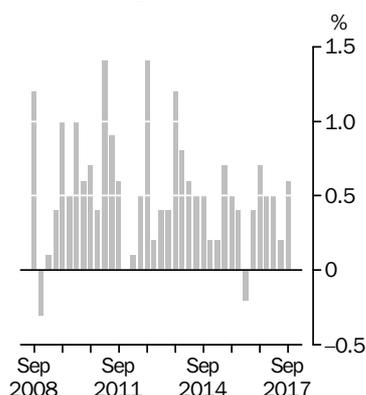


CONSUMER PRICE INDEX

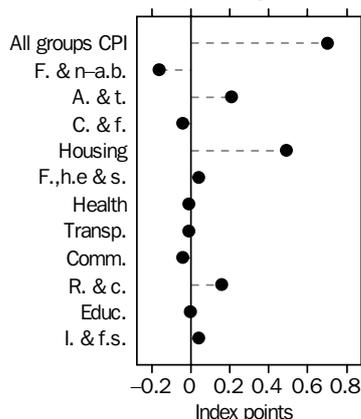
AUSTRALIA

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All Groups CPI
Quarterly change



Contribution to quarterly change



INQUIRIES

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

KEY FIGURES

WEIGHTED AVERAGE OF EIGHT CAPITAL CITIES

	<i>Jun Qtr 2017 to Sep Qtr 2017</i> % change	<i>Sep Qtr 2016 to Sep Qtr 2017</i> % change
All groups CPI	0.6	1.8
Food and non-alcoholic beverages	-0.9	-0.7
Alcohol and tobacco	2.2	7.0
Clothing and footwear	-0.9	-3.2
Housing	1.9	3.3
Furnishings, household equipment and services	0.4	-0.8
Health	-0.2	3.9
Transport	0.0	2.7
Communication	-1.4	-2.9
Recreation and culture	1.3	0.6
Education	0.0	3.1
Insurance and financial services	0.6	1.8
CPI analytical series		
All groups CPI, seasonally adjusted	0.4	1.8
Trimmed mean	0.4	1.8
Weighted median	0.3	1.9

KEY POINTS

THE ALL GROUPS CPI

- rose 0.6% this quarter, compared with a rise of 0.2% in the June quarter 2017.
- rose 1.8% over the twelve months to the September quarter 2017, compared with a rise of 1.9% over the twelve months to the June quarter 2017.

OVERVIEW OF CPI MOVEMENTS

- The most significant price rises this quarter are electricity (+8.9%), tobacco (+4.1%), international holiday travel and accommodation (+4.1%) and new dwelling purchase by owner-occupiers (+0.8%).
- The most significant offsetting price falls this quarter are vegetables (-10.9%), automotive fuel (-2.3%) and telecommunication equipment and services (-1.5%).

NOTES

FORTHCOMING ISSUES

<i>ISSUE (Quarter)</i>	<i>RELEASE DATE</i>
December 2017	31 January 2018
March 2018	24 April 2018
June 2018	25 July 2018
September 2018	31 October 2018



CHANGES IN THIS ISSUE

This issue contains a feature article: 'The average size and portion of price changes in the CPI', based on research undertaken by Maxwell Sutton, Research Economist, Reserve Bank of Australia on secondment to the ABS. The article seeks to understand how consumer inflation has evolved since 2000 as well as to gain an understanding of the inflation process and price-setting behaviour in Australia.

ROUNDING

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



ABBREVIATIONS

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

David W. Kalisch
Australian Statistician

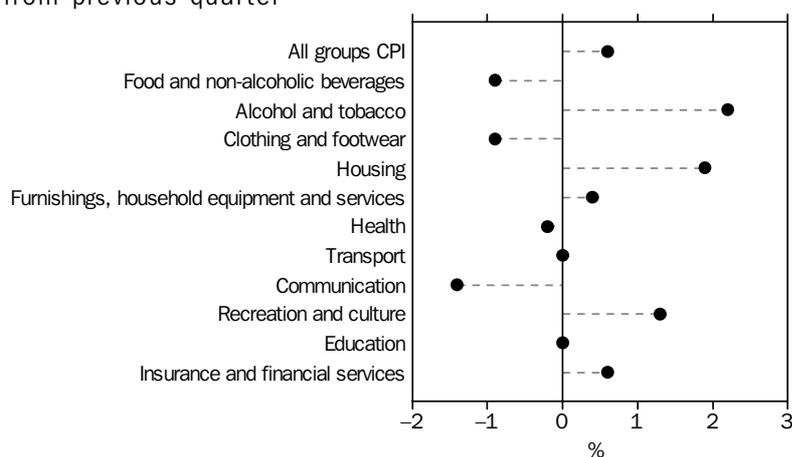
MAIN CONTRIBUTORS TO CHANGE

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



HOUSING GROUP (+1.9%)

The main contributors to the rise in the housing group this quarter are electricity (+8.9%), new dwelling purchase by owner-occupiers (+0.8%), gas and other household fuels (+5.2%) and property rates and charges (+2.6%). The rise in electricity is due to higher wholesale prices. The rise in new dwelling purchase by owner-occupiers is driven by increases in input prices being flowed through following a pick up in demand. The rise in gas and other household fuels is driven by increases in wholesale prices.

Over the last twelve months, the housing group rose 3.3%. The main contributors to the rise are new dwelling purchase by owner-occupiers (+3.1%) and electricity (+11.5%).

In seasonally adjusted terms, the housing group rose 0.9% this quarter. The main contributors to the rise is electricity (+4.6%) and new dwellings purchase by owner-occupiers (+0.8%).

Utilities Sub-Group

SEPTEMBER QUARTER 2017

Electricity, gas and water price increases in the utilities sub-group was 6.8% this quarter, driven by rises in electricity (+8.9%), gas and other household fuels (+5.2%); and water and sewerage (+3.2%). Rises in electricity and gas are due to rises in wholesale prices. For further information on wholesale gas prices in the domestic market, see the forthcoming Producer Price Index feature article *'Introducing the producer price indexes, domestic gas extraction series'* in *Producer Price Indexes, Australia, Sep 2017* (cat. no. 6427.0), to be released on 27 October 2017.

The most significant quarterly rises in utilities were observed in Adelaide (+14.2%), driven by electricity; followed by Canberra (+12.3%), driven by gas; Perth (+7.5%), driven by electricity; and Brisbane (+3.5%), driven by electricity. Rises this quarter are mainly driven by increases in wholesale prices. Increases in wholesale prices have been observed across the National Electricity Market (NEM).

MAIN CONTRIBUTORS TO CHANGE *continued*

Utilities Sub-Group *continued*

SEPTEMBER QUARTER 2017 *continued*

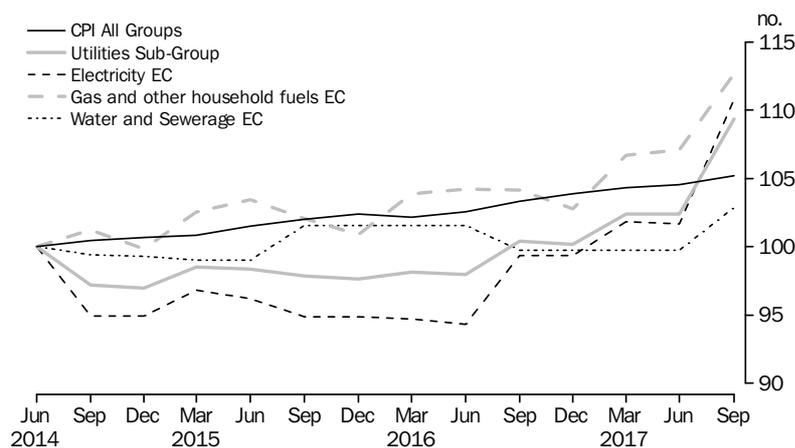
For the current CPI series, the utilities sub-group has a weight of 3.61% to the All groups CPI, of which electricity made up 1.99%, gas and other household fuels 0.72%, and water and sewerage 0.90%.

Weighting patterns for all expenditure classes in the CPI will be updated in the December quarter 2017. For further information, please refer to the forthcoming information paper 'Introduction of the 17th series Australian Consumer Price Index' (cat. no. 6470.0.55.001), to be released on 6 November 2017.

JUNE QUARTER 2014 TO SEPTEMBER QUARTER 2017

The period from June quarter 2014 to September quarter 2017 commences with the removal of carbon pricing. For this period the utilities sub-group rose 9.3%. This was driven by gas and other household fuels (+12.7%), followed by electricity (+10.8%) and water and sewerage (+2.9%).

HOUSEHOLD UTILITIES PRICE INDEXES—June quarter 2014 to September quarter 2017



Looking specifically between the period June quarter 2014 and June quarter 2016, utilities prices have been falling, on average 0.9%¹ annually compared to the All groups CPI which has been rising 1.5% (JQ14-JQ16²). The fall was driven by electricity (-2.6%) and is due to the removal of carbon pricing as well as the Australian Energy Regulator's decision to lower network charges for some States and Territories.

From September quarter 2016 to September quarter 2017, utilities prices have, on average, increased 5.1% annually compared to the All groups CPI which has been rising 1.8% (SQ16-SQ17). Rises in utilities during this period are driven by electricity (+7.9%) and are due to increases in wholesale prices.

ALCOHOL AND TOBACCO GROUP (+2.2%)

The main contributor to the rise in the alcohol and tobacco group this quarter is tobacco (+4.1%). The rise in tobacco is due to the effects of the 12.5% federal excise tax increase effective from 1 September 2017.

¹ Compounding annual growth rates (CAGR) were used in the calculation of average annual growth.

² This period excludes the introduction of carbon pricing and includes its subsequent removal.

MAIN CONTRIBUTORS TO CHANGE *continued*

ALCOHOL AND TOBACCO GROUP (+2.2%) *continued*

Over the last twelve months, the alcohol and tobacco group increased 7.0%. The main contributor to the rise is tobacco (+14.1%).

In seasonally adjusted terms, the alcohol and tobacco group rose 2.3% this quarter. The main contributor to the rise is tobacco (+4.5%).

RECREATION AND CULTURE GROUP (+1.3%)

The main contributor to the rise in the recreation and culture group this quarter is international holiday travel and accommodation (+4.1%). The rise in international holiday travel and accommodation is typical of the summer peak seasons in Europe and America.

Over the last twelve months, the recreation and culture group rose 0.6%. The main contributors to the rise are domestic holiday travel and accommodation (+2.0%) and sports participation (+3.8%). The rise is partially offset by audio, visual and computing equipment (-7.0%) and international holiday travel and accommodation (-1.6%).

In the CPI, airfares and accommodation 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 (July for travel in September) and domestic airfares are collected one month in advance (August for travel in September).

In seasonally adjusted terms, the recreation and culture group rose 0.5% this quarter. The main contributor to the rise is audio, visual and computing media and services (+3.9%).

FOOD AND NON-ALCOHOLIC BEVERAGES GROUP (-0.9%)

The main contributor to the fall in the food and non-alcoholic beverages group this quarter is vegetables (-10.9%). Favourable growing conditions has provided an increase in the supply of vegetables having a downward impact on prices.

Over the last twelve months, the food and non-alcoholic beverages group fell 0.7%. The main contributors to the fall are fruit (-10.3%) and vegetables (-6.5%).

In seasonally adjusted terms, the food and non-alcoholic beverages group fell 1.1% this quarter. The main contributors to the fall are vegetables (-8.2%) and fruit (-7.1%).

COMMUNICATION GROUP (-1.4%)

The main contributor to the fall in the communication group this quarter is telecommunication equipment and services (-1.5%).

Over the last twelve months, the communication group fell 2.9%. The main contributor to the fall is telecommunication equipment and services (-3.2%).

The communication group is not seasonally adjusted.

CLOTHING AND FOOTWEAR GROUP (-0.9%)

The main contributors to the fall in the clothing and footwear group this quarter are garments for women (-1.2%), garments for men (-2.1%) and accessories (-0.7%) as a result of sustained periods of specialising in the retail industry.

Over the last twelve months, the clothing and footwear group fell 3.2%. The main contributor to the fall is garments for women (-4.6%).

MAIN CONTRIBUTORS TO CHANGE *continued*

CLOTHING AND FOOTWEAR GROUP (-0.9%) *continued*

In seasonally adjusted terms, the clothing and footwear group fell 0.9% this quarter. The main contributors to the fall are garments for men (-1.9%) and accessories (-1.5%).

INSURANCE AND FINANCIAL SERVICES GROUP (+0.6%)

The main contributor to the rise in the insurance and financial services group this quarter is insurance (+1.9%).

Over the last twelve months, the insurance and financial services group rose 1.8%. The main contributor to the rise is insurance (+3.7%).

In seasonally adjusted terms, the insurance and financial services group rose 0.5% this quarter. The main contributor to the rise is insurance (+1.6%).

FURNISHINGS, HOUSEHOLD EQUIPMENT AND SERVICES GROUP (+0.4%)

The main contributors to the rise in the furnishings, household equipment and services group this quarter is child care (+2.2%).

Over the last twelve months, the furnishings, household equipment and services group fell 0.8%. The main contributor to the fall is furniture (-3.8%).

In seasonally adjusted terms, the furnishings, household equipment and services group fell 0.1% this quarter.

HEALTH GROUP (-0.2%)

The main contributor to the fall in the health group this quarter is pharmaceutical products (-0.8%) and medical and hospital services (-0.1%). The fall is due to the cyclical effect of a greater proportion of patients who qualify for subsidies under the Pharmaceutical Benefits Scheme (PBS) and Medicare Benefits Scheme (MBS) which reduces the out-of-pocket expense.

Over the last twelve months, the health group rose 3.9%. 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 (+1.3%).

TRANSPORT GROUP (0.0%)

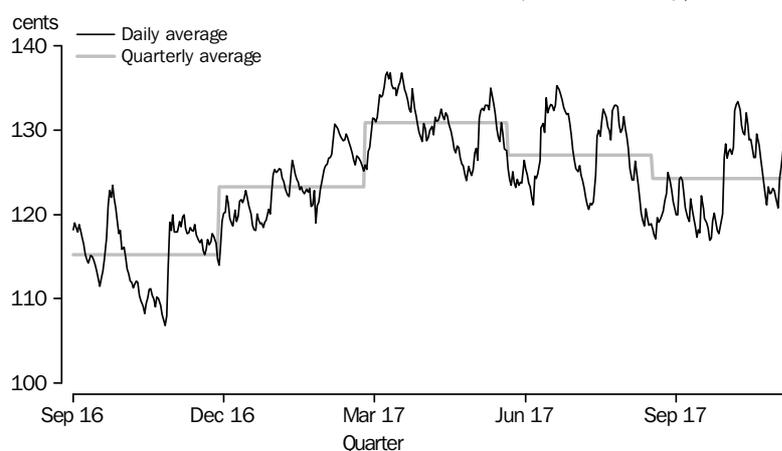
Transport group recorded no movement in September quarter 2017. Automotive fuel fell 2.3% for the quarter with all fuel types recording falls this quarter. Automotive fuel fell in July (-4.4%) and rose in August (+2.5%) and September (+2.3%). The fall is partially offset by rises in other services in respect of motor vehicles (+2.7%).

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 (0.0%) *continued*

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



Over the last twelve months, the transport group rose 2.7%. The main contributor to the rise is automotive fuel (+7.5%).

In seasonally adjusted terms, the transport group fell -0.3% this quarter. The main contributor to the fall is automotive fuel (-2.3%).

EDUCATION GROUP (0.0%)

The education group recorded no change this quarter.

Over the last twelve months, the education group rose 3.1%. The main contributor to the rise is secondary education (+4.1%).

In seasonally adjusted terms, the education group rose 1.1% this quarter. The main contributors to the rise are secondary education (+1.2%) and tertiary education (+1.1%).

INTERNATIONAL TRADE EXPOSURE - TRADABLES AND NON-TRADABLES

The tradables component (see Table 8) of the All groups CPI fell 0.3% 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 tradable goods component recorded a fall of 0.6% this quarter. The most significant negative contributors are vegetables(-10.9%) and automotive fuel (-2.3%). The tradable services component recorded a rise of 3.9% this quarter. The most significant positive contributor is international holiday travel and accommodation (+4.1%).

The non-tradables component of the All groups CPI rose 1.0% 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 contributors to the 2.0% rise in the non-tradable goods component are electricity (+8.9%) and tobacco (+4.1%). The rise in the non-tradable services component of 0.5% is driven by other services in respect of motor vehicles (+2.7%) and property rates and charges (+2.6%).

Over the last twelve months, the tradables component fell 0.9% and the non-tradables component rose 3.2%. This compares to a rise of 0.4% and 2.7% respectively over the twelve months to the June quarter 2017.

MAIN CONTRIBUTORS TO CHANGE *continued*

INTERNATIONAL TRADE EXPOSURE - TRADABLES AND NON-TRADABLES *continued*

In seasonally adjusted terms, the tradables component of the All groups CPI fell 0.8% this quarter, while the non-tradables component rose 0.9%.

A detailed description of which expenditure classes are classified as tradable and non-tradable in the 16th series 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 0.4% this quarter, compared to the original All groups CPI which recorded a rise of 0.6%.

The trimmed mean rose 0.4% this quarter, compared to a rise of 0.5% in the June quarter 2017. Over the last twelve months, the trimmed mean rose 1.8%, compared to a rise of 1.8% over the twelve months to the June quarter 2017.

The weighted median rose 0.3% this quarter, compared to a revised rise of 0.6% in the June quarter 2017. Over the last twelve months, the weighted median rose 1.9%, compared to a revised rise of 1.9% over the twelve months to the June quarter 2017.

	ORIGINAL	SEASONALLY ADJUSTED
	<i>Jun Qtr 2017 to Sep Qtr 2017</i>	<i>Jun Qtr 2017 to Sep Qtr 2017</i>
	%	%
All groups CPI	0.6	0.4
Food and non-alcoholic beverages	-0.9	-1.1
Alcohol and tobacco	2.2	2.3
Clothing and footwear	-0.9	-0.9
Housing	1.9	0.9
Furnishings, household equipment and services	0.4	-0.1
Health	-0.2	1.0
Transport	0.0	-0.3
Communication(a)	-1.4	-1.4
Recreation and culture	1.3	0.5
Education	0.0	1.1
Insurance and financial services	0.6	0.5
International trade exposure series		
Tradables	-0.3	-0.8
Non-tradables	1.0	0.9

(a) not seasonally adjusted

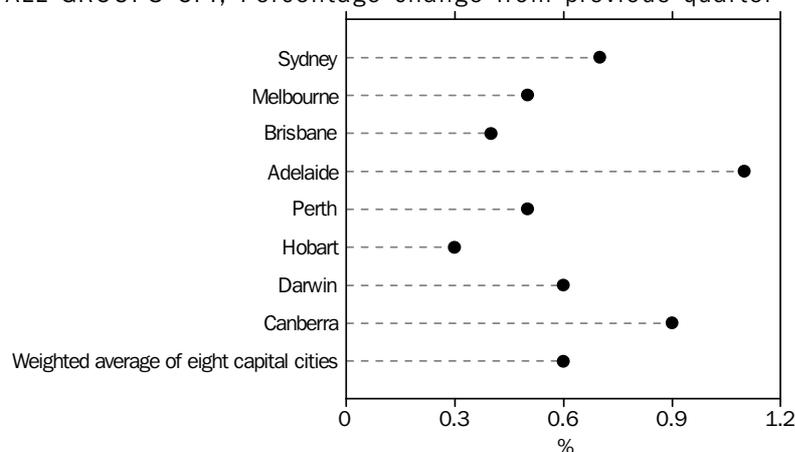
A detailed explanation of the seasonal adjustment of the All Groups CPI and calculation of the trimmed mean and weighted median measures is available in *Information Paper: Seasonal Adjustment of Consumer Price Indexes, 2011* (cat. no. 6401.0.55.003) available on the ABS website. Revisions to the seasonally 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 of the eight capital cities, with Adelaide recording the largest movement.

The housing group (+1.9%) is the most significant positive contributor to the All groups quarterly movement, with rises across seven of the eight capital cities. This is driven by a rise in electricity (+8.9%), due to higher wholesale prices.

The alcohol and tobacco group (+2.2%) is the second most significant positive contributor to the All groups quarterly movement, with rises across all eight capital cities. The rise is driven by tobacco (+4.1%), due to the effects of the 12.5% federal excise tax increase effective from 1 September 2017.

The recreation and culture group (+1.3%) is the third most significant positive contributor to the All groups quarterly movement, with rises in seven of the eight capital cities. The rise is driven by international holiday travel and accommodation (+4.1%), due to the peak summer season in Europe and America.

The most significant offsetting negative contributor to the All groups quarterly movement is the food and non-alcoholic beverages group (-0.9%), with falls in all eight capital cities. The fall is driven by vegetables (-10.9%) with favourable growing conditions increasing the supply of vegetables and having a downward impact on prices.

The second most significant offsetting negative contributor is the communication group (-1.4%), with falls across all eight capital cities. The fall is driven by telecommunication equipment and services (-1.5%) due to increased data usage for mobile phones and mobile broadband devices as well as lower fixed-line internet prices.

The third most significant offsetting negative contributor is the clothing and footwear group (-0.9%), with falls in seven of the eight capital cities. The fall is driven by garments for women (-1.2%), garments for men (-2.1%) and accessories (-0.7%) due to sustained periods of specialising in the retail industry.

Over the last twelve months to September quarter 2017, the All groups CPI (+1.8%) has risen across all eight capital cities. Melbourne (+2.2%), Canberra (+2.1%) and Hobart (+2.0%) recorded the largest positive movements.

CAPITAL CITIES COMPARISON *continued*

ALL GROUPS CPI *continued*

ALL GROUPS CPI, All groups index numbers and percentage changes

	INDEX NUMBER(a)	PERCENTAGE CHANGE	
	Sep Qtr 2017	Jun Qtr 2017 to Sep Qtr 2017	Sep Qtr 2016 to Sep Qtr 2017
Sydney	112.5	0.7	1.9
Melbourne	111.5	0.5	2.2
Brisbane	111.4	0.4	1.5
Adelaide	110.4	1.1	1.8
Perth	109.5	0.5	0.8
Hobart	109.2	0.3	2.0
Darwin	109.4	0.6	0.6
Canberra	109.6	0.9	2.1
Weighted average of eight capital cities	111.4	0.6	1.8

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

SYDNEY (+0.7%)

The main contributors to the rise in Sydney this quarter are electricity (+15.1%), tobacco (+3.9%) and new dwelling purchase by owner-occupiers (+1.0%). The rise is partially offset by falls in vegetables (-11.7%) and automotive fuel (-2.6%).

MELBOURNE (+0.5%)

The main contributors to the rise in Melbourne this quarter are tobacco (+4.1%), new dwelling purchase by owner occupiers (+1.5%) and international holiday travel and accommodation (+4.3%). The rise is partially offset by falls in vegetables (-11.6%) and automotive fuel (-3.1%).

BRISBANE (+0.4%)

The main contributors to the rise in Brisbane this quarter are tobacco (+3.9%), international holiday travel and accommodation (+4.7%) and electricity (+3.6%). The rise is partially offset by falls in vegetables (-12.5%) and automotive fuel (-2.2%).

ADELAIDE (+1.1%)

The main contributors to the rise in Adelaide this quarter are electricity (+21.3%), tobacco (+4.2%), international holiday travel and accommodation (+4.8%) and gas and other household fuels (+8.4%). The rise is partially offset by falls in vegetables (-7.1%) and telecommunications equipment and services (-1.6%).

PERTH (+0.5%)

The main contributors to the rise in Perth this quarter are electricity (+9.7%), tobacco (+4.5%) and other services in respect of motor vehicles (+8.4%). The rise in other services in respect of motor vehicles is due to increases in motor vehicle registration fees. The rise is partially offset by falls in rents (-2.1%) and vegetables (-7.8%).

HOBART (+0.3%)

The main contributors to the rise in Hobart this quarter are tobacco (+4.2%), international holiday travel and accommodation (+5.5%) and property rates and charges (+5.3%). The rise in property rates and charges is due to increases in general rates attributed to land revaluations, reflecting rises in property values in Hobart. The rise is partially offset by falls in domestic holiday travel and accommodation (-5.1%) and vegetables (-8.8%). The fall in domestic holiday travel and accommodation is due to winter being the low tourist season.

CAPITAL CITIES COMPARISON *continued*

DARWIN (+0.6%)

The main contributors to the rise in Darwin this quarter are domestic holiday travel and accommodation (+11.9%), other services in respect of motor vehicles (+14.0%) and tobacco (+4.5%). The rise in domestic holiday travel and accommodation is due to the dry season being the peak tourist season in the Northern Territory, whilst the rise in other services in respect of motor vehicles is due to increases in motor vehicle registration fees. The rise is partially offset by falls in rents (-1.9%) and vegetables (-9.2%). The fall in rents is due to a continuation of excess housing stock and high vacancy rates.

CANBERRA (+0.9%)

The main contributors to the rise in Canberra this quarter are gas and other household fuels (+17.8%), electricity (+10.6%) and property rates and charges (+8.0%). The rise is partially offset by falls in vegetables (-11.1%), other financial services (-2.8%) and domestic holiday travel and accommodation (-1.9%). The fall in other financial services is due to the reduction in stamp duty on property sales.

THE AVERAGE SIZE AND PROPORTION OF PRICE CHANGES IN THE CPI

By Maxwell Sutton, Research Economist, Reserve Bank of Australia (on secondment to the ABS)

INTRODUCTION

This article seeks to understand how consumer inflation has evolved since 2000 and to get a better understanding of the inflation process and price-setting behaviour in Australia. The drivers of periods of higher or lower inflation may vary for many reasons including changes in the price sensitivity of consumers, variations in competitive pressures and movements in the exchange rate.

Using Consumer Price Index (CPI) micro data collected by the Australian Bureau of Statistics (ABS), inflation can be decomposed into the proportion and average size of price changes (see Appendix 1 for details). The 'proportion' is the weight of the CPI basket whose prices change in a given quarter, while 'average size' is the weighted-average size of price movements for those prices that did change. This decomposition can show if periods of higher (lower) inflation are due to: a higher (lower) proportion of prices increasing; larger (smaller) changes in prices; or a combination of both.

Price changes were calculated by comparing the last observed price in the current quarter to the last observed price in the previous quarter. A limited number of price series were excluded from the analysis³. The graphs shown include data up to June 2017.

This work is the result of collaboration between the ABS and the Reserve Bank of Australia (RBA).

ANALYSIS

Headline

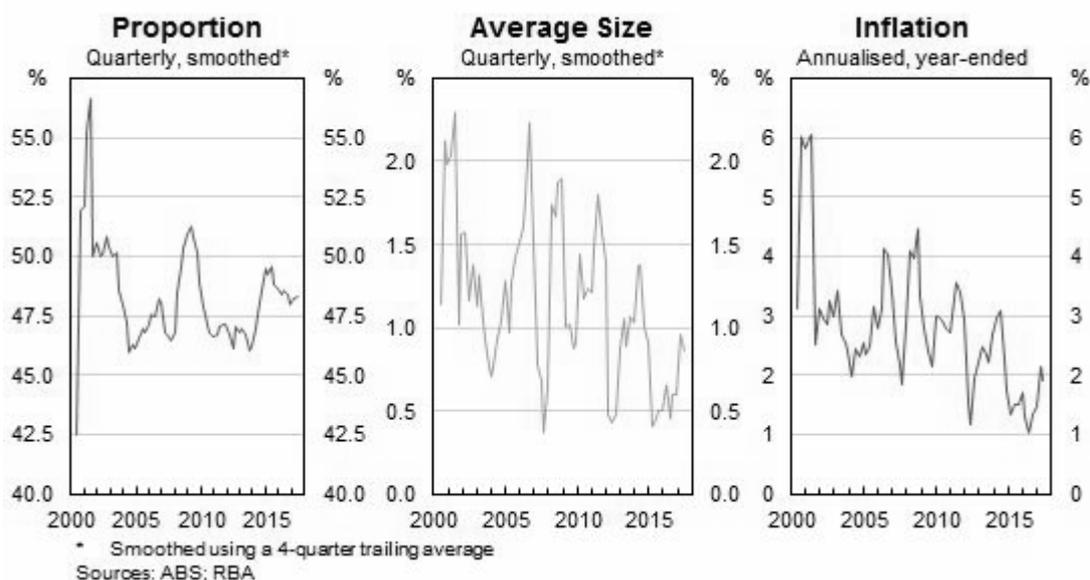
The average size of price changes has gradually declined since 2005 (Graph 1). This has resulted in a gradual disinflation in consumer prices and may reflect weaker demand or cost pressures and, in some instances, more intense competition. On average, under half of the CPI basket experiences a price change every quarter. This implies that the average length of time between price changes is around two quarters.

Variations in inflation are generally dominated by changes in the average size of price movements; average size accounts for around 85 per cent of the variation in inflation. This is consistent with evidence found for the United States by Klenow and Kryvstov (2008). The disinflation in prices during 2014 and 2015 and the increase in headline inflation in 2016 predominantly reflect movements in the average size of price changes.

The increase in the proportion of prices changing from mid-2004 until the end of 2009 amplified the movements in inflation during the pre-crisis period. This indicates that this period of higher inflation was partially due to a broader increase in prices as a higher share of firms responded to growing demand. The proportion of prices changing remained high during 2009 as firms adjusted their prices in reaction to the global financial crisis. The higher proportion but lower average size of price changes since 2014 may suggest that more firms have been responding to evolving economic conditions.

³ The deposit and loan facilities expenditure class was excluded due to the extreme price movements. Large changes caused by goods and services which recorded a price of zero for one more periods were excluded.

GRAPH 1



Headline continued

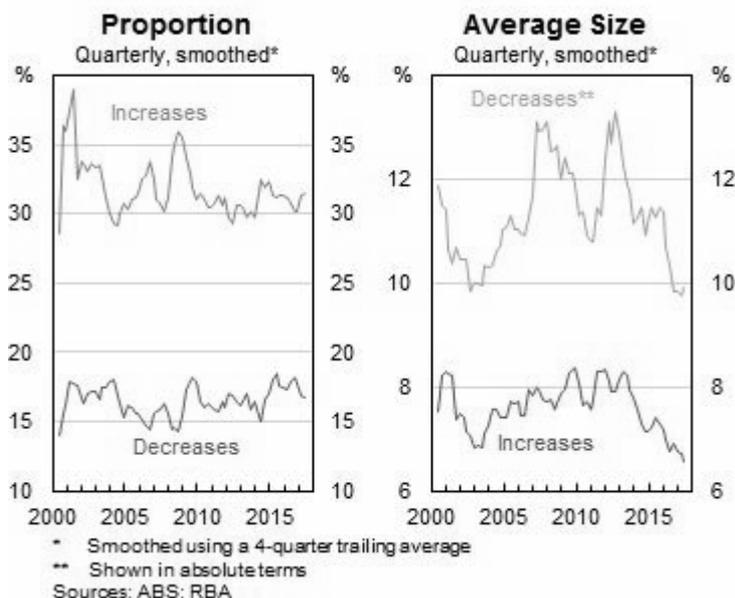
The high proportion and average size of price changes in 2000–2001 is due to the implementation of A New Tax System (the policy included the introduction of the Goods and Services Tax), which caused a one-time change in the prices of many goods and services.

The average size and proportion of price changes can be further decomposed by separating price increases and decreases (Graph 2). Each quarter, one third of the CPI basket experiences a price increase while around one sixth of the CPI basket experiences a price reduction. When prices increase, they increase by around 7–8 per cent while prices that are reduced tend to fall by around 11 per cent.

The average size of price increases and decreases have both declined since 2012, which has resulted in a smaller variance of price changes. This is often the case during periods of low inflation.

Headline continued

GRAPH 2

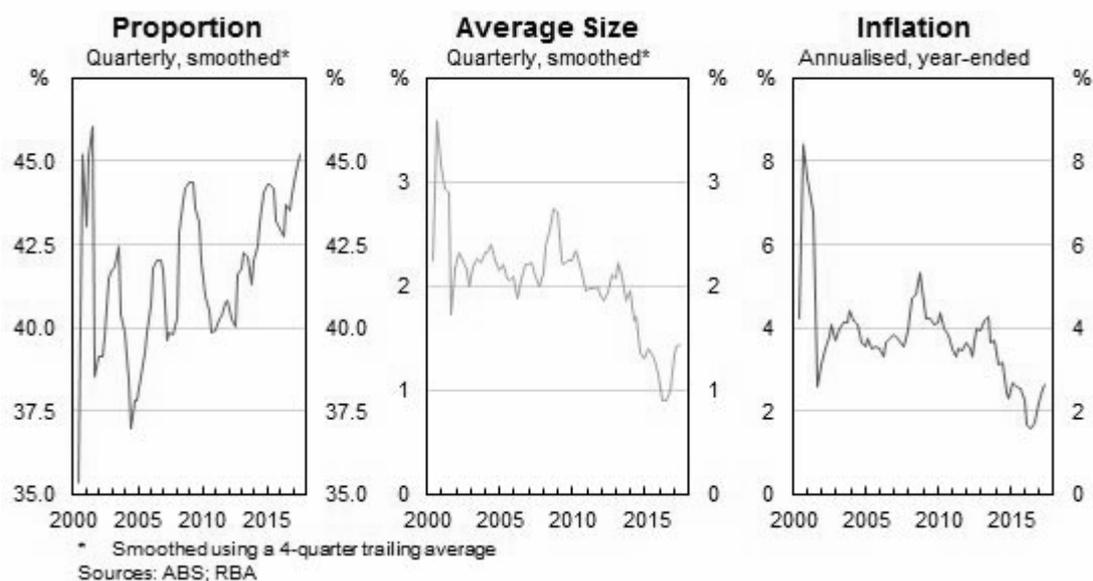


Examining tradable and non-tradable goods and services can provide some insight into the effect of the exchange rate on inflation. This is because movements in the exchange rate reflect a change in the marginal cost of imported goods and services, which should also affect the price of those domestically-produced goods and services that compete with these imports.

Non-tradable goods and services

The weakness in inflation since 2013 has been largely due to a reduction in the average size of changes in the prices of non-tradable goods and services (Graph 3). Low wage inflation measured by the wage price index and average earnings per hour from the National Accounts is both a cause and a symptom of these lower price pressures (see the feature article *The Size and Frequency of Wage Changes* (Bishop 2016) for analysis of wages). The prices of non-tradable goods and services are currently changing more frequently than average, but prices are being adjusted by smaller amounts.

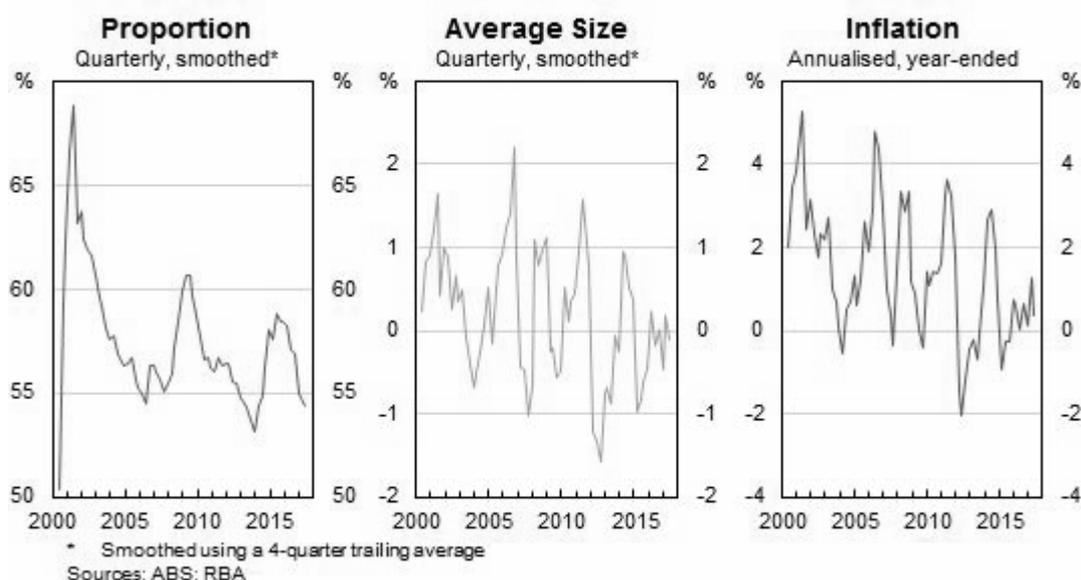
GRAPH 3



Tradable goods and services

The average size of price changes in tradable goods and services has generally been lower than in non-tradable goods and services while the proportion of prices changing has generally been higher (Graph 4). This may be because the prices for tradable goods and services are more exposed to fluctuations in the exchange rate, so firms expect their marginal costs to change more frequently and may therefore be more responsive to these variations. Import prices have also exerted some downward pressure on tradeable goods and services inflation, which might reflect greater global competitive influences. Exposure to exchange rate variations is likely to be a strong contributing factor to the higher volatility in average size of price changes and higher proportion of prices changing compared with non-tradable goods and services.

GRAPH 4



Tradable goods and services continued

The proportion of prices of tradable goods and services changing has broadly moved with the exchange rate (Graph 5). A smaller proportion of tradable goods and services changed price as the Australian dollar appreciated from 2001. The sustained depreciation since 2014 has coincided with an increase in the proportion of prices changing. This suggests that the prices of tradable goods and services are more sensitive during periods of depreciations of the exchange rate, when costs are rising, than during periods of appreciations.

GRAPH 5

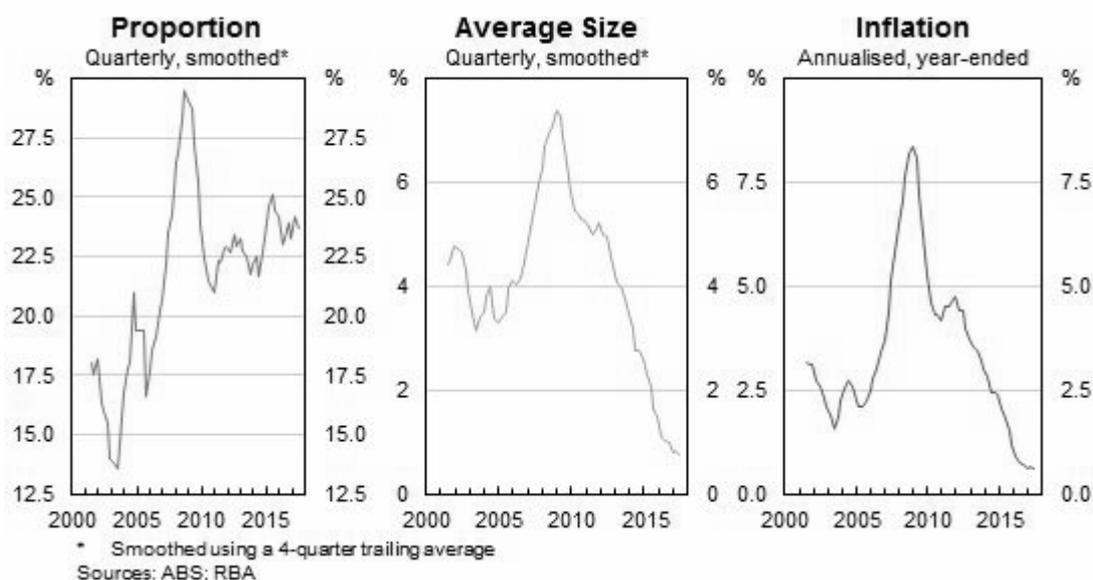


Rents

The pickup in rent inflation from 2003 to 2008 was caused by an increasing proportion of rents changing, while those rents that were changing were being changed by ever higher rates (Graph 6). This period of rent inflation has been attributed to the low vacancy rates recorded during that period. The low proportion of rents changing in the early 2000s is in need of further exploration.

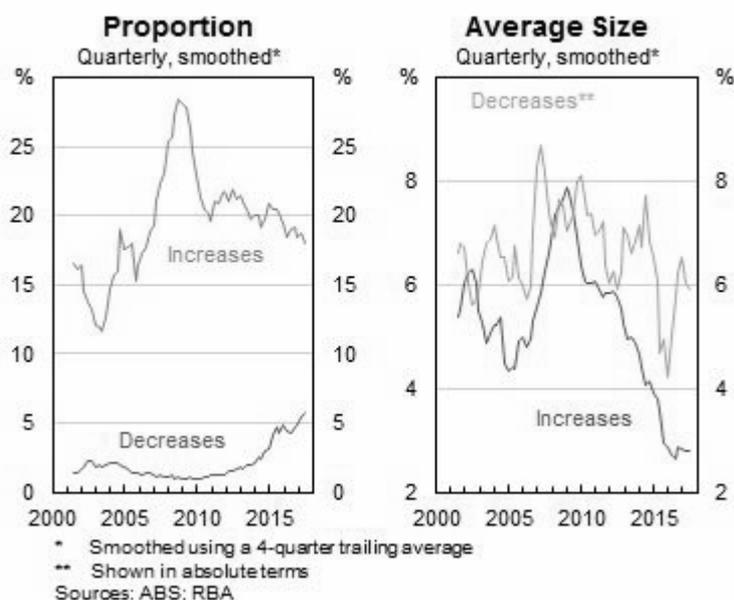
The disinflation in rents since late 2011 has been caused solely by a gradual decline in the average size of price changes. The proportion of rents changing each quarter has gradually increased to around 24 per cent (so rents have been changing every 13 months on average). However, this is due to a greater proportion of rents falling in price (Graph 7). These movements may be due to landlords facing weaker demand in some capital cities and, more recently, an increase in supply in other capital cities.

GRAPH 6



Rents continued

GRAPH 7



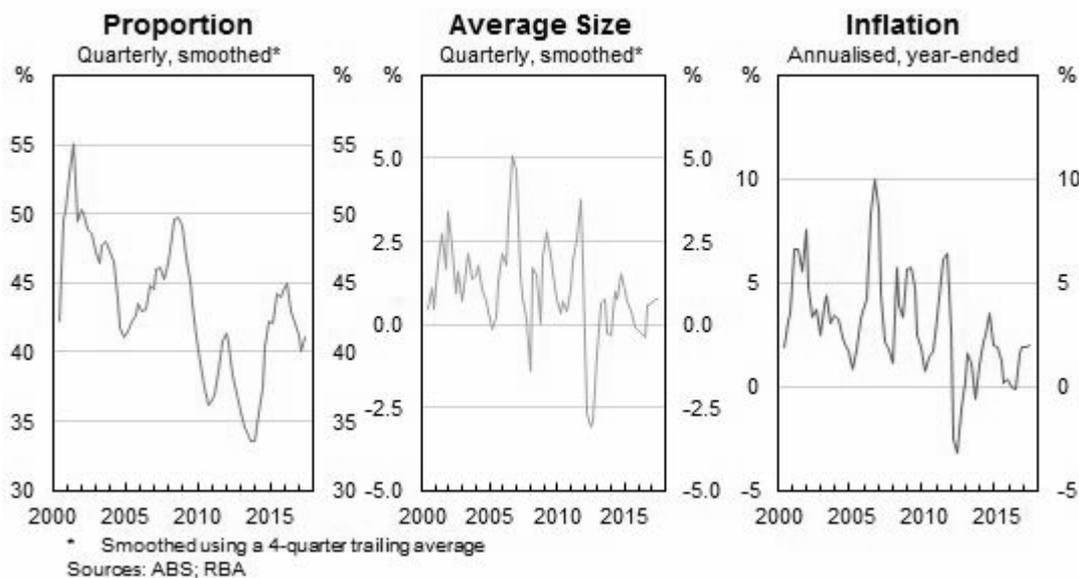
Food

Inflation in food prices has been lower on average since 2013 (Graph 8). This is because the average size of price increases has fallen (Graph 9). The effect on inflation has been muted by a simultaneous decline in the average size of price reductions. Firms are reducing their prices more frequently but at lower rates. This suggests that firms may be facing a combination of competitive pressures, leading them to keeping their prices lower than they would have in the absence of these pressures, and higher costs. Currently, increases in the prices of some foods are being largely offset by reductions in the prices of other foods, so that the total cost of food is increasing at a slower rate compared with the period prior to 2013.

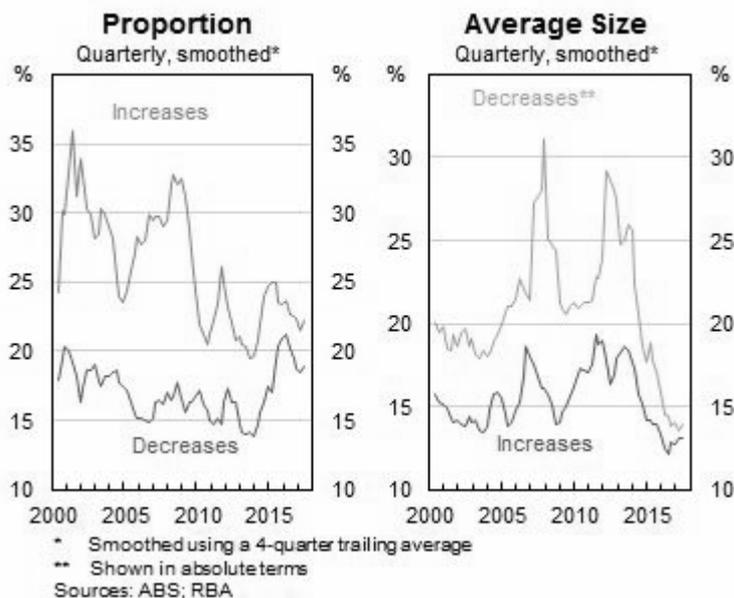
Food continued

Separating the average size of price increases and decreases also shows the effect of Cyclones Larry and Yasi on the prices of food, and bananas in particular. Prices of bananas increased significantly in 2006 and 2011 causing the average size of price increases in food to grow. As the supply of bananas improved over the following years, banana prices fell, which is evident in the peaks of the average size of price decreases in 2007 and 2012.

GRAPH 8



GRAPH 9



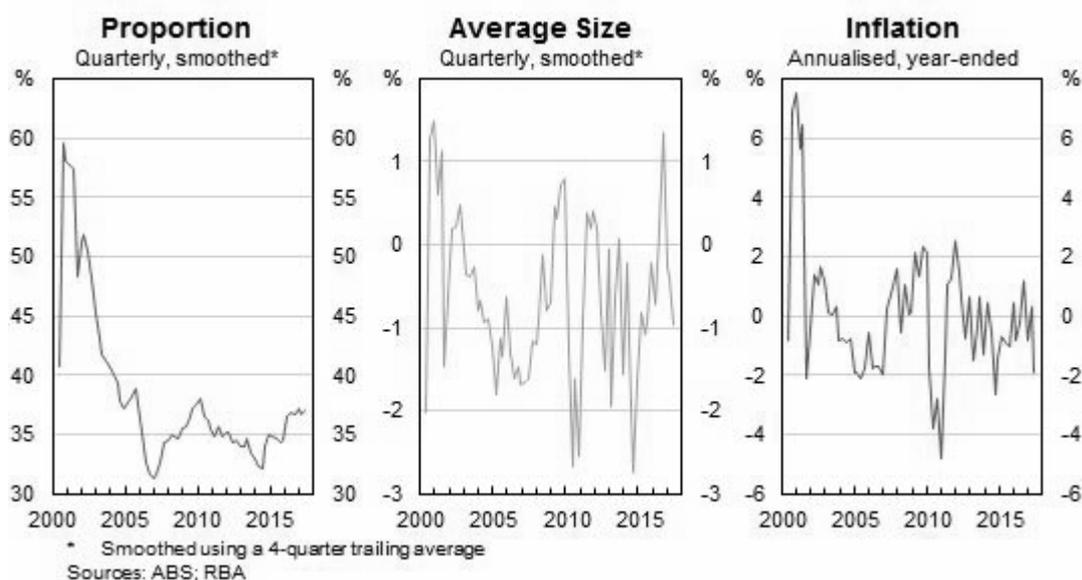
Clothing

Clothing prices have decreased by 0.7 per cent each quarter, on average (Graph 10). However, this is because the average size of price increases and decreases have increased simultaneously, from around 10 per cent in 2002 to around 25 per cent in 2017 (Graph 11). During this period, the proportion of prices changing has averaged around 35 per cent, which is split evenly between price increases and decreases. This pattern of

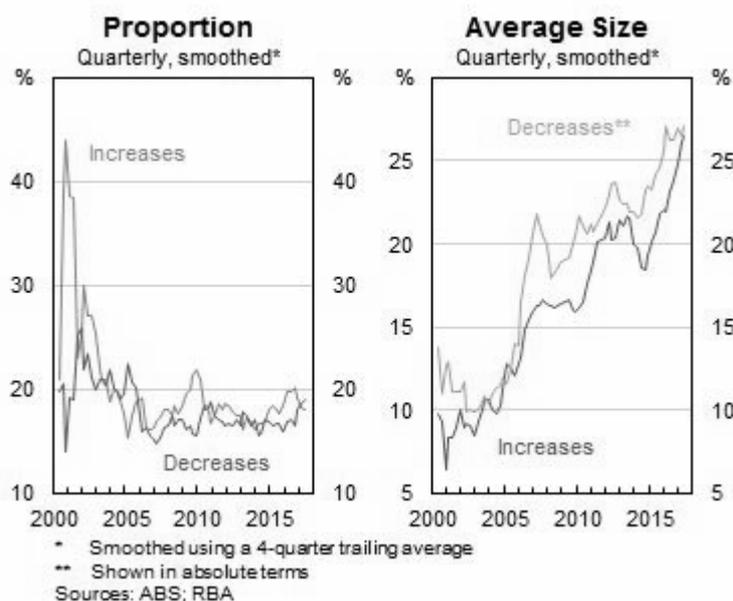
Clothing continued

offsetting price changes may reflect an increase in the seasonal variation of clothing and clothing prices, and the increasing presence of international retailers expanding the range of products available.

GRAPH 10



GRAPH 11



CONCLUSION

Variations in inflation are dominated by changes in the average size of price movements rather than fluctuations in the proportion of prices changing. The recent period of low inflation is associated with lower variation in price changes across goods (in absolute terms, prices are changing by less, whether they are increasing or decreasing). Low inflation in non-tradable goods and services may be a cause and a symptom of low wage pressures. Prices of tradable goods and services seem to be more sensitive to exchange rate fluctuations during periods of currency depreciations compared with periods of appreciations.

BIBLIOGRAPHY

Bishop J (2016), *'The Size and Frequency of Wage Changes'*, Cat. no. 6345.0.

Klenow PJ and O Kryvtov (2008), *'State-dependent or time-dependent pricing: Does it matter for recent U.S. inflation?'*, *The Quarterly Journal of Economics*, pp 863–904.

APPENDIX 1

Headline inflation π_t at a point in time can be expressed as the weighted-average inflation of each good (or service) in the CPI basket,

$$\pi_t = \sum_i \omega_{it} \pi_{it}$$

where π_{it} is the percentage price change for good i in quarter t and w_{it} is the proportion of the expenditure base that is spent on good i in quarter t ($\sum_i w_{it} = 1 \forall t$). Using a simple identity, it is then possible to decompose headline inflation into two terms measuring the proportion and average size, respectively,

$$\pi_t = \underbrace{\sum_i \omega_{it} I(\pi_{it} \neq 0)}_{P_t, \text{Proportion}} \underbrace{\frac{\sum_i \omega_{it} \pi_{it}}{\sum_i \omega_{it} I(\pi_{it} \neq 0)}}_{S_t, \text{Average size}}$$

where $I(\cdot)$ is an indicator function that takes the value of one when its argument is true i.e. when good i experiences a price change in quarter t . The ‘proportion’ term measures the fraction of goods that experience a change in price in quarter t , adjusted for each good’s share of the expenditure basket, while the ‘average size’ term is the weighted-average size of price changes for those prices that did change.

The proportion is the sum of the proportions of prices rising and falling,

$$\underbrace{\sum_i \omega_{it} I(\pi_{it} \neq 0)}_{P_t, \text{Proportion}} = \underbrace{\sum_i \omega_{it} I(\pi_{it} > 0)}_{P_t^+, \text{Proportion of prices increasing}} + \underbrace{\sum_i \omega_{it} I(\pi_{it} < 0)}_{P_t^-, \text{Proportion of prices decreasing}}$$

The average size of prices can be decomposed to separate the effects of price increases and decreases,

$$S_t = \frac{P_t^+}{P_t} \underbrace{\sum_i \frac{\omega_{it} I(\pi_{it} > 0) \pi_{it}}{\omega_{it} I(\pi_{it} > 0)}}_{S_t^+, \text{Average size of price increases}} - \frac{P_t^-}{P_t} \underbrace{\sum_i \frac{\omega_{it} I(\pi_{it} < 0) |\pi_{it}|}{\omega_{it} I(\pi_{it} < 0)}}_{S_t^-, \text{Average size of price decreases}}$$

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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>
2013-14	105.2	105.0	104.9	104.7	105.3	103.7	106.9	104.2	105.0
2014-15	107.3	106.5	106.8	106.3	107.2	104.9	108.4	105.3	106.8
2015-16	108.9	108.2	108.5	107.2	108.2	106.3	108.5	106.1	108.3
2016-17	111.1	110.2	110.4	108.9	108.9	108.2	108.7	108.1	110.2
2013									
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
2014									
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
2015									
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
2016									
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
2017									
March	111.3	110.9	110.5	109.1	109.0	108.9	108.5	108.6	110.5
June	111.7	111.0	111.0	109.2	109.0	108.9	108.8	108.6	110.7
September	112.5	111.5	111.4	110.4	109.5	109.2	109.4	109.6	111.4

(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)									
2013-14	2.5	2.7	2.8	2.5	3.0	2.5	3.7	2.3	2.6
2014-15	2.0	1.4	1.8	1.5	1.8	1.2	1.4	1.1	1.7
2015-16	1.5	1.6	1.6	0.8	0.9	1.3	0.1	0.8	1.4
2016-17	2.0	1.8	1.8	1.6	0.6	1.8	0.2	1.9	1.8
PERCENTAGE CHANGE (from corresponding quarter of previous year)									
2013									
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
2014									
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
2015									
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
2016									
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
2017									
March	2.4	2.5	1.8	2.0	1.0	2.3	0.5	2.3	2.1
June	2.2	2.2	1.8	1.6	0.7	2.3	0.5	2.1	1.9
September	1.9	2.2	1.5	1.8	0.8	2.0	0.6	2.1	1.8
PERCENTAGE CHANGE (from previous quarter)									
2013									
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
2014									
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
2015									
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
2016									
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
2017									
March	0.4	0.9	0.3	0.4	0.0	0.8	-0.1	0.6	0.5
June	0.4	0.1	0.5	0.1	0.0	0.0	0.3	0.0	0.2
September	0.7	0.5	0.4	1.1	0.5	0.3	0.6	0.9	0.6

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>
2013–14	101.8	110.0	99.3	109.0	101.5	111.6
2014–15	103.9	116.7	97.9	111.7	102.5	116.5
2015–16	104.1	123.5	97.5	113.9	104.3	122.1
2016–17	105.9	130.8	97.2	116.4	104.9	126.7
2013						
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
2014						
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
2015						
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
2016						
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
2017						
March	106.0	132.1	96.4	116.8	104.0	126.9
June	105.8	133.1	96.1	117.2	104.7	130.3
September	104.9	136.0	95.2	119.4	105.1	130.1

(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>
2013–14	103.5	103.0	101.4	111.6	104.5	105.0
2014–15	100.8	99.7	102.8	117.6	106.3	106.8
2015–16	99.1	93.7	103.7	122.7	108.6	108.3
2016–17	99.6	88.5	103.7	126.8	111.4	110.2
2013						
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
2014						
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
2015						
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
2016						
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
2017						
March	100.9	88.3	103.6	128.7	111.9	110.5
June	100.3	87.9	103.0	128.7	111.8	110.7
September	100.3	86.7	104.3	128.7	112.5	111.4

(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)						
2013–14	1.3	5.9	-0.2	3.9	0.7	4.4
2014–15	2.1	6.1	-1.4	2.5	1.0	4.4
2015–16	0.2	5.8	-0.4	2.0	1.8	4.8
2016–17	1.7	5.9	-0.3	2.2	0.6	3.8
PERCENTAGE CHANGE (from corresponding quarter of previous year)						
2013						
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
2014						
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
2015						
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
2016						
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
2017						
March	1.8	6.1	0.3	2.5	-0.1	3.8
June	1.9	5.9	-1.9	2.4	0.0	3.8
September	-0.7	7.0	-3.2	3.3	-0.8	3.9
PERCENTAGE CHANGE (from previous quarter)						
2013						
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
2014						
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
2015						
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
2016						
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
2017						
March	-0.2	1.1	-1.4	0.8	-1.0	2.0
June	-0.2	0.8	-0.3	0.3	0.7	2.7
September	-0.9	2.2	-0.9	1.9	0.4	-0.2

	<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)						
2013-14	2.4	1.3	2.3	5.4	1.7	2.6
2014-15	-2.6	-3.2	1.4	5.4	1.7	1.7
2015-16	-1.7	-6.0	0.9	4.3	2.2	1.4
2016-17	0.5	-5.5	0.0	3.3	2.6	1.8

	<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 corresponding quarter of previous year)						
2013						
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
2014						
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
2015						
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
2016						
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
2017						
March	3.8	-4.8	-0.2	3.3	2.7	2.1
June	2.1	-3.8	-0.1	3.3	2.1	1.9
September	2.7	-2.9	0.6	3.1	1.8	1.8

	<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 quarter)						
2013						
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
2014						
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
2015						
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
2016						
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
2017						
March	1.5	-0.3	-0.7	3.1	0.6	0.5
June	-0.6	-0.5	-0.6	0.0	-0.1	0.2
September	0.0	-1.4	1.3	0.0	0.6	0.6

Quarters	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra	Weighted average of eight capital cities
FOOD AND NON-ALCOHOLIC BEVERAGES									
2015									
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
2016									
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
2017									
March	107.5	105.7	106.1	105.2	103.4	104.6	105.6	105.7	106.0
June	107.3	105.8	105.8	104.9	103.0	104.1	105.3	105.4	105.8
September	106.4	104.9	105.0	103.9	101.6	102.9	104.5	104.7	104.9
ALCOHOL AND TOBACCO									
2015									
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
2016									
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
2017									
March	130.1	132.5	134.3	133.3	133.5	134.2	128.9	129.6	132.1
June	131.0	133.4	135.8	134.7	133.7	135.5	128.6	130.8	133.1
September	133.6	136.8	138.4	137.6	136.5	139.5	131.5	132.7	136.0
CLOTHING AND FOOTWEAR									
2015									
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
2016									
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
2017									
March	92.7	95.9	102.1	93.3	103.8	95.1	94.5	94.7	96.4
June	92.5	95.9	102.5	92.2	102.7	95.4	93.8	94.4	96.1
September	92.1	94.9	101.6	91.1	100.6	94.3	93.9	92.5	95.2
HOUSING									
2015									
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
2016									
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
2017									
March	119.8	118.1	117.1	113.3	110.0	108.4	109.2	108.9	116.8
June	120.6	118.7	117.8	112.8	109.6	108.8	108.7	109.3	117.2
September	123.5	120.1	118.6	117.7	110.9	109.9	108.4	113.3	119.4

(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									
2015									
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
2016									
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
2017									
March	104.4	102.7	105.6	101.9	103.9	101.5	107.7	111.0	104.0
June	105.2	103.2	106.8	103.1	104.2	102.8	107.7	111.5	104.7
September	105.3	104.2	107.0	102.8	104.8	102.7	107.6	111.7	105.1
HEALTH									
2015									
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
2016									
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
2017									
March	127.3	127.7	127.3	127.2	123.7	129.5	122.7	126.8	126.9
June	130.5	131.1	130.0	132.1	127.4	133.6	126.3	130.3	130.3
September	130.2	130.8	129.7	132.0	127.2	133.6	126.0	130.8	130.1
TRANSPORT									
2015									
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
2016									
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
2017									
March	99.4	103.1	97.7	101.8	101.2	103.9	105.2	102.9	100.9
June	99.1	102.5	97.6	100.7	100.2	103.3	104.2	101.2	100.3
September	98.8	102.1	97.0	101.3	101.2	103.4	106.1	102.1	100.3
COMMUNICATION									
2015									
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
2016									
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
2017									
March	88.3	88.5	88.5	88.3	87.9	88.4	88.2	88.4	88.3
June	87.9	88.1	88.1	87.9	87.5	87.9	87.8	88.0	87.9
September	86.7	86.8	86.8	86.7	86.2	86.5	86.3	86.7	86.7

(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									
2015									
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
2016									
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
2017									
March	103.4	104.5	102.9	101.9	103.6	104.2	100.1	105.5	103.6
June	103.1	103.2	102.8	101.7	103.6	101.9	104.0	104.4	103.0
September	104.7	104.1	104.5	102.5	104.5	101.8	107.1	105.2	104.3
EDUCATION									
2015									
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
2016									
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
2017									
March	131.3	127.6	128.1	126.9	129.0	124.9	126.2	123.1	128.7
June	131.3	127.6	128.1	127.0	129.0	124.9	126.2	123.2	128.7
September	131.2	127.7	128.5	127.0	129.0	124.9	126.2	123.3	128.7
INSURANCE AND FINANCIAL SERVICES									
2015									
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
2016									
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
2017									
March	114.9	111.5	107.2	110.3	115.1	112.9	109.0	100.9	111.9
June	114.1	111.4	107.5	109.8	116.1	113.2	109.5	101.3	111.8
September	114.8	112.2	108.2	111.0	116.6	114.0	111.0	100.7	112.5

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

<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>
Food and non-alcoholic beverages	-0.15	-0.15	-0.13	-0.16	-0.21	-0.19	-0.12	-0.10	-0.16
Bread and cereal products	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02	-0.01
Bread	-0.01	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00
Cakes and biscuits	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Breakfast cereals	0.00	0.00	-0.01	0.00	-0.01	0.00	-0.01	-0.01	0.00
Other cereal products	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.01	0.00
Meat and seafoods	0.02	0.01	0.00	-0.04	-0.03	-0.01	0.00	0.04	0.01
Beef and veal	0.00	0.01	-0.01	-0.01	0.00	0.00	0.01	0.01	0.00
Pork	0.01	0.00	0.00	0.00	-0.01	0.00	-0.01	0.00	0.00
Lamb and goat	0.00	0.01	0.00	-0.01	0.00	0.00	-0.01	0.00	0.00
Poultry	0.00	0.00	0.00	-0.02	-0.01	0.00	0.00	0.02	0.00
Other meats	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01
Fish and other seafood	0.01	0.00	0.00	0.00	-0.01	-0.01	0.01	0.01	0.00
Dairy and related products	-0.01	0.00	-0.01	0.00	-0.01	0.00	0.01	-0.01	0.00
Milk	0.00	0.00	-0.01	0.00	-0.01	0.00	0.00	0.00	0.00
Cheese	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.00
Ice cream and other dairy products	0.00	0.00	-0.01	0.00	0.00	-0.01	0.00	-0.01	-0.01
Fruit and vegetables	-0.17	-0.19	-0.11	-0.12	-0.16	-0.17	-0.11	-0.12	-0.16
Fruit	0.04	-0.01	0.05	-0.01	-0.05	-0.03	0.02	0.04	0.01
Vegetables	-0.19	-0.18	-0.17	-0.11	-0.11	-0.14	-0.14	-0.17	-0.17
Food products n.e.c.	-0.01	0.01	0.00	-0.02	0.01	0.00	-0.01	-0.01	0.00
Eggs	0.00	-0.01	-0.01	0.00	0.00	-0.01	0.00	-0.01	-0.01
Jams, honey and spreads	-0.01	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	0.00
Food additives and condiments	0.00	0.01	0.01	0.00	0.01	0.01	-0.01	0.01	0.01
Oils and fats	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.01
Snacks and confectionery	-0.01	0.00	0.00	0.00	0.00	-0.02	0.00	-0.01	0.00
Other food products n.e.c.	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.00	0.00
Non-alcoholic beverages	-0.01	0.00	-0.01	0.00	0.00	-0.01	0.01	0.01	-0.01
Coffee, tea and cocoa	-0.01	-0.01	-0.01	0.00	0.00	-0.01	0.00	0.00	-0.01
Waters, soft drinks and juices	0.00	0.00	-0.01	0.00	0.00	0.00	0.02	0.01	0.00
Meals out and take away foods	0.02	0.05	0.01	0.02	0.01	0.00	0.00	0.01	0.02
Restaurant meals	0.00	0.04	0.01	0.00	0.00	0.01	0.00	0.00	0.01
Take away and fast foods	0.02	0.00	0.00	0.02	0.01	0.00	0.00	0.01	0.01
Alcohol and tobacco	0.17	0.23	0.19	0.22	0.22	0.32	0.25	0.11	0.21
Alcoholic beverages	0.03	0.06	0.00	0.01	0.02	0.08	0.04	-0.01	0.03
Spirits	0.00	0.01	-0.02	0.00	0.01	0.03	0.02	-0.01	0.00
Wine	0.00	0.03	0.01	-0.02	-0.02	-0.01	0.01	-0.01	0.01
Beer	0.02	0.02	0.03	0.02	0.03	0.08	0.03	0.01	0.02
Tobacco	0.14	0.17	0.19	0.21	0.20	0.25	0.21	0.12	0.17
Tobacco	0.14	0.17	0.19	0.21	0.20	0.25	0.21	0.12	0.17
Clothing and footwear	-0.01	-0.04	-0.03	-0.05	-0.08	-0.05	0.01	-0.08	-0.04
Garments	-0.01	-0.03	-0.02	-0.04	-0.07	-0.06	0.01	-0.05	-0.03
Garments for men	-0.01	-0.02	-0.01	-0.03	0.00	-0.01	-0.01	-0.01	-0.01
Garments for women	0.01	-0.01	0.00	-0.01	-0.06	-0.05	0.02	-0.04	-0.02
Garments for infants and children	0.00	0.01	-0.01	0.00	0.00	0.00	0.00	0.00	0.00
Footwear	0.00	0.00	0.00	0.01	-0.02	0.02	0.00	0.00	0.00
Footwear for men	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01	0.00
Footwear for women	0.01	0.01	0.01	0.01	-0.01	0.01	0.01	0.01	0.00
Footwear for infants and children	-0.01	0.01	0.00	0.00	-0.01	0.01	0.00	0.00	0.00
Accessories and clothing services	0.00	-0.01	-0.02	-0.02	0.02	0.00	0.00	-0.02	-0.01
Accessories	0.00	-0.01	-0.01	-0.02	0.01	0.00	0.00	-0.02	-0.01
Cleaning, repair and hire of clothing and footwear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

<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>
Housing	0.72	0.31	0.19	1.00	0.30	0.23	-0.08	0.81	0.49
Rents	0.07	0.03	-0.01	0.00	-0.13	0.04	-0.16	0.03	0.02
Rents	0.07	0.03	-0.01	0.00	-0.13	0.04	-0.16	0.03	0.02
New dwelling purchase by owner-occupiers	0.11	0.14	-0.03	0.03	0.02	0.03	0.02	0.06	0.08
New dwelling purchase by owner-occupiers	0.11	0.14	-0.03	0.03	0.02	0.03	0.02	0.06	0.08
Other housing	0.04	0.05	0.06	0.10	0.09	0.09	0.04	0.16	0.06
Maintenance and repair of the dwelling	0.00	0.02	0.02	0.02	0.02	0.00	0.02	0.02	0.02
Property rates and charges	0.03	0.03	0.04	0.07	0.07	0.09	0.03	0.14	0.05
Utilities	0.50	0.08	0.17	0.87	0.32	0.07	0.02	0.55	0.33
Water and sewerage	0.02	0.02	0.05	0.04	0.08	0.03	0.00	0.09	0.03
Electricity	0.42	0.00	0.11	0.73	0.22	0.03	0.01	0.22	0.25
Gas and other household fuels	0.05	0.05	0.01	0.10	0.02	0.01	0.00	0.25	0.05
Furnishings, household equipment and services	0.01	0.09	0.01	-0.02	0.05	-0.01	-0.01	0.03	0.04
Furniture and furnishings	-0.01	0.04	-0.02	-0.01	0.01	0.01	-0.01	0.00	0.01
Furniture	-0.01	0.04	-0.02	-0.01	0.01	0.02	0.00	0.00	0.01
Carpets and other floor coverings	-0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Household textiles	0.01	0.02	0.01	0.01	0.01	0.02	-0.01	0.01	0.01
Household textiles	0.01	0.02	0.01	0.01	0.01	0.02	-0.01	0.01	0.01
Household appliances, utensils and tools	0.01	0.02	0.00	0.00	0.01	0.01	0.01	0.03	0.01
Major household appliances	0.00	-0.01	-0.01	-0.01	0.00	0.00	-0.01	0.00	0.00
Small electric household appliances	0.00	0.00	0.00	0.00	-0.01	0.01	0.00	0.01	0.00
Glassware, tableware and household utensils	0.00	0.02	0.01	0.00	0.02	0.01	0.01	0.02	0.01
Tools and equipment for house and garden	0.01	0.01	-0.01	0.00	0.01	0.01	0.01	0.00	0.00
Non-durable household products	-0.03	-0.03	-0.03	-0.03	-0.01	-0.05	-0.03	-0.04	-0.03
Cleaning and maintenance products	-0.01	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00
Personal care products	0.00	-0.01	-0.03	0.00	0.00	-0.02	-0.02	-0.02	-0.01
Other non-durable household products	-0.02	-0.02	-0.01	-0.02	-0.01	-0.03	-0.01	-0.01	-0.01
Domestic and household services	0.03	0.03	0.07	0.00	0.04	0.00	0.03	0.03	0.03
Child care	0.02	0.02	0.05	0.01	0.03	0.01	0.02	0.02	0.03
Hairdressing and personal grooming services	0.00	0.00	0.01	0.00	0.01	-0.01	0.00	0.01	0.00
Other household services	0.00	0.01	0.00	0.00	0.01	0.00	0.01	0.00	0.01
Health	-0.02	-0.01	-0.01	-0.01	-0.02	-0.01	-0.02	0.03	-0.01
Medical products, appliances and equipment	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	0.00
Pharmaceutical products	-0.01	-0.01	-0.01	-0.01	0.00	-0.01	-0.01	0.00	-0.01
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	0.00	0.00	-0.01	0.02	-0.01	0.03	0.00
Medical and hospital services	-0.01	0.00	-0.01	0.00	-0.01	0.01	0.00	0.03	-0.01
Dental services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport	-0.04	-0.04	-0.06	0.07	0.11	0.02	0.22	0.10	-0.01
Private motoring	-0.06	-0.05	-0.06	0.07	0.10	0.01	0.22	0.11	-0.02
Motor vehicles	0.00	-0.03	-0.02	-0.02	0.02	0.00	-0.05	0.03	-0.02
Spare parts and accessories for motor vehicles	0.02	0.05	-0.01	0.00	0.01	0.04	0.02	-0.01	0.01
Automotive fuel	-0.08	-0.11	-0.06	0.00	-0.06	-0.06	-0.03	-0.01	-0.08
Maintenance and repair of motor vehicles	0.01	0.01	0.00	0.04	0.00	0.01	0.01	0.03	0.01
Other services in respect of motor vehicles	0.01	0.05	0.04	0.04	0.13	0.02	0.27	0.08	0.05
Urban transport fares	0.02	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.01
Urban transport fares	0.02	0.00	0.00	0.01	0.02	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>
Communication	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
Communication	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
Postal services	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Telecommunication equipment and services	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.03	-0.04
Recreation and culture	0.19	0.12	0.21	0.11	0.11	-0.02	0.37	0.12	0.16
Audio, visual and computing equipment and services	0.03	0.02	0.01	0.00	0.03	-0.01	-0.01	0.03	0.02
Audio, visual and computing equipment	-0.01	-0.02	-0.02	-0.02	-0.01	-0.03	-0.03	-0.02	-0.01
Audio, visual and computing media and services	0.05	0.03	0.03	0.04	0.05	0.02	0.03	0.04	0.04
Newspapers, books and stationery	0.01	0.00	0.02	0.02	0.00	0.02	0.03	0.04	0.01
Books	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.02	0.00
Newspapers, magazines and stationery	0.00	-0.01	0.01	0.01	0.00	0.02	0.01	0.01	0.01
Holiday travel and accommodation	0.12	0.06	0.17	0.11	0.08	-0.06	0.48	0.02	0.11
Domestic holiday travel and accommodation	0.03	-0.04	0.07	0.00	-0.02	-0.20	0.40	-0.07	0.00
International holiday travel and accommodation	0.09	0.11	0.11	0.12	0.10	0.14	0.09	0.09	0.10
Other recreation, sport and culture	0.03	0.04	0.01	-0.02	0.01	0.03	-0.13	0.04	0.02
Equipment for sports, camping and open-air recreation	0.00	0.00	0.01	-0.01	0.01	0.00	0.00	0.01	0.01
Games, toys and hobbies	-0.02	-0.02	-0.01	-0.02	-0.03	-0.01	-0.03	-0.01	-0.02
Pets and related products	0.00	0.00	0.00	0.00	0.00	0.01	-0.01	0.00	-0.01
Veterinary and other services for pets	0.00	0.01	0.00	0.01	0.03	0.01	0.00	0.00	0.01
Sports participation	0.03	0.03	0.02	0.02	0.01	0.02	-0.08	0.02	0.02
Other recreational, sporting and cultural services	0.00	0.02	0.00	-0.02	-0.02	0.00	-0.02	0.02	0.01
Education	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.00	0.00	0.01	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	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Insurance and financial services	0.04	0.04	0.04	0.06	0.02	0.04	0.06	-0.03	0.04
Insurance	0.04	0.03	0.03	0.03	0.03	0.01	0.02	0.04	0.04
Insurance	0.04	0.03	0.03	0.03	0.03	0.01	0.02	0.04	0.04
Financial services	0.00	0.01	0.02	0.03	0.00	0.03	0.04	-0.07	0.00
Deposit and loan facilities (direct charges)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other financial services	0.00	0.01	0.02	0.03	0.00	0.03	0.04	-0.08	0.00
All groups CPI	0.8	0.5	0.4	1.2	0.5	0.3	0.6	1.0	0.7

Group, sub-group and expenditure class	INDEX NUMBERS(a)			PERCENTAGE CHANGE		CONTRIBUTION TO TOTAL CPI (ALL GROUPS) (INDEX POINTS)		CHANGE IN POINTS CONTRIBUTION
	Sep Qtr 2016	Jun Qtr 2017	Sep Qtr 2017	Jun Qtr 2017 to Sep Qtr 2017	Sep Qtr 2016 to Sep Qtr 2017	Jun Qtr 2017	Sep Qtr 2017	Jun Qtr 2017 to Sep Qtr 2017
Food and non-alcoholic beverages	105.6	105.8	104.9	-0.9	-0.7	17.29	17.13	-0.16
Bread and cereal products	98.0	97.6	96.8	-0.8	-1.2	1.65	1.64	-0.01
Bread	96.1	95.4	95.0	-0.4	-1.1	0.54	0.54	0.00
Cakes and biscuits	102.1	102.5	101.4	-1.1	-0.7	0.75	0.74	-0.01
Breakfast cereals	93.0	92.8	90.8	-2.2	-2.4	0.17	0.17	0.00
Other cereal products	93.2	90.8	90.7	-0.1	-2.7	0.19	0.19	0.00
Meat and seafoods	109.5	109.7	109.9	0.2	0.4	2.45	2.46	0.01
Beef and veal	125.1	124.6	124.7	0.1	-0.3	0.48	0.48	0.00
Pork	110.1	108.3	108.8	0.5	-1.2	0.38	0.38	0.00
Lamb and goat	103.1	104.4	104.0	-0.4	0.9	0.26	0.26	0.00
Poultry	100.0	100.4	100.3	-0.1	0.3	0.47	0.47	0.00
Other meats	111.2	112.5	113.4	0.8	2.0	0.43	0.44	0.01
Fish and other seafood	107.4	108.0	108.3	0.3	0.8	0.44	0.44	0.00
Dairy and related products	98.2	96.9	96.7	-0.2	-1.5	1.10	1.10	0.00
Milk	96.6	96.5	96.4	-0.1	-0.2	0.41	0.41	0.00
Cheese	101.9	98.3	99.0	0.7	-2.8	0.33	0.33	0.00
Ice cream and other dairy products	96.8	96.1	94.9	-1.2	-2.0	0.37	0.36	-0.01
Fruit and vegetables	108.7	106.2	99.8	-6.0	-8.2	2.64	2.48	-0.16
Fruit	100.4	89.4	90.1	0.8	-10.3	1.09	1.10	0.01
Vegetables	116.7	122.4	109.1	-10.9	-6.5	1.55	1.38	-0.17
Food products n.e.c.	100.7	101.1	100.8	-0.3	0.1	2.18	2.18	0.00
Eggs	109.1	107.8	104.1	-3.4	-4.6	0.12	0.11	-0.01
Jams, honey and spreads	105.3	106.1	101.7	-4.1	-3.4	0.15	0.15	0.00
Food additives and condiments	97.8	95.3	96.9	1.7	-0.9	0.29	0.30	0.01
Oils and fats	102.0	106.1	108.5	2.3	6.4	0.18	0.19	0.01
Snacks and confectionery	102.2	103.1	102.4	-0.7	0.2	0.98	0.98	0.00
Other food products n.e.c.	95.8	95.8	96.3	0.5	0.5	0.45	0.45	0.00
Non-alcoholic beverages	101.5	101.6	101.4	-0.2	-0.1	1.17	1.16	-0.01
Coffee, tea and cocoa	99.6	100.7	98.9	-1.8	-0.7	0.29	0.28	-0.01
Waters, soft drinks and juices	102.1	101.9	102.2	0.3	0.1	0.88	0.88	0.00
Meals out and take away foods	109.2	111.3	111.7	0.4	2.3	6.10	6.12	0.02
Restaurant meals	108.3	110.7	111.1	0.4	2.6	3.13	3.14	0.01
Take away and fast foods	110.2	111.9	112.3	0.4	1.9	2.97	2.98	0.01
Alcohol and tobacco	127.1	133.1	136.0	2.2	7.0	9.53	9.74	0.21
Alcoholic beverages	109.2	110.4	111.0	0.5	1.6	5.27	5.30	0.03
Spirits	110.7	111.7	112.0	0.3	1.2	1.02	1.02	0.00
Wine	102.0	101.3	101.6	0.3	-0.4	1.65	1.66	0.01
Beer	113.9	116.5	117.5	0.9	3.2	2.60	2.62	0.02
Tobacco	162.9	178.5	185.8	4.1	14.1	4.27	4.44	0.17
Tobacco	162.9	178.5	185.8	4.1	14.1	4.27	4.44	0.17
Clothing and footwear	98.3	96.1	95.2	-0.9	-3.2	3.82	3.78	-0.04
Garments	95.8	93.0	91.7	-1.4	-4.3	2.31	2.28	-0.03
Garments for men	101.7	98.3	96.2	-2.1	-5.4	0.72	0.71	-0.01
Garments for women	92.3	89.2	88.1	-1.2	-4.6	1.30	1.28	-0.02
Garments for infants and children	98.3	98.7	98.2	-0.5	-0.1	0.30	0.30	0.00
Footwear	95.8	94.7	94.5	-0.2	-1.4	0.59	0.59	0.00
Footwear for men	98.6	97.2	95.5	-1.7	-3.1	0.13	0.13	0.00
Footwear for women	93.6	92.4	93.5	1.2	-0.1	0.33	0.33	0.00
Footwear for infants and children	99.0	98.3	96.4	-1.9	-2.6	0.12	0.12	0.00
Accessories and clothing services	107.2	106.1	105.6	-0.5	-1.5	0.92	0.91	-0.01
Accessories	106.3	104.6	103.9	-0.7	-2.3	0.78	0.77	-0.01
Cleaning, repair and hire of clothing and footwear	112.7	115.4	115.8	0.3	2.8	0.14	0.14	0.00

(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
	Sep Qtr 2016	Jun Qtr 2017	Sep Qtr 2017	Jun Qtr 2017 to Sep Qtr 2017	Sep Qtr 2016 to Sep Qtr 2017	Jun Qtr 2017	Sep Qtr 2017	Jun Qtr 2017 to Sep Qtr 2017
Housing	115.6	117.2	119.4	1.9	3.3	26.61	27.10	0.49
Rents	110.7	111.1	111.3	0.2	0.5	7.60	7.62	0.02
Rents	110.7	111.1	111.3	0.2	0.5	7.60	7.62	0.02
New dwelling purchase by owner-occupiers	114.7	117.4	118.3	0.8	3.1	10.11	10.19	0.08
New dwelling purchase by owner-occupiers	114.7	117.4	118.3	0.8	3.1	10.11	10.19	0.08
Other housing	119.5	120.3	122.1	1.5	2.2	4.05	4.11	0.06
Maintenance and repair of the dwelling	111.3	112.7	113.4	0.6	1.9	2.30	2.32	0.02
Property rates and charges	132.1	132.1	135.5	2.6	2.6	1.74	1.79	0.05
Utilities	122.6	125.0	133.5	6.8	8.9	4.86	5.19	0.33
Water and sewerage	114.0	114.0	117.6	3.2	3.2	1.11	1.14	0.03
Electricity	123.7	126.6	137.9	8.9	11.5	2.74	2.99	0.25
Gas and other household fuels	130.7	134.4	141.4	5.2	8.2	1.01	1.06	0.05
Furnishings, household equipment and services	105.9	104.7	105.1	0.4	-0.8	9.47	9.51	0.04
Furniture and furnishings	104.2	100.7	101.0	0.3	-3.1	1.88	1.89	0.01
Furniture	103.7	99.4	99.8	0.4	-3.8	1.58	1.59	0.01
Carpets and other floor coverings	107.2	108.0	107.8	-0.2	0.6	0.30	0.30	0.00
Household textiles	95.0	89.2	91.4	2.5	-3.8	0.54	0.55	0.01
Household textiles	95.0	89.2	91.4	2.5	-3.8	0.54	0.55	0.01
Household appliances, utensils and tools	99.0	95.6	96.4	0.8	-2.6	1.33	1.34	0.01
Major household appliances	99.1	95.3	94.9	-0.4	-4.2	0.46	0.46	0.00
Small electric household appliances	94.8	90.9	91.3	0.4	-3.7	0.21	0.21	0.00
Glassware, tableware and household utensils	96.2	91.2	93.8	2.9	-2.5	0.39	0.40	0.01
Tools and equipment for house and garden	107.2	107.8	108.0	0.2	0.7	0.28	0.28	0.00
Non-durable household products	98.9	98.4	97.4	-1.0	-1.5	2.79	2.76	-0.03
Cleaning and maintenance products	96.3	95.9	95.0	-0.9	-1.3	0.28	0.28	0.00
Personal care products	93.9	92.3	91.4	-1.0	-2.7	1.01	1.00	-0.01
Other non-durable household products	103.2	103.5	102.5	-1.0	-0.7	1.49	1.48	-0.01
Domestic and household services	122.7	125.1	126.5	1.1	3.1	2.94	2.97	0.03
Child care	145.4	149.0	152.3	2.2	4.7	1.08	1.11	0.03
Hairdressing and personal grooming services	110.5	112.2	112.6	0.4	1.9	1.02	1.02	0.00
Other household services	115.1	117.0	117.7	0.6	2.3	0.83	0.84	0.01
Health	125.2	130.3	130.1	-0.2	3.9	6.88	6.87	-0.01
Medical products, appliances and equipment	102.8	103.6	103.0	-0.6	0.2	1.32	1.32	0.00
Pharmaceutical products	103.5	104.5	103.7	-0.8	0.2	1.18	1.17	-0.01
Therapeutic appliances and equipment	97.3	97.1	97.5	0.4	0.2	0.15	0.15	0.00
Medical, dental and hospital services	132.3	138.8	138.7	-0.1	4.8	5.56	5.56	0.00
Medical and hospital services	135.8	143.3	143.1	-0.1	5.4	4.93	4.92	-0.01
Dental services	110.9	111.8	112.0	0.2	1.0	0.63	0.63	0.00
Transport	97.7	100.3	100.3	0.0	2.7	11.61	11.60	-0.01
Private motoring	97.1	99.9	99.7	-0.2	2.7	10.80	10.78	-0.02
Motor vehicles	94.4	93.8	93.3	-0.5	-1.2	2.97	2.95	-0.02
Spare parts and accessories for motor vehicles	106.9	107.7	109.5	1.7	2.4	1.07	1.08	0.01
Automotive fuel	81.5	89.7	87.6	-2.3	7.5	3.18	3.10	-0.08
Maintenance and repair of motor vehicles	107.8	108.4	108.9	0.5	1.0	1.87	1.88	0.01
Other services in respect of motor vehicles	122.9	123.5	126.8	2.7	3.2	1.71	1.76	0.05
Urban transport fares	105.5	106.7	108.0	1.2	2.4	0.81	0.82	0.01
Urban transport fares	105.5	106.7	108.0	1.2	2.4	0.81	0.82	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
	Jun Qtr 2016	Jul Qtr 2016	Aug Qtr 2016	Jul Qtr 2016 to Aug Qtr 2016	Aug Qtr 2016 to Sep Qtr 2016	Jul Qtr 2016	Aug Qtr 2016	Jul Qtr 2016 to Aug Qtr 2016
	2016	2017	2017	2017 to 2017	2017 to 2017	2017	2017	2017 to 2017
Communication	89.3	87.9	86.7	-1.4	-2.9	2.68	2.64	-0.04
Communication	89.3	87.9	86.7	-1.4	-2.9	2.68	2.64	-0.04
Postal services	111.2	114.0	114.6	0.5	3.1	0.14	0.14	0.00
Telecommunication equipment and services	88.3	86.8	85.5	-1.5	-3.2	2.54	2.50	-0.04
Recreation and culture	103.7	103.0	104.3	1.3	0.6	12.87	13.03	0.16
Audio, visual and computing equipment and services	77.3	75.0	75.9	1.2	-1.8	1.77	1.79	0.02
Audio, visual and computing equipment	64.5	61.1	60.0	-1.8	-7.0	0.85	0.84	-0.01
Audio, visual and computing media and services	95.7	95.1	98.8	3.9	3.2	0.92	0.96	0.04
Newspapers, books and stationery	110.3	111.3	112.3	0.9	1.8	1.19	1.20	0.01
Books	100.5	101.3	103.0	1.7	2.5	0.40	0.40	0.00
Newspapers, magazines and stationery	116.0	117.1	117.6	0.4	1.4	0.79	0.80	0.01
Holiday travel and accommodation	109.7	107.9	110.0	1.9	0.3	5.25	5.36	0.11
Domestic holiday travel and accommodation	106.4	108.4	108.5	0.1	2.0	2.79	2.79	0.00
International holiday travel and accommodation	113.4	107.2	111.6	4.1	-1.6	2.46	2.56	0.10
Other recreation, sport and culture	109.9	111.2	111.7	0.4	1.6	4.66	4.68	0.02
Equipment for sports, camping and open-air recreation	103.9	103.4	104.0	0.6	0.1	0.61	0.62	0.01
Games, toys and hobbies	88.8	89.1	87.2	-2.1	-1.8	0.67	0.65	-0.02
Pets and related products	101.5	103.0	102.8	-0.2	1.3	0.40	0.39	-0.01
Veterinary and other services for pets	117.5	119.7	121.5	1.5	3.4	0.49	0.50	0.01
Sports participation	117.0	119.1	121.4	1.9	3.8	1.14	1.16	0.02
Other recreational, sporting and cultural services	121.4	123.0	123.3	0.2	1.6	1.35	1.36	0.01
Education	124.8	128.7	128.7	0.0	3.1	4.19	4.19	0.00
Education	124.8	128.7	128.7	0.0	3.1	4.19	4.19	0.00
Preschool and primary education	126.0	129.0	129.0	0.0	2.4	0.69	0.69	0.00
Secondary education	127.0	132.2	132.2	0.0	4.1	1.71	1.71	0.00
Tertiary education	122.4	125.3	125.5	0.2	2.5	1.79	1.79	0.00
Insurance and financial services	110.5	111.8	112.5	0.6	1.8	5.74	5.78	0.04
Insurance	120.5	122.6	124.9	1.9	3.7	1.79	1.83	0.04
Insurance	120.5	122.6	124.9	1.9	3.7	1.79	1.83	0.04
Financial services	106.5	107.5	107.6	0.1	1.0	3.95	3.95	0.00
Deposit and loan facilities (direct charges)	101.7	102.5	102.8	0.3	1.1	0.77	0.77	0.00
Other financial services	107.7	108.8	108.9	0.1	1.1	3.18	3.18	0.00
All groups CPI	109.4	110.7	111.4	0.6	1.8	110.7	111.4	0.7

(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
	Sep Qtr 2016	Jun Qtr 2017	Sep Qtr 2017	Jun Qtr 2017 to Sep Qtr 2017	Sep Qtr 2016 to Sep Qtr 2017	Jun Qtr 2017	Sep Qtr 2017	Jun Qtr 2017 to Sep Qtr 2017
All groups CPI	109.4	110.7	111.4	0.6	1.8	110.7	111.4	0.7
All groups CPI, seasonally adjusted	109.3	110.9	111.3	0.4	1.8	0.0	0.0	0.0
Underlying trend series								
Trimmed mean(c)	..	..	..	0.4	1.8	..	..	..
Weighted median(c)	..	..	..	0.3	1.9	..	..	..
International trade exposure series								
Tradables	102.5	101.9	101.6	-0.3	-0.9	36.59	36.49	-0.10
Non-tradables	113.8	116.2	117.4	1.0	3.2	74.11	74.88	0.77
Goods and services series								
Goods component	106.0	107.3	107.9	0.6	1.8	61.90	62.25	0.35
Services component	114.0	115.4	116.1	0.6	1.8	48.80	49.12	0.32
All groups CPI including								
Deposit and loan facilities (indirect charges)	110.0	111.4	112.2	0.7	2.0	..	..	..
Market goods and services excluding 'volatile items'								
Goods	106.4	107.3	107.8	0.5	1.3	50.05	50.31	0.26
Services	108.8	109.3	109.9	0.5	1.0	33.41	33.61	0.20
Total	107.4	108.1	108.7	0.6	1.2	83.46	83.92	0.46
All groups CPI excluding								
Food and non-alcoholic beverages	110.1	111.6	112.6	0.9	2.3	93.41	94.24	0.83
Alcohol and tobacco	108.0	109.0	109.5	0.5	1.4	101.17	101.63	0.46
Clothing and footwear	109.9	111.3	112.0	0.6	1.9	106.89	107.59	0.70
Housing	107.6	108.8	109.0	0.2	1.3	84.09	84.27	0.18
Furnishings, household equipment and services	109.7	111.3	112.0	0.6	2.1	101.23	101.86	0.63
Health	108.5	109.6	110.3	0.6	1.7	103.82	104.50	0.68
Transport	110.9	112.1	112.8	0.6	1.7	99.10	99.77	0.67
Communication	110.0	111.4	112.1	0.6	1.9	108.02	108.73	0.71
Recreation and culture	110.2	111.8	112.4	0.5	2.0	97.83	98.34	0.51
Education	108.9	110.1	110.8	0.6	1.7	106.51	107.18	0.67
Insurance and financial services	109.3	110.6	111.3	0.6	1.8	104.96	105.59	0.63
Housing, Insurance and financial services	107.4	108.6	108.8	0.2	1.3	78.34	78.49	0.15
Medical and hospital services	108.5	109.5	110.2	0.6	1.6	105.77	106.45	0.68
Food and energy	110.8	112.0	112.7	0.6	1.7	89.62	90.23	0.61
'Volatile items'	110.5	111.6	112.6	0.9	1.9	104.89	105.79	0.90

.. not applicable

(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* (cat. no. 6461.0).

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

EXPLANATORY NOTES *continued*

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.
 - 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.

EXPLANATORY NOTES *continued*

ANALYTICAL SERIES *continued*

- 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 the Appendix of the December quarter 2016 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.
- *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.

EXPLANATORY NOTES *continued*

ANALYTICAL SERIES *continued*

- *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 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

EXPLANATORY NOTES *continued*

SEASONALLY ADJUSTED INDEXES *continued*

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:

- *Information Paper: An Implementation Plan to Annually Re-weight the Australian CPI, 2017* (cat.no. 6401.0.60.005)
- *Information Paper: An Implementation Plan to Maximise the Use of Transactions Data in the CPI, Jun 2017* (cat.no. 6401.0.60.004)
- *Enhancing the Australian CPI: A roadmap, Aug 2015* (cat. no. 6401.0.60.001)
- *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* (cat. no. 6461.0)
- *Information Paper: Introduction of the 16th Series Australian Consumer Price Index, 2011* (cat. no. 6470.0)

EXPLANATORY NOTES *continued*

RELATED PUBLICATIONS

continued

- *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: Correspondence 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.

FOR MORE INFORMATION . . .

INTERNET **www.abs.gov.au** the ABS website is the best place for data from our publications and information about the ABS.

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