102.5	102.8	103.9	103.4	103.8
September	106.9	105.7	105.6	104.8	102.6	104.2	105.9	105.5	105.6
December	107.5	106.3	105.7	105.6	103.5	105.1	106.2	106.0	106.2
ALCOHOL AND TOBACCO									
<b>2014</b>									
December	115.2	116.4	117.8	118.2	116.3	117.2	114.8	116.5	116.4
<b>2015</b>									
March	116.0	117.5	118.6	118.4	117.7	117.6	115.0	117.2	117.3
June	117.4	118.9	119.6	119.8	119.8	118.8	115.6	118.6	118.7
September	119.0	119.9	121.5	121.6	121.3	120.4	117.2	119.7	120.2
December	121.4	123.2	125.9	124.6	125.1	124.8	121.3	121.7	123.4
<b>2016</b>									
March	122.7	124.4	126.4	126.0	125.9	125.7	122.0	122.8	124.5
June	124.2	124.7	127.8	127.4	127.7	126.8	123.7	124.4	125.7
September	125.2	126.5	129.4	129.1	129.3	129.6	125.1	125.3	127.1
December	128.5	130.4	133.8	132.1	132.4	134.4	128.3	128.0	130.7
CLOTHING AND FOOTWEAR									
<b>2014</b>									
December	94.4	97.3	101.9	99.7	105.3	101.8	98.7	96.3	98.2
<b>2015</b>									
March	93.5	94.9	101.5	96.4	105.7	101.5	98.1	93.9	96.9
June	95.8	95.5	101.7	99.5	106.0	101.4	99.7	97.9	98.2
September	94.3	94.8	102.1	96.4	104.8	100.0	96.8	95.6	97.1
December	94.6	97.8	104.0	98.0	106.4	102.0	98.5	95.4	98.7
<b>2016</b>									
March	91.6	95.5	103.7	95.0	102.8	96.3	94.4	91.7	96.1
June	93.7	97.8	104.4	96.4	104.9	97.4	96.5	95.0	98.0
September	95.1	97.2	105.4	96.8	104.2	94.9	94.7	92.3	98.3
December	94.7	96.4	103.8	95.5	105.7	95.7	95.1	95.1	97.8
HOUSING									
<b>2014</b>									
December	112.6	109.7	112.4	110.0	112.4	101.7	112.4	106.4	111.2
<b>2015</b>									
March	113.6	110.7	112.7	112.0	112.5	102.1	113.3	105.9	112.1
June	114.9	111.9	113.3	110.8	112.8	102.6	113.4	105.4	112.9
September	115.1	113.2	114.3	110.6	113.7	104.5	113.3	106.1	113.6
December	115.4	113.3	114.4	110.7	113.4	104.9	112.9	106.2	113.7
<b>2016</b>									
March	115.9	113.9	114.6	111.7	111.7	105.7	111.5	106.9	114.0
June	116.7	114.5	115.1	111.2	111.5	106.0	110.8	107.0	114.4
September	118.4	115.6	116.2	112.3	111.5	107.4	110.1	108.2	115.6
December	119.0	116.1	116.2	112.3	111.0	107.7	109.5	108.5	115.9

(a) Unless otherwise specified, reference period of each index: 2011-12 = 100.0.



Quarters	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra	Weighted average of eight capital cities
FURNISHINGS, HOUSEHOLD EQUIPMENT AND SERVICES									
<b>2014</b>									
December	103.0	102.0	103.0	101.2	102.7	100.6	105.5	105.1	102.6
<b>2015</b>									
March	102.7	101.4	102.3	99.7	102.1	101.2	105.5	105.7	102.1
June	103.3	102.7	104.3	100.9	102.8	101.9	106.3	107.4	103.1
September	104.5	102.9	104.7	102.4	103.8	102.4	106.9	107.5	103.9
December	104.5	103.8	105.7	102.6	105.0	102.4	107.3	108.3	104.5
<b>2016</b>									
March	104.4	103.0	105.7	101.8	104.3	101.3	106.9	108.2	104.1
June	104.8	103.7	106.9	103.3	104.7	101.7	108.0	108.7	104.7
September	106.3	104.6	107.7	105.0	105.7	102.5	108.5	110.7	105.9
December	105.5	103.7	106.4	103.0	105.4	101.7	107.8	111.0	105.1
HEALTH									
<b>2014</b>									
December	114.2	113.7	113.8	116.3	112.8	114.9	111.8	112.8	114.0
<b>2015</b>									
March	116.9	117.1	117.6	117.7	115.8	117.5	114.1	116.5	116.9
June	120.2	120.3	120.7	121.1	118.5	121.5	117.1	118.5	120.1
September	120.7	120.7	120.5	121.3	118.8	121.9	117.7	119.5	120.5
December	120.3	120.3	119.7	120.9	118.3	121.7	117.8	118.4	120.0
<b>2016</b>									
March	122.7	123.0	122.6	122.1	120.4	123.7	118.3	121.5	122.3
June	125.8	126.1	125.9	126.5	122.9	128.0	122.1	124.2	125.5
September	125.3	125.7	125.3	126.4	122.7	127.9	121.6	124.6	125.2
December	124.5	125.1	124.5	125.8	121.7	127.2	120.7	123.3	124.4
TRANSPORT									
<b>2014</b>									
December	99.3	102.9	100.3	101.8	101.2	102.6	106.1	102.1	101.1
<b>2015</b>									
March	96.5	99.0	96.5	98.2	98.2	98.7	103.6	98.9	97.7
June	100.4	101.8	99.8	102.0	100.5	101.7	104.3	101.8	101.0
September	100.7	101.3	99.6	102.4	101.8	102.9	103.8	101.7	101.1
December	99.2	100.6	97.9	100.8	99.8	101.3	103.3	100.4	99.7
<b>2016</b>									
March	95.6	98.4	96.0	98.0	97.6	99.9	101.4	99.7	97.2
June	96.9	100.2	96.9	98.7	97.9	98.6	101.0	98.5	98.2
September	96.7	98.6	95.8	98.6	98.3	99.5	101.6	100.1	97.7
December	98.2	101.1	97.6	99.6	99.4	100.2	102.7	100.3	99.4
COMMUNICATION									
<b>2014</b>									
December	100.4	100.5	100.6	100.5	100.1	100.5	100.4	100.5	100.5
<b>2015</b>									
March	99.1	99.2	99.3	99.1	98.8	99.2	99.0	99.2	99.1
June	98.5	98.6	98.7	98.5	98.1	98.6	98.4	98.5	98.5
September	96.5	96.6	96.7	96.6	96.2	96.4	96.3	96.5	96.5
December	94.2	94.3	94.4	94.3	93.9	94.2	94.1	94.2	94.2
<b>2016</b>									
March	92.8	92.9	92.9	92.8	92.4	92.7	92.6	92.7	92.8
June	91.4	91.5	91.6	91.4	91.0	91.5	91.3	91.5	91.4
September	89.3	89.4	89.4	89.2	88.8	89.6	89.4	89.6	89.3
December	88.6	88.8	88.8	88.6	88.2	88.8	88.6	88.8	88.6

(a) Unless otherwise specified, reference period of each index: 2011-12 = 100.0.

<i>Quarters</i>	<i>Sydney</i>	<i>Melbourne</i>	<i>Brisbane</i>	<i>Adelaide</i>	<i>Perth</i>	<i>Hobart</i>	<i>Darwin</i>	<i>Canberra</i>	<i>Weighted average of eight capital cities</i>
RECREATION AND CULTURE									
<b>2014</b>									
December	103.2	103.3	102.4	101.5	103.4	101.2	107.9	103.7	103.0
<b>2015</b>									
March	103.9	104.6	102.4	101.8	103.5	103.7	105.0	104.2	103.7
June	102.6	102.3	101.8	100.8	102.7	100.1	102.5	102.7	102.3
September	103.3	103.1	103.4	101.9	103.0	100.0	106.0	103.3	103.1
December	104.8	105.5	104.4	103.0	104.6	103.4	105.4	105.3	104.8
<b>2016</b>									
March	104.0	104.8	103.1	101.5	103.4	102.9	102.0	104.5	103.8
June	103.2	103.3	102.9	101.7	104.0	100.4	103.8	104.0	103.1
September	104.1	103.4	103.9	102.5	104.0	100.7	105.9	104.7	103.7
December	104.4	104.4	104.5	102.7	104.4	102.8	103.6	105.8	104.3
EDUCATION									
<b>2014</b>									
December	113.7	113.9	116.1	115.2	116.5	114.9	113.8	112.1	114.5
<b>2015</b>									
March	123.7	118.6	120.0	119.8	121.5	118.0	118.8	115.4	120.6
June	123.8	118.6	120.0	119.8	121.5	118.0	118.8	115.5	120.6
September	123.9	118.7	120.1	120.0	121.8	118.0	118.9	115.6	120.8
December	123.9	118.7	120.1	120.0	121.8	118.0	118.9	115.6	120.8
<b>2016</b>									
March	127.5	123.1	123.9	123.3	125.3	121.1	122.9	119.3	124.6
June	127.5	123.1	124.0	123.3	125.3	121.1	122.9	119.3	124.6
September	127.7	123.5	124.0	123.3	125.7	121.1	122.9	119.6	124.8
December	127.7	123.5	124.0	123.4	125.7	121.1	122.9	119.6	124.8
INSURANCE AND FINANCIAL SERVICES									
<b>2014</b>									
December	109.8	106.3	101.3	104.3	106.7	109.8	108.1	100.3	106.4
<b>2015</b>									
March	110.2	105.9	101.0	104.8	107.7	109.9	108.3	100.6	106.6
June	110.6	106.7	101.0	104.4	107.9	109.9	108.5	101.3	106.9
September	110.9	107.1	103.1	105.3	107.5	110.5	109.4	99.2	107.4
December	111.6	108.7	102.4	106.2	109.2	111.1	109.8	99.5	108.3
<b>2016</b>									
March	112.3	109.3	103.4	106.6	110.1	112.5	110.8	100.1	109.0
June	113.1	109.5	103.7	107.0	110.5	113.0	111.0	100.4	109.5
September	113.9	110.1	104.0	109.1	113.9	112.5	109.1	99.8	110.5
December	114.6	110.3	106.4	109.5	114.0	112.7	108.1	100.3	111.2

(a) Unless otherwise specified, reference period of each index: 2011-12 = 100.0.

Group, sub-group and expenditure class									Weighted
	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra	average of eight capital cities
<b>Food and non-alcoholic beverages</b>	0.09	0.11	0.02	0.14	0.14	0.15	0.06	0.08	0.10
Bread and cereal products	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.03	0.00
Bread	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	-0.01
Cakes and biscuits	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.02	0.00
Breakfast cereals	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00
Other cereal products	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Meat and seafoods	-0.01	0.01	0.02	0.03	0.03	0.01	-0.02	0.00	0.01
Beef and veal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pork	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.01
Lamb and goat	-0.01	-0.01	0.00	0.00	0.01	0.00	-0.01	0.00	0.00
Poultry	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Other meats	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00
Fish and other seafood	-0.01	0.00	0.01	0.01	0.01	0.01	-0.01	0.00	0.01
Dairy and related products	-0.02	0.00	0.00	-0.01	0.00	-0.02	-0.01	-0.01	0.00
Milk	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00
Cheese	0.00	0.00	0.00	0.00	-0.01	-0.01	0.00	-0.01	-0.01
Ice cream and other dairy products	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01
Fruit and vegetables	0.05	0.02	0.00	0.04	0.03	0.12	0.06	0.02	0.03
Fruit	-0.02	0.01	0.00	-0.02	0.03	-0.01	0.04	-0.04	0.00
Vegetables	0.07	0.02	0.01	0.06	-0.01	0.14	0.02	0.06	0.03
Food products n.e.c.	0.01	0.03	0.02	0.04	0.05	0.04	0.02	0.03	0.04
Eggs	0.00	0.00	-0.01	0.00	0.01	0.00	0.00	0.00	0.00
Jams, honey and spreads	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Food additives and condiments	-0.01	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.00
Oils and fats	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.00
Snacks and confectionery	0.00	0.01	0.01	0.03	0.02	0.02	0.01	0.02	0.01
Other food products n.e.c.	0.02	0.02	0.03	0.03	0.04	0.02	0.01	0.03	0.03
Non-alcoholic beverages	-0.01	-0.02	-0.03	-0.04	-0.01	-0.02	-0.03	-0.01	-0.03
Coffee, tea and cocoa	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00
Waters, soft drinks and juices	-0.02	-0.03	-0.04	-0.05	-0.02	-0.03	-0.04	-0.02	-0.03
Meals out and take away foods	0.06	0.05	0.00	0.08	0.05	0.00	0.01	0.03	0.04
Restaurant meals	0.04	0.03	0.00	0.05	0.03	0.00	0.01	0.02	0.04
Take away and fast foods	0.02	0.02	0.00	0.03	0.02	-0.01	0.00	0.01	0.02
<b>Alcohol and tobacco</b>	0.22	0.27	0.33	0.23	0.24	0.40	0.28	0.17	0.25
Alcoholic beverages	-0.02	-0.03	-0.03	-0.08	-0.06	0.04	0.00	-0.05	-0.03
Spirits	0.00	-0.01	-0.03	-0.02	-0.02	0.00	0.00	-0.01	-0.01
Wine	-0.04	-0.02	-0.02	-0.05	-0.05	0.01	-0.02	-0.04	-0.03
Beer	0.02	0.01	0.02	-0.01	0.00	0.02	0.03	-0.01	0.01
Tobacco	0.25	0.29	0.36	0.30	0.30	0.36	0.29	0.22	0.29
Tobacco	0.25	0.29	0.36	0.30	0.30	0.36	0.29	0.22	0.29
<b>Clothing and footwear</b>	-0.01	-0.03	-0.06	-0.07	0.06	0.03	0.01	0.11	-0.02
Garments	0.02	0.01	-0.04	0.01	0.08	0.02	0.03	0.07	0.02
Garments for men	0.02	0.02	0.01	0.02	0.03	0.05	0.00	0.03	0.01
Garments for women	0.01	-0.01	-0.06	-0.04	0.02	-0.03	0.03	0.06	-0.01
Garments for infants and children	-0.01	0.01	0.01	0.02	0.02	0.00	0.00	0.00	0.01
Footwear	-0.01	0.00	0.01	0.00	0.02	0.04	-0.02	0.02	0.01
Footwear for men	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Footwear for women	0.00	-0.01	0.01	0.00	0.02	0.03	-0.02	0.02	0.01
Footwear for infants and children	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00
Accessories and clothing services	-0.03	-0.05	-0.02	-0.07	-0.04	-0.03	0.00	0.02	-0.03
Accessories	-0.03	-0.05	-0.03	-0.07	-0.04	-0.03	0.00	0.02	-0.04
Cleaning, repair and hire of clothing and footwear	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01

<i>Group, sub-group and expenditure class</i>	<i>Sydney</i>	<i>Melbourne</i>	<i>Brisbane</i>	<i>Adelaide</i>	<i>Perth</i>	<i>Hobart</i>	<i>Darwin</i>	<i>Canberra</i>	<i>Weighted average of eight capital cities</i>
<b>Housing</b>	0.16	0.11	0.01	0.01	-0.11	0.07	-0.15	0.06	0.07
Rents	0.06	0.02	0.00	0.00	-0.13	0.05	-0.17	0.02	0.00
Rents	0.06	0.02	0.00	0.00	-0.13	0.05	-0.17	0.02	0.00
New dwelling purchase by owner-occupiers	0.08	0.10	0.00	-0.02	0.01	-0.02	0.00	0.03	0.06
New dwelling purchase by owner-occupiers	0.08	0.10	0.00	-0.02	0.01	-0.02	0.00	0.03	0.06
Other housing	0.02	0.04	0.01	0.02	0.01	0.03	0.01	0.02	0.02
Maintenance and repair of the dwelling	0.02	0.03	0.01	0.02	0.01	0.03	0.01	0.03	0.03
Property rates and charges	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	0.00	-0.05	0.00	0.00	-0.01	0.00	0.00	0.00	-0.02
Water and sewerage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas and other household fuels	0.00	-0.05	0.00	0.00	0.00	0.00	0.00	0.00	-0.01
<b>Furnishings, household equipment and services</b>	-0.07	-0.07	-0.12	-0.19	-0.03	-0.07	-0.06	0.03	-0.08
Furniture and furnishings	-0.05	-0.02	-0.04	-0.05	0.02	-0.01	0.01	0.05	-0.03
Furniture	-0.05	-0.02	-0.04	-0.05	0.02	-0.01	0.01	0.05	-0.03
Carpets and other floor coverings	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00
Household textiles	-0.02	-0.02	-0.03	-0.05	-0.02	-0.02	0.00	-0.01	-0.02
Household textiles	-0.02	-0.02	-0.03	-0.05	-0.02	-0.02	0.00	-0.01	-0.02
Household appliances, utensils and tools	-0.03	-0.02	-0.03	-0.09	-0.04	-0.03	-0.02	-0.02	-0.03
Major household appliances	-0.01	-0.01	-0.02	-0.04	0.00	-0.02	-0.02	-0.01	-0.02
Small electric household appliances	0.00	0.00	0.00	-0.02	0.00	-0.01	0.00	-0.01	0.00
Glassware, tableware and household utensils	-0.01	0.00	-0.01	-0.05	-0.03	0.00	-0.02	0.00	-0.01
Tools and equipment for house and garden	0.00	0.00	0.00	0.00	-0.01	-0.01	0.01	0.00	-0.01
Non-durable household products	-0.02	-0.03	-0.04	-0.04	0.00	-0.05	-0.05	-0.02	-0.02
Cleaning and maintenance products	0.00	0.00	-0.01	0.01	0.00	0.00	0.00	0.00	0.00
Personal care products	-0.02	-0.02	-0.03	-0.03	-0.01	-0.02	-0.03	-0.02	-0.02
Other non-durable household products	0.01	-0.01	0.00	0.00	0.01	-0.02	-0.02	0.00	0.00
Domestic and household services	0.04	0.02	0.02	0.04	0.01	0.02	0.01	0.04	0.02
Child care	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Hairdressing and personal grooming services	0.02	0.00	0.01	0.02	0.01	0.02	0.00	0.02	0.01
Other household services	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.02	0.01
<b>Health</b>	-0.04	-0.04	-0.05	-0.04	-0.06	-0.04	-0.04	-0.08	-0.04
Medical products, appliances and equipment	-0.03	-0.03	-0.03	-0.04	-0.04	-0.03	-0.02	-0.03	-0.03
Pharmaceutical products	-0.04	-0.03	-0.02	-0.04	-0.04	-0.03	-0.02	-0.03	-0.03
Therapeutic appliances and equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical, dental and hospital services	-0.01	0.00	-0.02	0.00	-0.02	-0.01	-0.01	-0.05	-0.01
Medical and hospital services	-0.01	0.00	-0.01	0.00	-0.02	-0.01	-0.02	-0.05	-0.01
Dental services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Transport</b>	0.17	0.30	0.21	0.12	0.13	0.06	0.13	0.03	0.20
Private motoring	0.13	0.30	0.20	0.12	0.12	0.07	0.13	0.03	0.18
Motor vehicles	-0.02	0.02	-0.01	-0.03	-0.08	-0.01	-0.03	-0.09	-0.02
Spare parts and accessories for motor vehicles	0.00	0.00	0.00	-0.02	-0.01	0.01	-0.01	-0.02	0.00
Automotive fuel	0.16	0.26	0.21	0.19	0.20	0.07	0.18	0.11	0.19
Maintenance and repair of motor vehicles	0.00	0.01	-0.01	-0.01	0.02	0.00	-0.01	0.02	0.01
Other services in respect of motor vehicles	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Urban transport fares	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Urban transport fares	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

Group, sub-group and expenditure class									Weighted
	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra	average of eight capital cities
<b>Communication</b>	-0.02	-0.02	-0.02	-0.02	-0.02	-0.03	-0.02	-0.02	-0.02
Communication	-0.02	-0.02	-0.02	-0.02	-0.02	-0.03	-0.02	-0.02	-0.02
Postal services	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Telecommunication equipment and services	-0.02	-0.02	-0.02	-0.02	-0.02	-0.03	-0.03	-0.02	-0.02
<b>Recreation and culture</b>	0.04	0.13	0.08	0.03	0.07	0.31	-0.27	0.17	0.08
Audio, visual and computing equipment and services	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.02	-0.03	-0.02
Audio, visual and computing equipment	-0.03	-0.02	-0.02	-0.03	-0.02	-0.03	-0.02	-0.03	-0.03
Audio, visual and computing media and services	0.02	0.00	0.02	0.02	0.02	0.01	0.02	0.00	0.01
Newspapers, books and stationery	0.00	0.01	0.01	-0.01	0.00	-0.04	0.00	-0.01	0.00
Books	-0.01	-0.01	0.00	0.00	-0.01	-0.01	0.00	-0.01	-0.01
Newspapers, magazines and stationery	0.01	0.01	0.01	0.00	0.00	-0.02	0.01	0.00	0.00
Holiday travel and accommodation	0.05	0.14	0.06	0.04	0.06	0.35	-0.34	0.20	0.09
Domestic holiday travel and accommodation	0.14	0.20	0.12	0.08	0.12	0.45	-0.30	0.29	0.15
International holiday travel and accommodation	-0.09	-0.06	-0.06	-0.04	-0.06	-0.10	-0.04	-0.09	-0.06
Other recreation, sport and culture	0.00	-0.01	0.03	0.00	0.02	0.00	0.08	0.00	0.01
Equipment for sports, camping and open-air recreation	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.01
Games, toys and hobbies	0.00	0.00	-0.01	0.00	-0.01	0.01	0.01	0.00	0.00
Pets and related products	0.00	0.00	0.00	0.00	0.00	-0.02	-0.01	0.00	0.00
Veterinary and other services for pets	0.00	0.00	0.01	0.00	0.01	0.02	0.01	0.00	0.00
Sports participation	0.01	0.01	0.02	0.01	0.02	0.00	0.07	-0.01	0.01
Other recreational, sporting and cultural services	-0.01	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.00
<b>Education</b>	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Preschool and primary education	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Secondary education	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tertiary education	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Insurance and financial services</b>	0.04	0.01	0.14	0.01	0.01	0.00	-0.05	0.03	0.04
Insurance	0.03	0.01	0.11	0.01	0.03	0.02	0.00	0.03	0.04
Insurance	0.03	0.01	0.11	0.01	0.03	0.02	0.00	0.03	0.04
Financial services	0.01	-0.01	0.03	0.01	-0.02	-0.01	-0.05	-0.02	0.00
Deposit and loan facilities (direct charges)	-0.01	0.00	-0.01	-0.01	-0.01	0.00	-0.01	-0.01	0.00
Other financial services	0.00	-0.01	0.03	0.00	-0.01	-0.01	-0.04	-0.01	0.01
<b>All groups CPI</b>	<b>0.5</b>	<b>0.8</b>	<b>0.5</b>	<b>0.3</b>	<b>0.4</b>	<b>0.9</b>	<b>-0.1</b>	<b>0.6</b>	<b>0.6</b>

Group, sub-group and expenditure class	INDEX NUMBERS(a)			PERCENTAGE CHANGE		CONTRIBUTION TO TOTAL CPI (ALL GROUPS) (INDEX POINTS)		CHANGE IN POINTS CONTRIBUTION
	Dec Qtr 2015	Sep Qtr 2016	Dec Qtr 2016	Sep Qtr 2016 to Dec Qtr 2016	Dec Qtr 2015 to Dec Qtr 2016	Sep Qtr 2016	Dec Qtr 2016	Sep Qtr 2016 to Dec Qtr 2016
<b>Food and non-alcoholic beverages</b>	104.3	105.6	106.2	0.6	1.8	17.25	17.35	0.10
Bread and cereal products	99.6	98.0	98.4	0.4	-1.2	1.66	1.66	0.00
Bread	96.0	96.1	95.6	-0.5	-0.4	0.55	0.54	-0.01
Cakes and biscuits	104.0	102.1	103.0	0.9	-1.0	0.75	0.75	0.00
Breakfast cereals	95.1	93.0	94.7	1.8	-0.4	0.17	0.17	0.00
Other cereal products	98.0	93.2	93.1	-0.1	-5.0	0.19	0.19	0.00
Meat and seafoods	108.5	109.5	110.0	0.5	1.4	2.45	2.46	0.01
Beef and veal	119.7	125.1	125.4	0.2	4.8	0.48	0.48	0.00
Pork	110.8	110.1	111.9	1.6	1.0	0.39	0.40	0.01
Lamb and goat	99.0	103.1	101.4	-1.6	2.4	0.25	0.25	0.00
Poultry	101.7	100.0	100.5	0.5	-1.2	0.47	0.47	0.00
Other meats	111.7	111.2	111.8	0.5	0.1	0.43	0.43	0.00
Fish and other seafood	106.6	107.4	108.0	0.6	1.3	0.43	0.44	0.01
Dairy and related products	98.7	98.2	97.5	-0.7	-1.2	1.11	1.11	0.00
Milk	96.5	96.6	96.4	-0.2	-0.1	0.41	0.41	0.00
Cheese	104.9	101.9	100.6	-1.3	-4.1	0.34	0.33	-0.01
Ice cream and other dairy products	95.9	96.8	96.0	-0.8	0.1	0.37	0.36	-0.01
Fruit and vegetables	100.1	108.7	110.1	1.3	10.0	2.70	2.73	0.03
Fruit	93.7	100.4	100.2	-0.2	6.9	1.22	1.22	0.00
Vegetables	106.3	116.7	119.6	2.5	12.5	1.48	1.51	0.03
Food products n.e.c.	102.2	100.7	102.2	1.5	0.0	2.17	2.21	0.04
Eggs	107.3	109.1	108.4	-0.6	1.0	0.12	0.12	0.00
Jams, honey and spreads	107.0	105.3	105.8	0.5	-1.1	0.15	0.15	0.00
Food additives and condiments	96.6	97.8	96.2	-1.6	-0.4	0.30	0.30	0.00
Oils and fats	98.9	102.0	101.6	-0.4	2.7	0.18	0.18	0.00
Snacks and confectionery	103.9	102.2	103.5	1.3	-0.4	0.98	0.99	0.01
Other food products n.e.c.	100.8	95.8	101.0	5.4	0.2	0.45	0.48	0.03
Non-alcoholic beverages	101.8	101.5	99.6	-1.9	-2.2	1.17	1.14	-0.03
Coffee, tea and cocoa	103.0	99.6	102.1	2.5	-0.9	0.29	0.29	0.00
Waters, soft drinks and juices	101.4	102.1	98.8	-3.2	-2.6	0.88	0.85	-0.03
Meals out and take away foods	108.3	109.2	110.1	0.8	1.7	5.99	6.03	0.04
Restaurant meals	106.9	108.3	109.5	1.1	2.4	3.06	3.10	0.04
Take away and fast foods	109.8	110.2	110.7	0.5	0.8	2.92	2.94	0.02
<b>Alcohol and tobacco</b>	123.4	127.1	130.7	2.8	5.9	9.11	9.36	0.25
Alcoholic beverages	107.8	109.2	108.5	-0.6	0.6	5.21	5.18	-0.03
Spirits	109.0	110.7	109.5	-1.1	0.5	1.01	1.00	-0.01
Wine	102.2	102.0	100.1	-1.9	-2.1	1.66	1.63	-0.03
Beer	111.4	113.9	114.3	0.4	2.6	2.54	2.55	0.01
Tobacco	154.6	162.9	175.0	7.4	13.2	3.89	4.18	0.29
Tobacco	154.6	162.9	175.0	7.4	13.2	3.89	4.18	0.29
<b>Clothing and footwear</b>	98.7	98.3	97.8	-0.5	-0.9	3.90	3.88	-0.02
Garments	97.1	95.8	96.6	0.8	-0.5	2.38	2.40	0.02
Garments for men	103.6	101.7	104.3	2.6	0.7	0.75	0.76	0.01
Garments for women	93.4	92.3	91.7	-0.7	-1.8	1.34	1.33	-0.01
Garments for infants and children	98.5	98.3	101.1	2.8	2.6	0.30	0.31	0.01
Footwear	96.1	95.8	96.2	0.4	0.1	0.59	0.60	0.01
Footwear for men	98.5	98.6	99.7	1.1	1.2	0.14	0.14	0.00
Footwear for women	94.5	93.6	94.4	0.9	-0.1	0.33	0.34	0.01
Footwear for infants and children	98.0	99.0	97.4	-1.6	-0.6	0.12	0.12	0.00
Accessories and clothing services	105.2	107.2	102.7	-4.2	-2.4	0.92	0.89	-0.03
Accessories	104.3	106.3	100.9	-5.1	-3.3	0.79	0.75	-0.04
Cleaning, repair and hire of clothing and footwear	110.7	112.7	113.4	0.6	2.4	0.13	0.14	0.01

(a) Unless otherwise specified, reference period of each index: 2011-12 = 100.0.

continued

Group, sub-group and expenditure class	INDEX NUMBERS(a)			PERCENTAGE CHANGE		CONTRIBUTION TO TOTAL CPI (ALL GROUPS INDEX POINTS)		CHANGE IN POINTS CONTRIBUTION
	Dec Qtr 2015	Sep Qtr 2016	Dec Qtr 2016	Sep Qtr 2016 to Dec Qtr 2016	Dec Qtr 2015 to Dec Qtr 2016	Sep Qtr 2016	Dec Qtr 2016	Sep Qtr 2016 to Dec Qtr 2016
<b>Housing</b>	113.7	115.6	115.9	0.3	1.9	26.24	26.31	0.07
Rents	110.1	110.7	110.8	0.1	0.6	7.58	7.58	0.00
Rents	110.1	110.7	110.8	0.1	0.6	7.58	7.58	0.00
New dwelling purchase by owner-occupiers	113.0	114.7	115.3	0.5	2.0	9.87	9.93	0.06
New dwelling purchase by owner-occupiers	113.0	114.7	115.3	0.5	2.0	9.87	9.93	0.06
Other housing	116.5	119.5	120.1	0.5	3.1	4.02	4.04	0.02
Maintenance and repair of the dwelling	109.7	111.3	112.4	1.0	2.5	2.27	2.30	0.03
Property rates and charges	127.0	132.1	132.1	0.0	4.0	1.74	1.74	0.00
Utilities	119.2	122.6	122.3	-0.2	2.6	4.77	4.75	-0.02
Water and sewerage	116.1	114.0	114.0	0.0	-1.8	1.11	1.11	0.00
Electricity	118.1	123.7	123.7	0.0	4.7	2.68	2.68	0.00
Gas and other household fuels	126.6	130.7	129.0	-1.3	1.9	0.98	0.97	-0.01
<b>Furnishings, household equipment and services</b>	104.5	105.9	105.1	-0.8	0.6	9.58	9.50	-0.08
Furniture and furnishings	102.2	104.2	102.8	-1.3	0.6	1.95	1.92	-0.03
Furniture	101.6	103.7	102.1	-1.5	0.5	1.65	1.62	-0.03
Carpets and other floor coverings	105.8	107.2	107.0	-0.2	1.1	0.30	0.30	0.00
Household textiles	94.7	95.0	90.9	-4.3	-4.0	0.57	0.55	-0.02
Household textiles	94.7	95.0	90.9	-4.3	-4.0	0.57	0.55	-0.02
Household appliances, utensils and tools	97.8	99.0	96.9	-2.1	-0.9	1.38	1.35	-0.03
Major household appliances	98.0	99.1	96.3	-2.8	-1.7	0.48	0.46	-0.02
Small electric household appliances	96.6	94.8	93.9	-0.9	-2.8	0.22	0.22	0.00
Glassware, tableware and household utensils	94.8	96.2	93.5	-2.8	-1.4	0.41	0.40	-0.01
Tools and equipment for house and garden	103.6	107.2	106.5	-0.7	2.8	0.28	0.27	-0.01
Non-durable household products	99.8	98.9	98.1	-0.8	-1.7	2.80	2.78	-0.02
Cleaning and maintenance products	98.2	96.3	95.8	-0.5	-2.4	0.28	0.28	0.00
Personal care products	95.8	93.9	92.0	-2.0	-4.0	1.03	1.01	-0.02
Other non-durable household products	103.1	103.2	103.3	0.1	0.2	1.49	1.49	0.00
Domestic and household services	118.4	122.7	123.7	0.8	4.5	2.88	2.90	0.02
Child care	135.0	145.4	146.0	0.4	8.1	1.06	1.06	0.00
Hairdressing and personal grooming services	108.8	110.5	111.6	1.0	2.6	1.00	1.01	0.01
Other household services	113.8	115.1	116.2	1.0	2.1	0.82	0.83	0.01
<b>Health</b>	120.0	125.2	124.4	-0.6	3.7	6.61	6.57	-0.04
Medical products, appliances and equipment	101.1	102.8	100.4	-2.3	-0.7	1.31	1.28	-0.03
Pharmaceutical products	101.5	103.5	100.8	-2.6	-0.7	1.17	1.14	-0.03
Therapeutic appliances and equipment	98.3	97.3	97.4	0.1	-0.9	0.15	0.15	0.00
Medical, dental and hospital services	126.0	132.3	132.0	-0.2	4.8	5.30	5.29	-0.01
Medical and hospital services	128.6	135.8	135.5	-0.2	5.4	4.67	4.66	-0.01
Dental services	109.9	110.9	110.9	0.0	0.9	0.63	0.63	0.00
<b>Transport</b>	99.7	97.7	99.4	1.7	-0.3	11.30	11.50	0.20
Private motoring	99.4	97.1	98.8	1.8	-0.6	10.50	10.68	0.18
Motor vehicles	95.6	94.4	93.8	-0.6	-1.9	2.99	2.97	-0.02
Spare parts and accessories for motor vehicles	106.1	106.9	106.7	-0.2	0.6	1.06	1.06	0.00
Automotive fuel	88.0	81.5	87.0	6.7	-1.1	2.89	3.08	0.19
Maintenance and repair of motor vehicles	108.1	107.8	108.0	0.2	-0.1	1.86	1.87	0.01
Other services in respect of motor vehicles	121.3	122.9	123.0	0.1	1.4	1.71	1.71	0.00
Urban transport fares	105.0	105.5	107.4	1.8	2.3	0.80	0.81	0.01
Urban transport fares	105.0	105.5	107.4	1.8	2.3	0.80	0.81	0.01

(a) Unless otherwise specified, reference period of each index: 2011-12 = 100.0.

continued

Group, sub-group and expenditure class	INDEX NUMBERS(a)			PERCENTAGE CHANGE		CONTRIBUTION TO TOTAL CPI (ALL GROUPS INDEX POINTS)		CHANGE IN POINTS CONTRIBUTION
	Dec Qtr 2015	Sep Qtr 2016	Dec Qtr 2016	Sep Qtr 2016 to Dec Qtr 2016	Dec Qtr 2015 to Dec Qtr 2016	Sep Qtr 2016	Dec Qtr 2016	Sep Qtr 2016 to Dec Qtr 2016
<b>Communication</b>	94.2	89.3	88.6	-0.8	-5.9	2.72	2.70	-0.02
Communication	94.2	89.3	88.6	-0.8	-5.9	2.72	2.70	-0.02
Postal services	109.0	111.2	112.7	1.3	3.4	0.14	0.14	0.00
Telecommunication equipment and services	93.6	88.3	87.6	-0.8	-6.4	2.58	2.56	-0.02
<b>Recreation and culture</b>	104.8	103.7	104.3	0.6	-0.5	12.95	13.03	0.08
Audio, visual and computing equipment and services	80.8	77.3	76.7	-0.8	-5.1	1.83	1.81	-0.02
Audio, visual and computing equipment	69.5	64.5	62.6	-2.9	-9.9	0.90	0.87	-0.03
Audio, visual and computing media and services	97.0	95.7	97.0	1.4	0.0	0.93	0.94	0.01
Newspapers, books and stationery	108.1	110.3	110.2	-0.1	1.9	1.18	1.18	0.00
Books	96.1	100.5	98.2	-2.3	2.2	0.39	0.38	-0.01
Newspapers, magazines and stationery	115.0	116.0	117.2	1.0	1.9	0.79	0.79	0.00
Holiday travel and accommodation	112.7	109.7	111.4	1.5	-1.2	5.34	5.43	0.09
Domestic holiday travel and accommodation	112.3	106.4	112.3	5.5	0.0	2.74	2.89	0.15
International holiday travel and accommodation	113.2	113.4	110.4	-2.6	-2.5	2.60	2.54	-0.06
Other recreation, sport and culture	108.3	109.9	110.1	0.2	1.7	4.60	4.61	0.01
Equipment for sports, camping and open-air recreation	104.4	103.9	103.6	-0.3	-0.8	0.62	0.61	-0.01
Games, toys and hobbies	91.4	88.8	88.7	-0.1	-3.0	0.66	0.66	0.00
Pets and related products	95.7	101.5	100.9	-0.6	5.4	0.39	0.39	0.00
Veterinary and other services for pets	113.7	117.5	118.3	0.7	4.0	0.48	0.48	0.00
Sports participation	115.4	117.0	117.9	0.8	2.2	1.12	1.13	0.01
Other recreational, sporting and cultural services	118.1	121.4	121.5	0.1	2.9	1.34	1.34	0.00
<b>Education</b>	120.8	124.8	124.8	0.0	3.3	4.07	4.07	0.00
Education	120.8	124.8	124.8	0.0	3.3	4.07	4.07	0.00
Preschool and primary education	120.5	126.0	126.1	0.1	4.6	0.67	0.67	0.00
Secondary education	121.4	127.0	127.0	0.0	4.6	1.65	1.65	0.00
Tertiary education	120.3	122.4	122.4	0.0	1.7	1.75	1.75	0.00
<b>Insurance and financial services</b>	108.3	110.5	111.2	0.6	2.7	5.67	5.71	0.04
Insurance	114.1	120.5	122.9	2.0	7.7	1.76	1.80	0.04
Insurance	114.1	120.5	122.9	2.0	7.7	1.76	1.80	0.04
Financial services	106.0	106.5	106.5	0.0	0.5	3.91	3.91	0.00
Deposit and loan facilities (direct charges)	101.4	101.7	101.2	-0.5	-0.2	0.76	0.76	0.00
Other financial services	107.2	107.7	107.9	0.2	0.7	3.15	3.16	0.01
<b>All groups CPI</b>	<b>108.4</b>	<b>109.4</b>	<b>110.0</b>	<b>0.5</b>	<b>1.5</b>	<b>109.4</b>	<b>110.0</b>	<b>0.6</b>

(a) Unless otherwise specified, reference period of each index: 2011-12 = 100.0.



	INDEX NUMBERS(b)			PERCENTAGE CHANGE		CONTRIBUTION TO TOTAL CPI (ALL GROUPS CPI INDEX POINTS)		CHANGE IN POINTS CONTRIBUTION
	Dec Qtr 2015	Sep Qtr 2016	Dec Qtr 2016	Sep Qtr 2016 to Dec Qtr 2016	Dec Qtr 2015 to Dec Qtr 2016	Sep Qtr 2016	Dec Qtr 2016	Sep Qtr 2016 to Dec Qtr 2016
<b>All groups CPI</b>	108.4	109.4	110.0	0.5	1.5	109.4	110.0	0.6
<b>All groups CPI, seasonally adjusted</b>	108.2	109.3	109.8	0.5	1.5	..	..	..
<b>Underlying trend series</b>								
Trimmed mean(c)	..	..	..	0.4	1.6	..	..	..
Weighted median(c)	..	..	..	0.4	1.5	..	..	..
<b>International trade exposure series</b>								
Tradables	102.3	102.5	102.4	-0.1	0.1	r36.80	36.78	-0.02
Non-tradables	112.3	113.8	114.7	0.8	2.1	r72.60	73.20	0.60
<b>Goods and services series</b>								
Goods component	105.3	106.0	106.7	0.7	1.3	61.17	61.54	0.37
Services component	112.6	114.0	114.5	0.4	1.7	48.22	48.43	0.21
<b>All groups CPI including</b>								
Deposit and loan facilities (indirect charges)	108.8	110.0	110.5	0.5	1.6	..	..	..
<b>Market goods and services excluding 'volatile items'</b>								
Goods	105.8	106.4	106.8	0.4	0.9	49.65	49.84	0.19
Services	108.8	108.8	109.4	0.6	0.6	33.27	33.47	0.20
Total	107.0	107.4	107.9	0.5	0.8	82.92	83.30	0.38
<b>All groups CPI excluding</b>								
Food and non-alcoholic beverages	109.2	110.1	110.7	0.5	1.4	92.15	92.63	0.48
Alcohol and tobacco	107.2	108.0	108.4	0.4	1.1	100.29	100.62	0.33
Clothing and footwear	108.8	109.9	110.5	0.5	1.6	105.50	106.09	0.59
Housing	106.8	107.6	108.2	0.6	1.3	83.16	83.67	0.51
Furnishings, household equipment and services	108.8	109.7	110.5	0.7	1.6	99.82	100.48	0.66
Health	107.7	108.5	109.2	0.6	1.4	102.79	103.41	0.62
Transport	109.5	110.9	111.4	0.5	1.7	98.10	98.48	0.38
Communication	108.8	110.0	110.6	0.5	1.7	106.68	107.28	0.60
Recreation and culture	108.9	110.2	110.8	0.5	1.7	96.45	96.95	0.50
Education	108.0	108.9	109.5	0.6	1.4	105.33	105.91	0.58
Insurance and financial services	108.4	109.3	109.9	0.5	1.4	103.73	104.27	0.54
Housing, Insurance and financial services	106.7	107.4	108.0	0.6	1.2	77.49	77.96	0.47
Medical and hospital services	107.7	108.5	109.1	0.6	1.3	104.73	105.32	0.59
Food and energy	109.6	110.8	111.2	0.4	1.5	88.67	89.00	0.33
'Volatile items'	109.4	110.5	110.8	0.3	1.3	103.81	104.16	0.35

.. not applicable

r revised

(a) Refer to paragraphs 11 and 12 of the Explanatory Notes for a description of these series.

(b) Unless otherwise specified, reference period of each index: 2011–12 = 100.0.

(c) Index numbers are available in the time series spreadsheet 'Table 8. CPI: Analytical Series, Weighted Average of Eight Capital Cities'.

## EXPLANATORY NOTES

### BRIEF DESCRIPTION OF THE CPI

**1** The Consumer Price Index (CPI) measures quarterly changes in the price of a 'basket' of goods and services which account for a high proportion of expenditure by the CPI population group (i.e. metropolitan households). This 'basket' covers a wide range of goods and services, arranged in the following eleven groups:

- Food and non-alcoholic beverages
- Alcohol and tobacco
- Clothing and footwear
- Housing
- Furnishings, household equipment and services
- Health
- Transport
- Communication
- Recreation and culture
- Education
- Insurance and financial services.

**2** Capital city indexes used by the CPI are based on the 2006 Australian Standard Geographical Classification (ASGC) statistical divisions. The capital city indexes measure price movements over time in each city individually. They do not measure differences in retail price levels between cities.

**3** Further information about the CPI is contained in *Consumer Price Index: Concepts, Sources and Methods, 2011* (cat. no. 6461.0). An updated version reflecting the changes made during the 16th series review was released on 19 December 2011.

### PRICES

**4** The frequency of price collection by item varies as necessary to obtain reliable price measures. Prices of some items are volatile (i.e. their prices may vary many times each quarter) and for these items frequent price observations are necessary to obtain a reliable measure of the average price for the quarter. Each month prices are collected at regular intervals for goods such as milk, bread, fresh meat and seafood, fresh fruit and vegetables, alcohol, tobacco, women's outerwear, project homes, motor vehicles, petrol and holiday travel and accommodation. For most other items, price volatility is not a problem and prices are collected once a quarter. There are a few items where prices are changed at infrequent intervals, for example education fees where prices are set once a year. In these cases, the frequency of price collection is modified accordingly.

**5** In order to facilitate a more even spread of field collection workload, the number of items for which prices are collected quarterly is distributed roughly equally across each month of each quarter. In all cases, however, individual items are priced in the same month of each quarter. For example, items for which prices are collected in the first month of the September quarter, July, are also priced in the first month of subsequent quarters, namely October, January and April.

### WEIGHTING PATTERN

**6** There are 87 expenditure classes (that is, groupings of like items) in the 16th series CPI and each expenditure class has its own weight, or measure of relative importance. In calculating the index, price changes for the various expenditure classes are combined using these weights.

**7** Changes in the weighting pattern have been made at approximately six yearly intervals to take account of changes in household spending patterns. The CPI now comprises sixteen series of price indexes which have been linked to form a continuous series. The current and historical weighting patterns for the CPI for the weighted average of the eight capital cities are published in *Consumer Price Index: Historical Weighting Patterns (1948 to 2011)* (cat. no. 6431.0). The 16th series weighting pattern for the weighted average of eight capital cities and for each of the eight capital cities, as well as each city's percentage contribution to the weighted average, are also published in the

## EXPLANATORY NOTES *continued*

### WEIGHTING PATTERN *continued*

*Consumer Price Index: 16th Series Weighting Pattern* (cat. no. 6471.0). Both publications are available on the ABS website <<http://www.abs.gov.au>>.

### ANALYSIS OF CPI CHANGES

**8** Movements in indexes from one period to another can be expressed either as changes in index points or as percentage changes. The following example illustrates the method of calculating changes in index points and percentage changes between any two periods:

All groups CPI: Weighted average of eight capital cities. Index numbers:

June Quarter 2012      100.4 (see Table 1)

less June Quarter 2011   99.2 (see Table 1)

Change in index points   1.2

Percentage change     $1.2/99.2 \times 100 = 1.2\%$  (see Table 2)

**9** Percentage changes are calculated to illustrate three different kinds of movements in index numbers:

- movements between consecutive financial years (where the index numbers for financial years are simple averages of the quarterly index numbers)
- movements between corresponding quarters of consecutive years
- movements between consecutive quarters.

**10** Table 7 provides a detailed analysis, for the weighted average of eight capital cities, of movements in the CPI since the previous quarter, including information on movements for groups, sub-groups and expenditure classes. It also shows the contribution which each makes to the total CPI. For instance, the dairy and related products sub-group contributed 1.13 index points to the total All groups index number of 100.4 for the June Quarter 2012. The final column shows contributions to the change in All Groups index points by each group, sub-group and expenditure class.

### ANALYTICAL SERIES

**11** Various series are presented in Table 8 in this publication to assist users analyse the CPI. Some of the analytical series are compiled by taking subsets of the CPI basket, and most are self explanatory, such as 'All groups CPI excluding Food and non-alcoholic beverages'. (A complete list of CPI groups, sub-groups and expenditure classes is contained in Tables 6 and 7). Other series and their composition are described below:

- *All groups CPI, seasonally adjusted*: Comprises all components included in the All groups CPI, seasonally adjusted where seasonality has been identified at the weighted average of eight capital cities level. Seasonal adjustment factors are calculated using the history of price changes up to the current quarter CPI and are revised each quarter.
  - Where CPI expenditure classes are identified as having a seasonal pattern, quarterly price changes are estimated on a seasonally adjusted basis. At the introduction of the 16th series, 62 out of the 87 expenditure classes were classified as seasonal. A description of which series are currently seasonally adjusted is published in the Appendix of every September quarter issue of *Consumer Price Index, Australia* (cat. no. 6401.0), following the annual seasonal reanalysis.
- *Underlying trend series, 'Trimmed mean' and 'Weighted median'*: These are two analytical measures of trend inflation calculated from the June quarter 2002 using standard ABS seasonal adjustment techniques. For more information see the *Information Paper: Seasonal Adjustment of Consumer Price Indexes, 2011* (cat. no. 6401.0.55.003). The Trimmed mean and Weighted median are calculated using the distribution of expenditure classes each quarter derived as follows:
  - The CPI expenditure classes are ranked from lowest to highest according to the seasonally adjusted percentage change from the previous quarter.
  - The seasonally adjusted relative weight of each expenditure class is calculated based on its previous quarter contribution to the All groups CPI.

## EXPLANATORY NOTES *continued*

### ANALYTICAL SERIES *continued*

- The 'Trimmed mean' is calculated by using a weighted average of percentage change from the previous quarter (seasonally adjusted) from the middle 70 per cent of the distribution.
- The 'Weighted median' is calculated using the percentage change from the previous quarter (seasonally adjusted) expenditure class at the 50th percentile of the distribution.
- *International trade exposure series, Tradables component*: Comprises all items whose prices are largely determined on the world market. For more information, see paragraph 12 below.
- *International trade exposure series, Non-tradables component*: Comprises all items not included in the Tradables component.
- *All groups CPI, goods component*: Comprises the Food and non-alcoholic beverages group (except Restaurant meals); Alcohol and tobacco group; Clothing and footwear group (except Cleaning, repair and hire of clothing and footwear); Furnishings, household equipment and services group (except Domestic and household services sub-group); Utilities, Audio, visual and computing equipment and services, and Newspapers, books and stationery sub-groups; and New dwelling purchase by owner-occupiers, Pharmaceutical products, Motor vehicles, Automotive fuel, Spare parts and accessories for motor vehicles, Equipment for sports, camping and open-air recreation, Games, toys and hobbies and Pets and related products expenditure classes.
- *All groups CPI, services component*: Comprises all items not included in the 'All groups CPI, goods component'. A description of which series are goods or services is published in Appendix 1 of the September quarter 2011 issue of Consumer Price Index, Australia (cat. no 6401.0).
- *All groups CPI including Deposit and loan facilities (indirect charges)*: One of the outcomes of the 16th series CPI Review was to remove the indirectly measured component of the Deposit and loan facilities index from the headline CPI but to include it in a new analytical series. This index includes the 16th series All groups CPI plus the indirectly measured component of the Deposit and loan facilities index.
- *Market goods and services excluding 'volatile items'*: in addition to the items excluded from the series 'All groups CPI excluding 'volatile items'', also excludes: Utilities, Property rates and charges, Child care, Health, Other services in respect of motor vehicles, Urban transport fares, Postal services, and Education.
- *All groups CPI excluding Insurance and financial services*: Reflecting the changing composition of the CPI, from the September quarter 1989 to the June quarter 1998, comprises the All groups CPI excluding house insurance, house contents insurance, vehicle insurance and mortgage interest charges and consumer credit charges; from the September quarter 1998 to the June quarter 2000 comprises the All groups CPI excluding house insurance, house contents insurance and vehicle insurance; from the September quarter 2000 to the June quarter 2005 comprises the All groups CPI excluding insurance services; from the September quarter 2005 to the June quarter 2011 comprises the All groups CPI excluding Financial and insurance services; from the September quarter 2011 comprises the All groups CPI excluding Insurance and financial services.

## EXPLANATORY NOTES *continued*

### ANALYTICAL SERIES *continued*

- *All groups CPI excluding Housing and Insurance and financial services*: Reflecting the changing composition of the CPI, from the September quarter 1989 to the June quarter 1998, comprises the All groups CPI excluding Housing, house contents insurance, vehicle insurance and consumer credit charges; from the September quarter 1998 to the June quarter 2000 comprises the All groups CPI excluding Housing, house insurance, house contents insurance and vehicle insurance; from the September quarter 2000 to the June quarter 2005 comprises the All groups CPI excluding Housing and insurance services; from the September quarter 2005 to the June quarter 2011 comprises the All groups CPI excluding Housing and Financial and insurance services; from the September quarter 2011 comprises the All groups CPI excluding Housing and Insurance and financial services.
- *All groups CPI excluding food and energy*: Comprises the All groups CPI excluding the Food and non-alcoholic beverages group (except Restaurant meals); Electricity, Gas and other household fuels; and Automotive fuel.
- *All groups CPI excluding 'volatile items'*: Comprises the All groups CPI excluding Fruit and vegetables and Automotive fuel.

**12** The International trade exposure series was reviewed and updated for the December quarter 2016. There were eight changes of classification outlined in the September quarter 2016 feature article 'Review of the Consumer Price Index International Trade Exposure Series' (cat. no. 6401.0): Breakfast cereals; Waters, soft drinks and juices; Gas and other household fuels; Therapeutic appliances and equipment; and Newspaper, magazines and stationery were reclassified from non-tradables to tradables; and Spirits; Tobacco; and Pharmaceutical products were reclassified from tradables to non-tradables. These changes are included from the December quarter 2016. The historical tradables and non-tradables series will not be revised. A description of which expenditure classes are tradables or non-tradables is published in the Appendix of the December quarter 2016 issue of Consumer Price Index, Australia (cat. no 6401.0).

### ROUNDING

**13** Published index numbers, except for the underlying trend series, are rounded to one decimal place. Percentage change movements are calculated from the index numbers and then rounded to one decimal place. Rounding errors can occur, causing discrepancies (e.g. when calculating percentage changes of aggregates and their components). Underlying trend series, 'Trimmed mean' and 'Weighted median' index numbers are published to four decimal places. Percentage change movements are calculated from the published index numbers and rounded to one decimal place.

### SEASONALLY ADJUSTED INDEXES

**14** Seasonally adjusted estimates are derived by estimating and removing systematic calendar related effects from the original series. In most economic data these calendar related effects are a combination of the classical seasonal influences (e.g. the effect of the weather, social traditions or administrative practices such as government charges increasing on 1 July each year) plus other kinds of calendar related variations, such as Easter or the proximity of significant days in the year (e.g. Christmas). In the seasonal adjustment process, both seasonal and other calendar related factors evolve over time to reflect changes in activity patterns. The seasonally adjusted estimates reflect the sampling and non-sampling errors to which the original estimates are subject.

**15** The CPI uses a concurrent seasonal adjustment methodology to derive the adjustment factors. This method uses the original time series available at each reference period to estimate seasonal factors for the current and previous quarters. Concurrent seasonal adjustment is technically superior to the more traditional method of reanalysing seasonal patterns once each year because it uses all available data to fine tune the estimates of the seasonal component each quarter. With concurrent analysis, the seasonally adjusted series are subject to revision each quarter as the estimates of the

## EXPLANATORY NOTES *continued*

### SEASONALLY ADJUSTED INDEXES *continued*

seasonal factors are improved. In most instances, the only significant revisions will be to the combined adjustment factors for the previous quarter and for the same quarter in the preceding year as the reference quarter (i.e. if the latest quarter is September quarter 2011 then the most significant revisions will be to June quarter 2011 and September quarter 2010). The seasonal patterns are also reanalysed on an annual basis or when there are known changes to regular events. This can lead to additional revisions.

**16** Autoregressive integrated moving average (ARIMA) modelling can improve the revision properties of the seasonally adjusted and trend estimates. ARIMA modelling relies on the characteristics of the series being analysed to project future period data. The projected values are temporary, intermediate values, that are only used internally to improve the estimation of the seasonal factors. The projected data do not affect the original estimates and are discarded at the end of the seasonal adjustment process. From the December quarter 2012, the Consumer Price Index uses ARIMA modelling where appropriate for individual time series. The ARIMA model is assessed as part of the annual reanalysis. For more information on ARIMA modelling see Feature article: Use of ARIMA modelling to reduce revisions in the October 2004 issue of *Australian Economic Indicators* (cat. no. 1350.0).

**17** The ABS applies seasonal adjustment to the expenditure class components of the CPI which are found to be seasonal, and then aggregates the seasonally adjusted and non-seasonally adjusted components to calculate the All groups CPI, seasonally adjusted, Trimmed mean and Weighted median estimates. The seasonally adjusted expenditure class components are available in Table 13 – CPI expenditure classes and selected analytical series, seasonally adjusted index numbers, weighted average of eight capital cities. The seasonal factors used to derive these seasonally adjusted indexes are available in Table 14 – CPI expenditure class, combined seasonal adjustment factors, weighted average of eight capital cities. For more information about seasonal adjustment of the CPI please refer to *Information Paper: Seasonal Adjustment of Consumer Price Indexes, 2011* (cat. no. 6401.0.55.003).

### INTERNATIONAL COMPARISONS

**18** In analysing price movements in Australia, an important consideration is Australia's performance relative to other countries. However, a simple comparison of All groups (or headline) CPIs is often inappropriate because of the different measurement approaches used by countries for certain products, particularly housing and financial and insurance services. To provide a better basis for international comparisons, the 17th International Conference of Labour Statisticians adopted a resolution which called for countries to 'if possible, compile and provide for dissemination to the international community an index that excludes housing and financial services' in addition to the all-items index.

### REVISIONS

**19** CPI original indexes are revised only in exceptional circumstances, such as to correct a significant error. As is the case with all price indexes, the index reference period (i.e. the period in which the index is set equal to 100.0) will be changed periodically. The index number levels for all periods will be changed by this process and it may also result in differences, due to rounding, between the percentage changes published on the old base and those on the new base. Seasonally adjusted indexes (including the Trimmed mean and Weighted median) for some quarters will be revised as extra quarters are included in the series analysed for seasonal influences (see paragraphs 14 to 17).

### RELATED PUBLICATIONS

**20** Current publications and other products released by the ABS are listed on the ABS website <<http://www.abs.gov.au>>. The ABS also issues a daily *Release Advice* on the website which details products to be released in the week ahead.

**21** Users may also wish to refer to the following publications and other data products that are available free of charge from the ABS website:

- *Enhancing the Australian CPI: A roadmap, Aug 2015* (cat. no. 6401.0.60.001)

## EXPLANATORY NOTES *continued*

### RELATED PUBLICATIONS

*continued*

- *Information Paper: Increasing the Frequency of CPI Expenditure Class Weight Updates, July 2016* (cat. no. 6401.0.60.002)
- *Information Paper: Making Greater Use of Transactions Data to compile the Consumer Price Index, Australia, 2016* (cat. no. 6401.0.60.003)
- *A Guide to the Consumer Price Index, 16th Series* (cat. no. 6440.0)
- *Consumer Price Index: Concepts, Sources and Methods, 2011* (cat. no. 6461.0)
- *Information Paper: Introduction of the 16th Series Australian Consumer Price Index, 2011* (cat. no. 6470.0)
- *Information Paper: Outcome of the 16th Series Australian Consumer Price Index Review, Australia* (cat. no. 6469.0)
- *Consumer Price Index Commodity Classification, Australia, 16th Series, 2011* (cat. no. 6401.0.55.004)
- *Consumer Price Index: 16th Series Weighting Pattern* (cat. no. 6471.0)
- *Consumer Price Index: Historical Weighting Patterns (1948–2011)* (cat. no. 6431.0)
- *Analytical Living Cost Indexes and Pensioner and Beneficiary Living Cost Index: 16th Series Weighting Patterns* (cat. no. 6472.0)
- *Consumer Price Index: Concordance with Household Expenditure Classification, Australia* (cat. no. 6446.0.55.001)
- *Information Paper: Seasonal Adjustment of Consumer Price Indexes, 2011* (cat. no. 6401.0.55.003)
- *Information Paper: Experimental Price Indexes for Financial Services* (cat. no. 6413.0)
- *Information Paper: The Introduction of Hedonic Price Indexes for Personal Computers* (cat. no. 6458.0)
- *Analytical Living Cost Indexes for Selected Australian Household Types* (cat. no. 6463.0)
- *Selected Living Cost Indexes, Australia* (cat. no. 6467.0)
- *Residential Property Price Indexes: Eight Capital Cities* (cat. no. 6416.0)
- *Producer Price Indexes, Australia* (cat. no. 6427.0)
- *International Trade Price Indexes, Australia* (cat. no. 6457.0)
- *Wage Price Index, Australia* (cat. no. 6345.0)

### DATA AVAILABLE

**22** As well as the statistics included in this publication, there is more detailed data for each capital city available on the ABS website. Inquiries should be made to the National Information and Referral Service on 1300 135 070.

## APPENDIX ANALYTICAL PRICE INDEX SERIES

- INTRODUCTION**
- 1** Various series are presented in Table 8 of the Consumer Price Index, Australia (cat. no. 6401.0) to assist users analyse the CPI. This appendix describes the composition of the analytical series - goods and services, international trade exposure and seasonally adjusted - in the Australian CPI. Table 1 shows in which of the analytical series the 87 CPI expenditure classes are included.
- GOODS AND SERVICES**
- 2** The ABS has classified expenditure classes as goods or services based on the majority of products in each category. In the CPI, 60 out of the 87 expenditure classes, accounting for approximately 56 per cent of the All groups CPI by weight, have been classified as goods. The remaining 27 expenditure classes, accounting for approximately 44 per cent of the All groups CPI by weight, have been classified as services.
- INTERNATIONAL TRADE EXPOSURE - TRADABLES AND NON-TRADABLES**
- 3** The tradables and non-tradables classification was reviewed and updated in the December quarter 2016 using 2013-14 Input-Output data to classify each expenditure class as tradable or non-tradable. As a result, there were eight changes to the classification: Breakfast cereals; Waters, soft drinks and juices; Gas and other household fuels; Therapeutic appliances and equipment; and Newspaper, magazines and stationery were reclassified from non-tradables to tradables: and Spirits; Tobacco; and Pharmaceutical products were reclassified from tradables to non-tradables.
- 4** In aggregate, 49 expenditure classes, accounting for approximately 35 per cent of the CPI by weight, have been classified as tradables. The remaining 38 expenditure classes, accounting for approximately 65 per cent of the CPI by weight, have been classified as non-tradables.
- 5** The method used to classify the series expenditure classes is set out below:
- Data from the National Accounts Input-Output Tables 2013-14 and the related product correspondence with the 16th series Consumer Price Index Commodity Classification were used to calculate Australia's exports as a ratio of total Australian production and imports as a ratio of total usage, for each expenditure class. The correspondence is available in table 40 of Australian National Accounts: Input-Output Tables, 2013-14 (cat. no. 5209.0.55.001);
  - All expenditure by international tourists in Australia was excluded from exports, as their expenditure on items such as urban transport fares was deemed not to affect price change;
  - Expenditure classes were classified as 'tradables' if either of the export or import ratios were greater than 10 per cent;
  - The remaining expenditure classes were classified as 'non-tradables'.
- 6** Further detail is provided in the September quarter 2016 feature article 'Review of the Consumer Price Index International Trade Exposure Series' (cat. no. 6401.0).
- MARKET GOODS AND SERVICES EXCLUDING 'VOLATILE ITEMS'**
- 7** Market items are those available on the open market. The volatile items are Fruit, Vegetables and Automotive fuel.
- SEASONALITY OF CPI EXPENDITURE CLASSES**
- 8** Seasonal adjustment uses a range of statistical tests to determine if seasonality is present in each expenditure class price index. This approach identifies series that show seasonal patterns over any part of the series to be seasonal. Using ABS seasonal adjustment methodology, 58 of the 87 expenditure class in the CPI are deemed to have a seasonal pattern in the current period. For more details on the seasonal adjustment of the CPI please refer to Information Paper: Seasonal Adjustment of Consumer Price Indexes, 2011 (cat. no. 6401.0.55.003).



# APPENDIX ANALYTICAL PRICE INDEX SERIES *continued*

TABLE 1 - 16TH SERIES CPI EXPENDITURE CLASSES CLASSIFIED BY ANALYTICAL SERIES (a)

CPI expenditure classes	Goods	Services	INTERNATIONAL TRADE EXPOSURE		SEASONAL		Market goods and services excluding 'volatiles'
			Tradables	Non-tradables	Including current period	Not including current period	
Bread	y			y			y
Cakes and biscuits	y		y		y		y
Breakfast cereals	y		y		y		y
Other cereal products	y		y		y		y
Beef and veal	y		y		y		y
Pork	y		y		y		y
Lamb and goat	y		y		y		y
Poultry	y			y		y	y
Other meats	y		y		y		y
Fish and other seafood	y		y		y		y
Milk	y			y		y	y
Cheese	y		y				y
Ice cream and other dairy products	y		y			y	y
Fruit(b)	y		y		y		
Vegetables(b)	y		y		y		
Eggs	y			y		y	y
Jams, honey and spreads	y		y				y
Food additives and condiments	y		y		y		y
Oils and fats	y		y			y	y
Snacks and confectionery	y		y		y		y
Other food products n.e.c.	y		y		y		y
Coffee, tea and cocoa	y		y				y
Waters, soft drinks and juices	y		y		y		y
Restaurant meals		y		y			y
Take away and fast foods	y			y		y	y
Spirits	y			y			y
Wine	y		y		y		y
Beer	y			y			y
Tobacco	y			y		y	y
Garments for men	y		y		y		y
Garments for women	y		y		y		y
Garments for infants and children	y		y		y		y
Footwear for men	y		y			y	y
Footwear for women	y		y		y		y
Footwear for infants and children	y		y		y		y
Accessories	y		y		y		y
Cleaning, repair and hire of clothing and footwear		y		y		y	y
Rents		y		y		y	y
New dwelling purchase by owner-occupiers	y			y			y
Maintenance and repair of the dwelling		y		y		y	y
Property rates and charges		y		y		y	
Water and sewerage	y			y		y	
Electricity	y			y		y	
Gas and other household fuels	y		y			y	
Furniture	y		y			y	y
Carpets and other floor coverings	y		y			y	y
Household textiles	y		y			y	y
Major household appliances	y		y			y	y
Small electric household appliances	y		y			y	y
Glassware, tableware and household utensils	y		y			y	y

(a) y = yes

(b) volatile items

# APPENDIX ANALYTICAL PRICE INDEX SERIES *continued*

TABLE 1 - 16TH SERIES CPI EXPENDITURE CLASSES CLASSIFIED BY ANALYTICAL SERIES (a)  
*continued*

CPI expenditure classes	Goods	Services	INTERNATIONAL TRADE EXPOSURE		SEASONAL		Market goods and services excluding 'volatiles'
			Tradables	Non-tradables	Including current period	Not including current period	
Tools and equipment for house and garden	y		y			y	y
Cleaning and maintenance products	y		y				y
Personal care products	y		y		y		y
Other non-durable household products	y		y		y		y
Child care		y		y	y		
Hairdressing and personal grooming services		y		y			y
Other household services		y		y			y
Pharmaceutical products	y			y	y		
Therapeutic appliances and equipment		y	y			y	
Medical and hospital services		y		y	y		
Dental services		y		y	y		
Motor vehicles	y		y		y		y
Spare parts and accessories for motor vehicles	y		y		y		y
Automotive fuel(b)	y		y			y	
Maintenance and repair of motor vehicles		y		y		y	y
Other services in respect of motor vehicles		y		y	y		
Urban transport fares		y		y	y		
Postal services		y		y			
Telecommunication equipment and services		y		y			y
Audio, visual and computing equipment	y		y		y		y
Audio, visual and computing media and services	y		y				y
Books	y		y		y		y
Newspapers, magazines and stationery	y		y		y		y
Domestic holiday travel and accommodation		y		y	y		y
International holiday travel and accommodation		y	y		y		y
Equipment for sports, camping and open-air recreation	y		y				y
Games, toys and hobbies	y		y		y		y
Pets and related products	y			y	y		y
Veterinary and other services for pets		y		y	y		y
Sports participation		y		y	y		y
Other recreational, sporting and cultural services		y		y	y		y
Preschool and primary education		y		y	y		
Secondary education		y		y	y		
Tertiary education		y		y	y		
Insurance		y		y	y		y
Deposit and loan facilities (direct charges)		y		y			y
Other financial services		y		y			y

(a) y = yes

(b) volatile items



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