



# Surf, Shop, Save 2.0: How online retail helps lower the cost of living

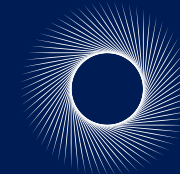
*Report by Mandala Partners*

MAY 2026

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Note: All dollar figures are Australian dollars unless indicated otherwise.

# Summary of key findings

## COST-OF-LIVING PRESSURES ARE DEEPENING, AND TRADITIONAL LEVERS ARE BLUNTER



**4.6%**  
annual inflation  
in Australia

Inflation hit 4.6% in the year to March 2026, rebounding from its earlier downward trend amid energy market volatility and capacity constraints.



**71%**  
rise in Brent crude  
since US-Iran conflict

The oil shock is projected to add 0.8 to 3 ppt to inflation and shave 0.4 to 1.5 ppt off real GDP. Retail is especially exposed: postal fuel surcharges have risen 6.8 ppts since March, with further increases planned.



**Supply-driven**  
inflation blunts  
traditional policy

Supply-side factors have driven more than half of headline inflation since 2024. Rate hikes are less effective against supply shocks, making competition and productivity the more powerful levers for easing prices.

## ONLINE CHANNELS KEEP PRICES LOW THROUGH COMPETITION AND EFFICIENCY



**6 ppt**  
deflation in the  
Online Channel Index  
since 2019

The Online Channel Index (OCI) has deflated 6 ppt since 2019. The CPI for a comparable basket of goods sold through offline channels has risen 8 ppt over the same period.



**Up to 17 ppt**  
gap between OCI and  
comparable CPI baskets  
since 2019

Communication shows the largest gap, with the online channel index 17 ppt below the comparable CPI basket since 2019. Similar gaps of 4 to 16 ppt hold across clothing, health products, furnishings and recreation.



**Two drivers**  
behind lower online  
prices

Online channels lower prices by increasing competition (for example by enabling easy switching) and efficiency (reduced operating costs, economies of scale).

## ONLINE CHANNELS ARE SAVING AUSTRALIAN HOUSEHOLDS MONEY



**\$1,414 p.a.**  
average household saving  
due to online channels

Online channels are expected to save the average household \$1,414 in 2026, roughly 6 weeks of groceries, with total savings of \$7,766 since 2019. Lower-income households gain most as a share of income.



**0.8 ppt**  
lower inflation driven by  
online channels

Without the competitive pressure of online channels, annual inflation would have been 0.8 ppts higher in the year to March. The flow-on to interest rates saves up to \$4,000 a year on the average owner-occupier mortgage.



**Lower fuel use**  
due to increased  
omnichannel shopping

Households that shop omnichannel rather than purely offline can significantly reduce shopping-related fuel consumption through fewer individual trips and optimised last-mile delivery routes.



**The increase in omnichannel retail, and the benefits it brings, means channel-specific regulations would be misplaced**

Online sales now account for 12% of Australian retail, and the country's largest retailers (Woolworths group, Coles, Wesfarmers, JB Hi-Fi) are also leading omnichannel players. SMBs using online channels are 45% more productive than those that do not. Existing regulatory settings are supporting productivity, competition and lower prices. As the Government works to maximise the benefits of increasing digitalisation, this suggests intervention in retail is unnecessary and potentially risks undermining the economic benefits that the move to omnichannel is bringing



1

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Appendix

# Australia's cost-of-living pressures are worsening, with low-income households hit the hardest

Inflation hit 4.6% in the year to March 2026, driven by energy market volatility caused by conflict in the Middle East, as well as capacity constraints, with the RBA noting a tight labour market and strong domestic economic activity as some of the key drivers.

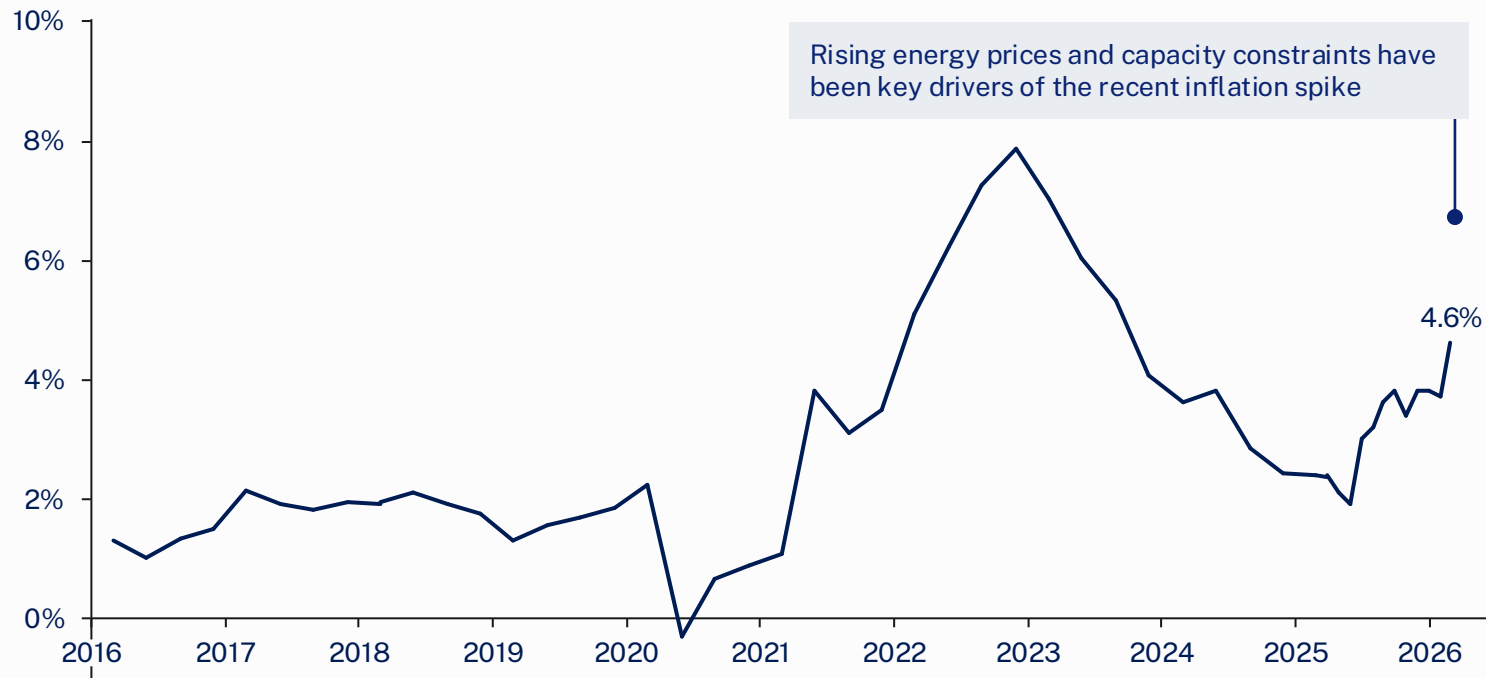
Recent inflationary pressures have followed a downward trend from a peak of 7.9% in the December 2022 quarter, driven by unprecedented monetary policy stimulus, supply chain challenges and the impact of the Russia-Ukraine conflict. The RBA is further expecting inflation to increase up until mid-2026 before stabilising within the inflationary target band of 2-3% in mid-2028.

While inflation affects all types of households, research suggests that low-income and vulnerable households bear a disproportionate burden as essentials make up a larger share of their income, and are categories where spending is difficult to reduce.<sup>1</sup> Low-income households have lower financial buffers in the form of savings and assets to manage rising prices.

<sup>1</sup> Grattan Institute (2023) *How high inflation is affecting different Australian households.*

## Annual inflation rate in Australia

Annual movement in CPI<sup>2</sup>, %, 2016-2026



Low-income households are disproportionately exposed to cost-of-living pressures as they spend a greater share of their income on essentials such as food and energy, and have fewer financial buffers against rising prices<sup>1</sup>

<sup>2</sup> Annual movements prior to April 2025 are calculated by comparing each quarter to the same quarter in the previous year. From April 2025 these movements are calculated by comparing each month to the same month in the previous year.

Source: ABS (2026) *CPI: Group, Weighted Average of Eight Capital Cities, Index numbers and Percentage change & CPI: Quarterly Group, Sub-group and Expenditure Class, Weighted Average of Eight Capital Cities*; Mandala analysis.

# Energy market volatility is worsening the outlook for inflation, growth, and employment

The impact of the US-Iran conflict continues to be felt by everyday Australians, in the form of higher energy prices. Following the surge in global energy prices, average Australian diesel and unleaded 91 prices have increased by 74% and 43% respectively from the start of the conflict to April 1st<sup>1</sup>, when the fuel excise discount was introduced.

The oil shock is expected to worsen the economic outlook for Australia in the next year, with modelling estimating a reduction in real GDP by between 0.4 and 1.5 ppt, higher inflation by between 0.8 and 3.0 ppt, and higher unemployment by between 0.6 and 0.8 ppt. These figures are based on three scenarios:

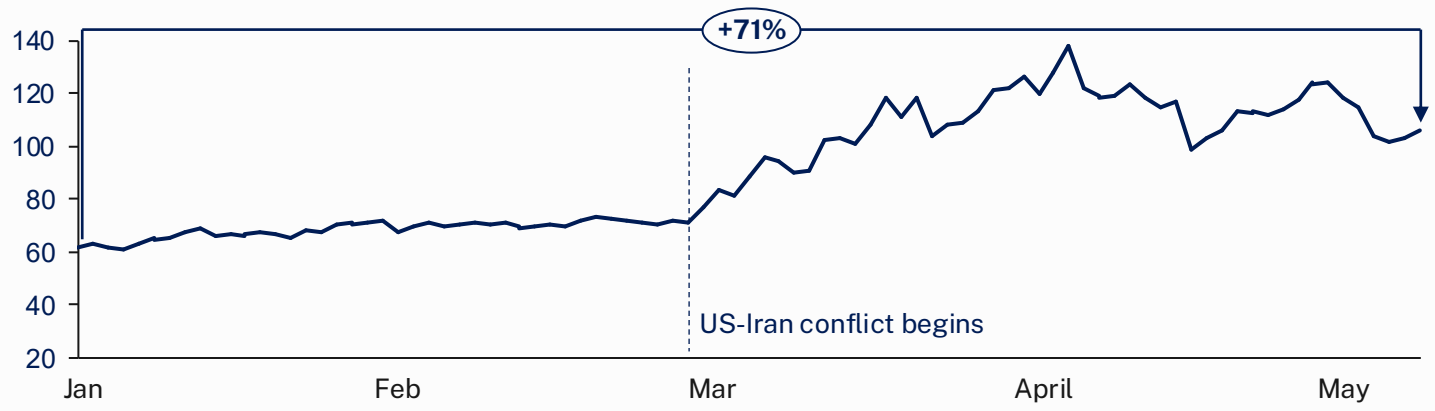
- Low<sup>2</sup>: Based on 2022 oil price shock modelling, recalibrated to the size of the current Iran war shock.
- Medium<sup>3</sup>: Based on analysis of oil prices and inflation, recalibrated to the size of the current Iran war shock.
- High: Forthcoming estimate using G-Cubed 20 sector model (v173)

The conflict has also impacted critical supply inputs including fertiliser. This is a key input to food production and has resulted in widespread disruption to global supply chains.

<sup>1</sup> ABC (2026) Track the latest petrol and diesel prices around Australia. <sup>2</sup> Centre of Policy Studies (2022) Oil Supply Shocks and Tax Policy Responses in Australia: Insights from a Dynamic CGE Framework. <sup>3</sup> International Monetary Fund (2026) Global Economy in the Shadow of War.

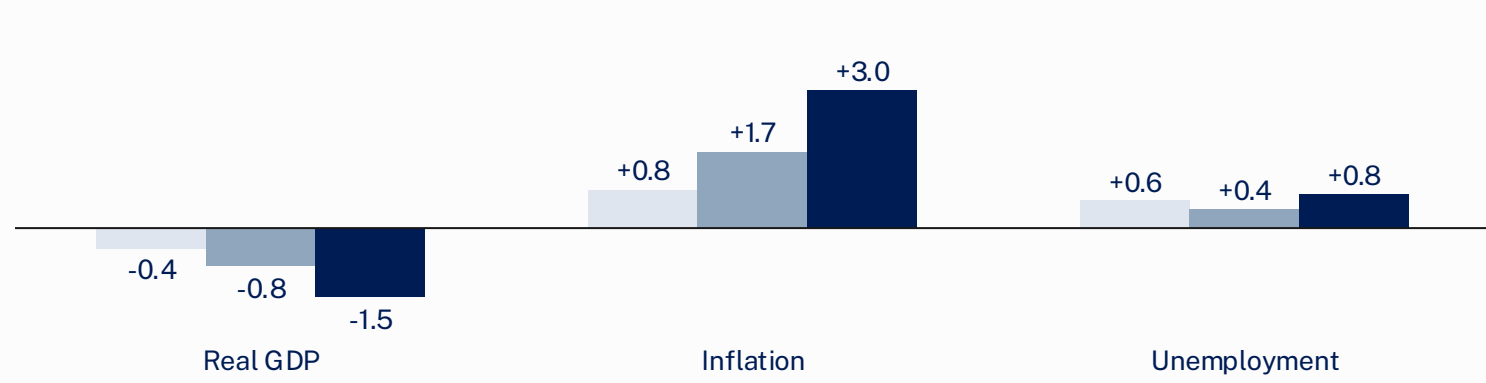
## Brent crude spot price

Europe Brent Spot Price FOB, USD per barrel, daily, January – 11<sup>th</sup> May 2026



## Projected impact of oil shock on Australian economy

First-year impact after shock, percentage points, low-medium-high scenarios



Source: EIA (2026) Petroleum & Other liquids; Mandala analysis.

# Retail's reliance on logistics make it vulnerable to fuel price shocks

Conceptual representation of typical retail supply chain



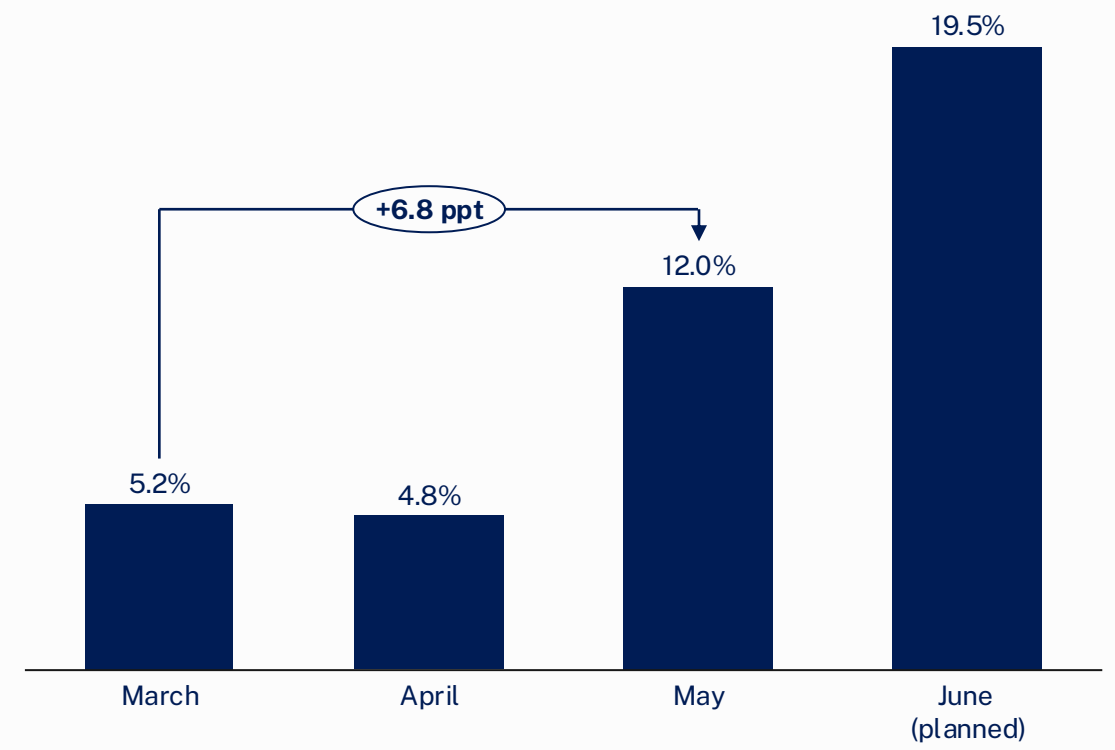
Cost shocks to key inputs like energy can flow through to final retail prices over time

Source: Mandala analysis.

# Higher energy prices are already impacting delivery costs in Australia through increased fuel surcharges

Postal fuel surcharges

%, 2026

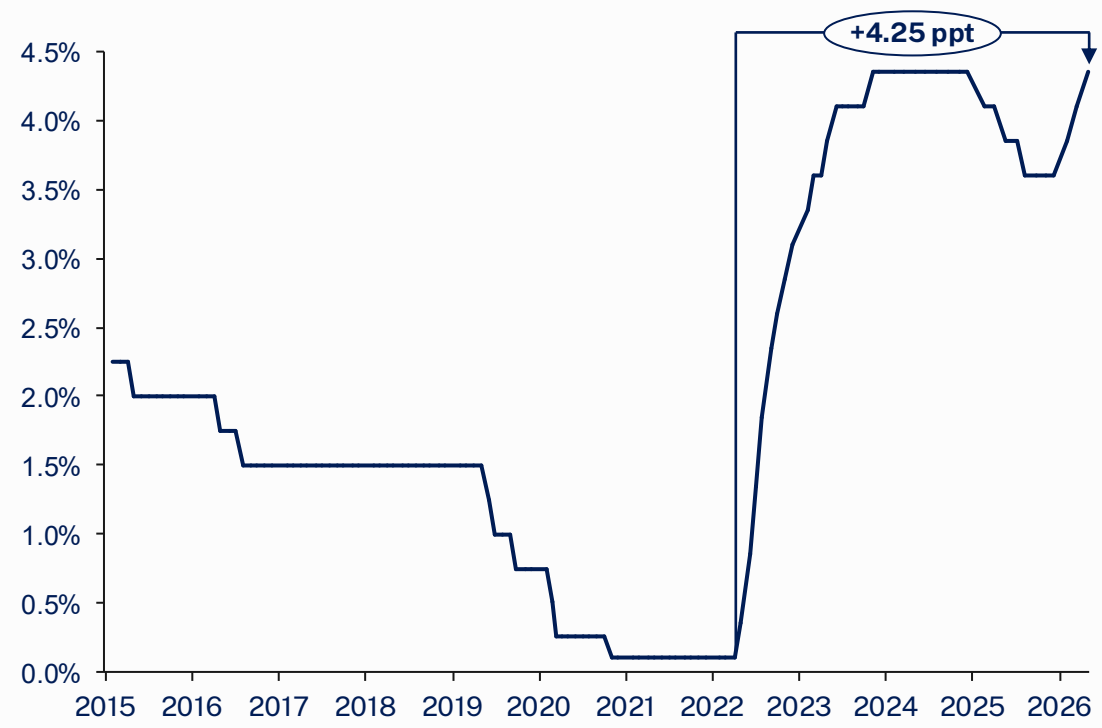


Note: Fuel surcharges are based on direct and indirect fuel costs and apply to contract customers.  
 Source: Australia Post (2026) Fuel surcharge; Mandala analysis.

# Interest rates remain elevated, adding further pressure through higher mortgage repayments

RBA cash rate target since 2015

RBA cash rate target (%), 2015-2026

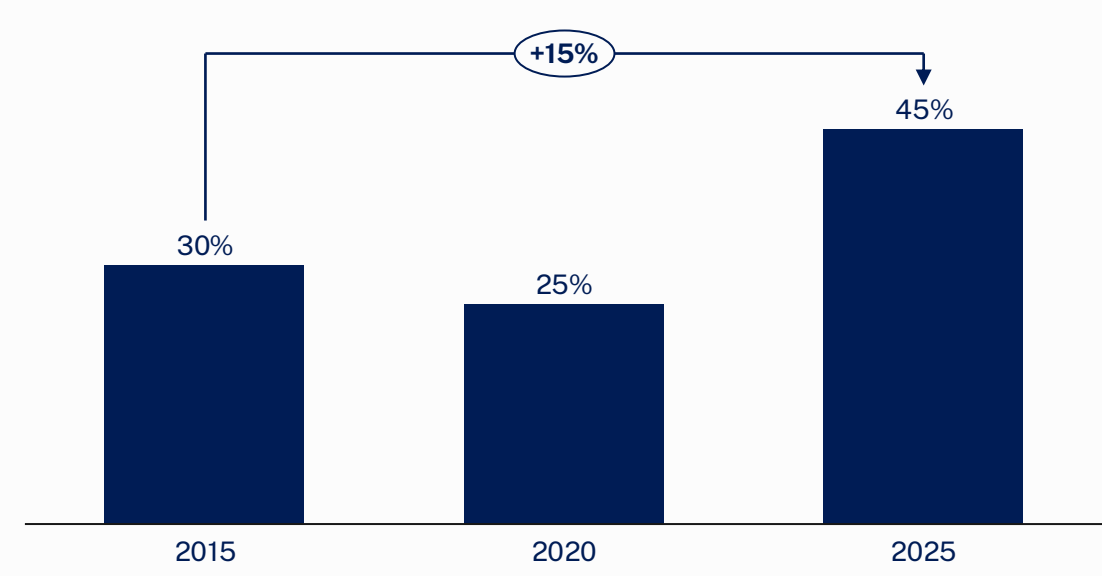


Source: RBA (2026) Cash Rate Target; Mandala analysis.

# Households now require 45% of their income to service a new mortgage, compared to 30% in 2015

Portion of income required to service a new mortgage

% of median household income (pre-tax), 2015-2025



Households are typically considered to be in mortgage distress when the portion of income required to service their mortgage is greater than 30%

Note: Assumes the owner has borrowed 80% of the median dwelling value and is paying the average discounted variable mortgage rate at that time for a term of 30 years.

Source: Cotality (2025) Housing Affordability Report; Mandala analysis.

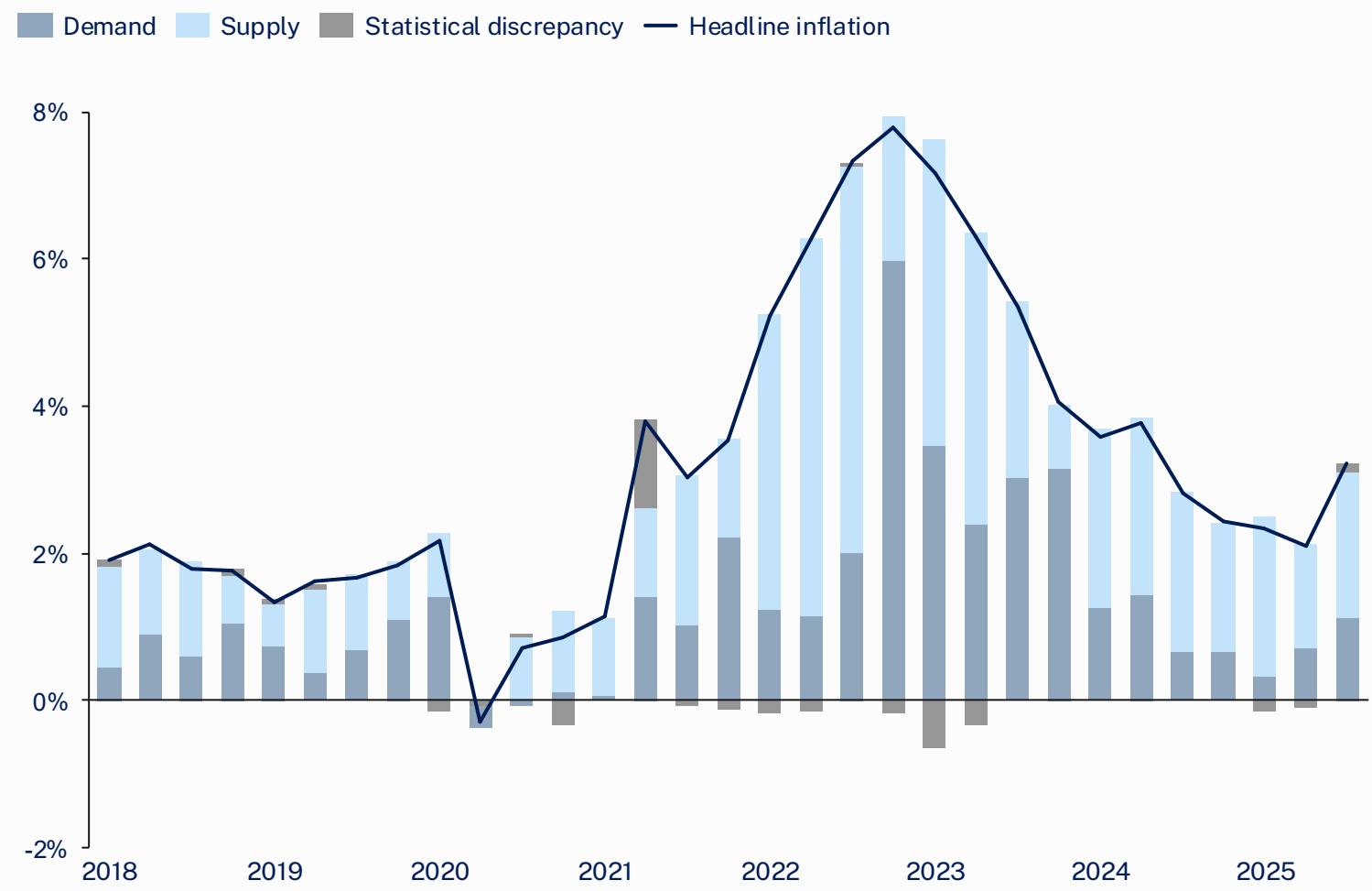
# Supply-side factors have been a key driver of Australia's inflationary pressures in recent years

Since COVID, supply-side factors are estimated to have contributed more to headline inflation than demand-side factors, with the exception of a few quarters. Supply-side drivers in recent years include the impact of the Russia-Ukraine war on food and energy prices, as well as disruptions to global trade and supply chains. More recent supply-side inflation drivers include the US-Iran conflict (not shown on graph) which has caused global energy prices to surge.

The RBA's tools to combat inflationary pressures differ depending on whether inflation is driven by demand or supply. Traditional monetary policy - such as raising interest rates - is generally less effective against supply-side shocks than demand shocks. In such cases, policy levers focused on easing capacity pressures, such as promoting competition and lifting productivity become increasingly important in combating supply-driven inflation.

Headline CPI growth rate, decomposed by economic driver

Annual movement (%), year-ended growth, 2018-2025<sup>1</sup>, economic driver contributions are estimates



<sup>1</sup> 2025Q3 is a nowcast estimate.  
Source: KPMG (2025) Australian Inflation and Cost Dynamics.



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# Online channels benefit consumers and businesses through both supply and demand mechanisms

## Supply-side effects

**Increased competition:**  
Online channels give suppliers access to new customers and jurisdictions and broaden the supplier landscape that consumers access for products

**Reduced operating costs:**  
Online channels can save on in-store handling costs which can be passed on to consumers in the form of lower prices

**Economies of scale:**  
Small businesses can capitalise on economies of scale typically only available to large and established retailers

**Export-driven growth:**  
Online channels can help businesses access international markets and expand their customer base

## Demand-side effects

**Easy comparison shopping:**  
Customers can seamlessly compare prices for products across retailers

**Price transparency:**  
Real-time pricing help consumers make better informed decisions when purchasing products

**Wide product choice:**  
A large supplier landscape increases optionality for consumers shopping online

**Easy switching:**  
Online channels enable consumers to switch easily between suppliers of choice

**Online channels play an important role in empowering consumers with choice and price transparency, while helping businesses access new customers and markets**

# The Online Channel Index (OCI) has deflated 6 ppt since 2019, while the CPI for a comparable basket has risen

The Online Channel Index (OCI) has deflated 6 percentage points since 2019. The CPI for a comparable basket has risen by 8 percentage points over the same period.

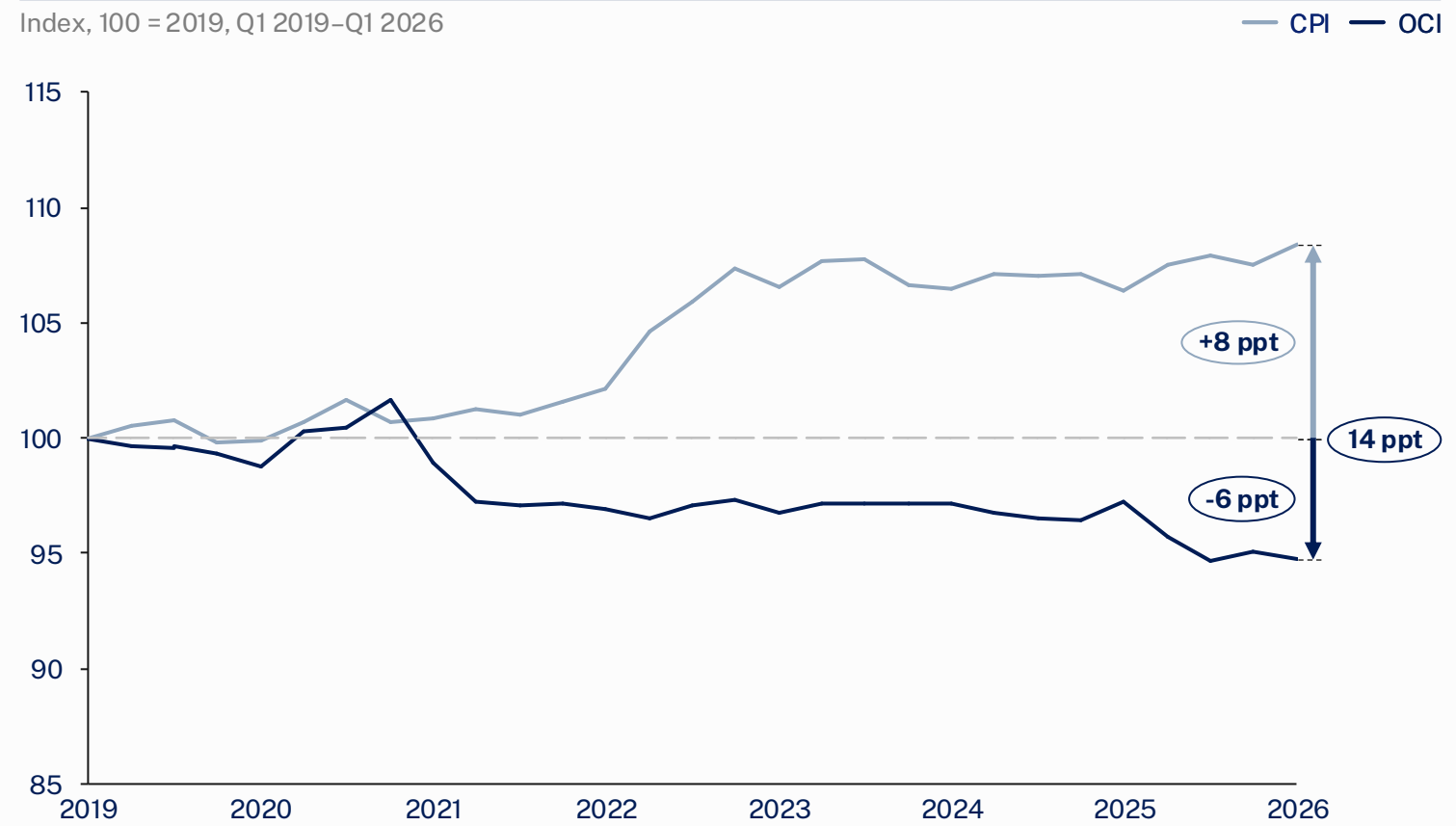
The OCI tracks prices of goods sold through online channels. The CPI tracks prices for goods sold offline in comparable product categories, although not for an identical set of products.<sup>1</sup>

While we know from economic research (Cavallo<sup>2</sup>) that prices for identical products are consistent across online and offline channels, this comparison allows us to consider trends of broad aggregate categories of products (as opposed to identical products) sold across the two channels.

This finding is consistent with The European House - Ambrosetti (TEHA)<sup>3</sup> which finds the online index across the EU averaged 6.9 percentage points below headline CPI from 2020 to 2025.

<sup>1</sup> See appendix for more details on methodology. <sup>2</sup> Cavallo (2017) *Are online and offline prices similar*. <sup>3</sup> TEHA (2025) *The disinflationary effect of e-commerce*; Mandala analysis.

Cumulative growth in the OCI versus CPI<sup>3</sup>



**The 14-percentage point gap** between the two indexes, reflects the OCI falling in absolute terms while the CPI for a comparable basket has continued to rise

<sup>3</sup> The same set of ABS expenditure classes were used to construct both the OCI and a comparable CPI. Source: ABS (2025) *Weight update of the CPI*; ABS (2026) *Consumer Price Index, Quarterly CPI*; Mandala analysis.

# The OCI has deflated compared to the CPI across most product groups

Across most CPI groups a similar trend is observed with online channel indexes having deflated since 2019.

Communication has seen the largest gap between the OCI and CPI. The OCI basket for communication has deflated 21 ppt since 2019, while the comparable CPI basket has only deflated 3 ppt. The 17-percentage point gap reflects different growth across the two channels over time.

This pattern holds across every category measured. Recreation and culture, furnishings and household equipment, health products, and clothing and footwear all show gaps between the OCI and CPI baskets ranging from 4 to 16 percentage points.

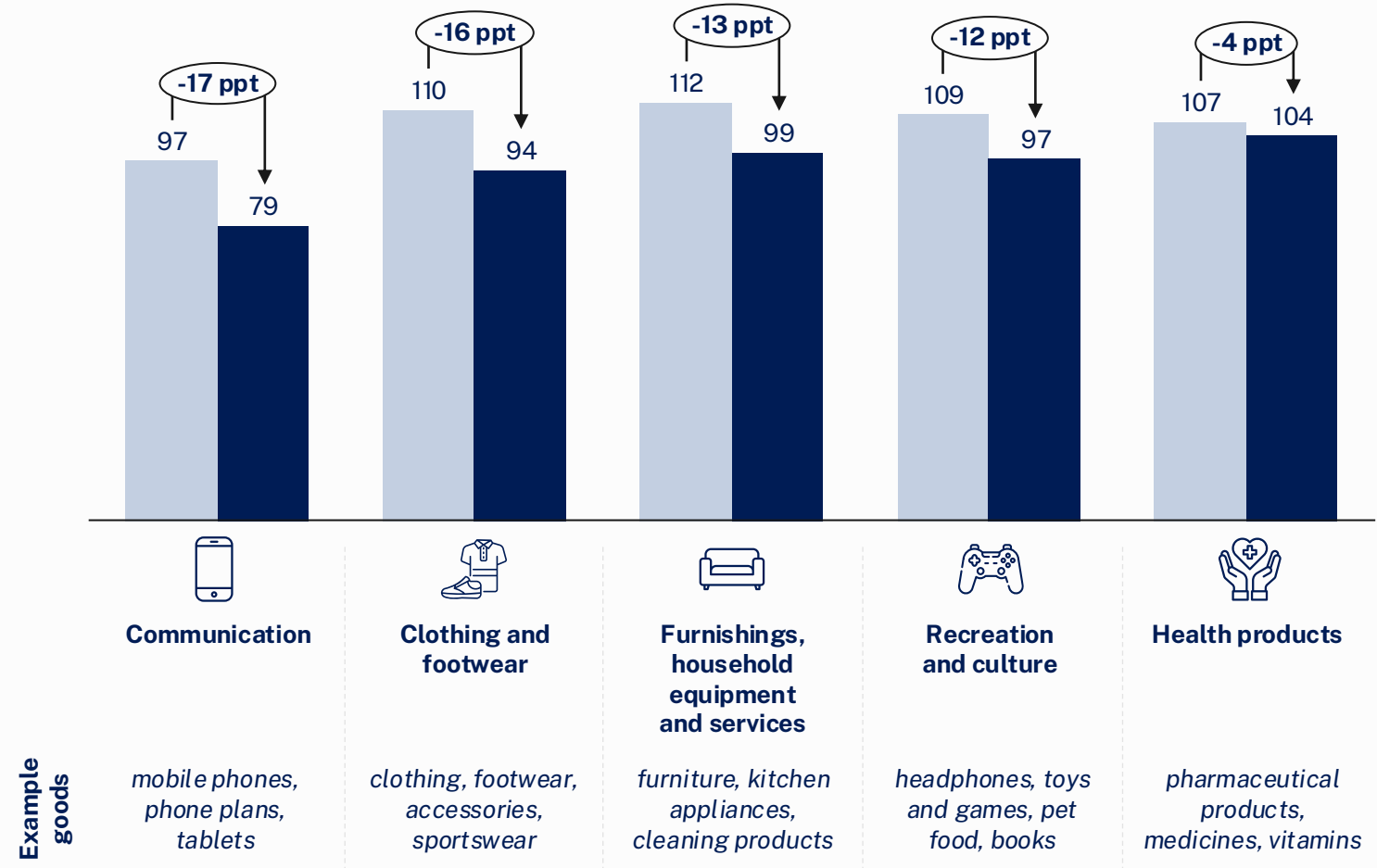
Within each group, the OCI tracks prices for goods sold online and the CPI tracks prices for goods sold offline in comparable product categories, although not for an identical set of products. While we know from economic research that prices for identical products are consistent across online and offline channels, this comparison allows us to consider trends of broad aggregate categories of products (as opposed to identical products) sold across the two channels.

Note: The same set of ABS expenditure classes were used to construct both the OCI and comparable CPI groups.

OCI versus CPI by Group<sup>1</sup>

Index, 100 = 2019, Q1 2026

CPI OCI



<sup>1</sup> The same set of ABS expenditure classes were used to construct both the OCI and comparable CPI groups. Source: ABS (2025) Weight update of the CPI; ABS (2026) Consumer Price Index; Mandala analysis.



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# Annual inflation was 0.8 percentage points lower thanks to competitive pressures of online channels

To estimate the impact of online channels on inflation, we constructed a counterfactual CPI measure based on a scenario in which online channels did not expand beyond their 2019 levels.

Our analysis suggests that without the competitive pressure of online channels, inflation would have been 0.8% higher than the actual inflation rate observed in the year to March 2026.

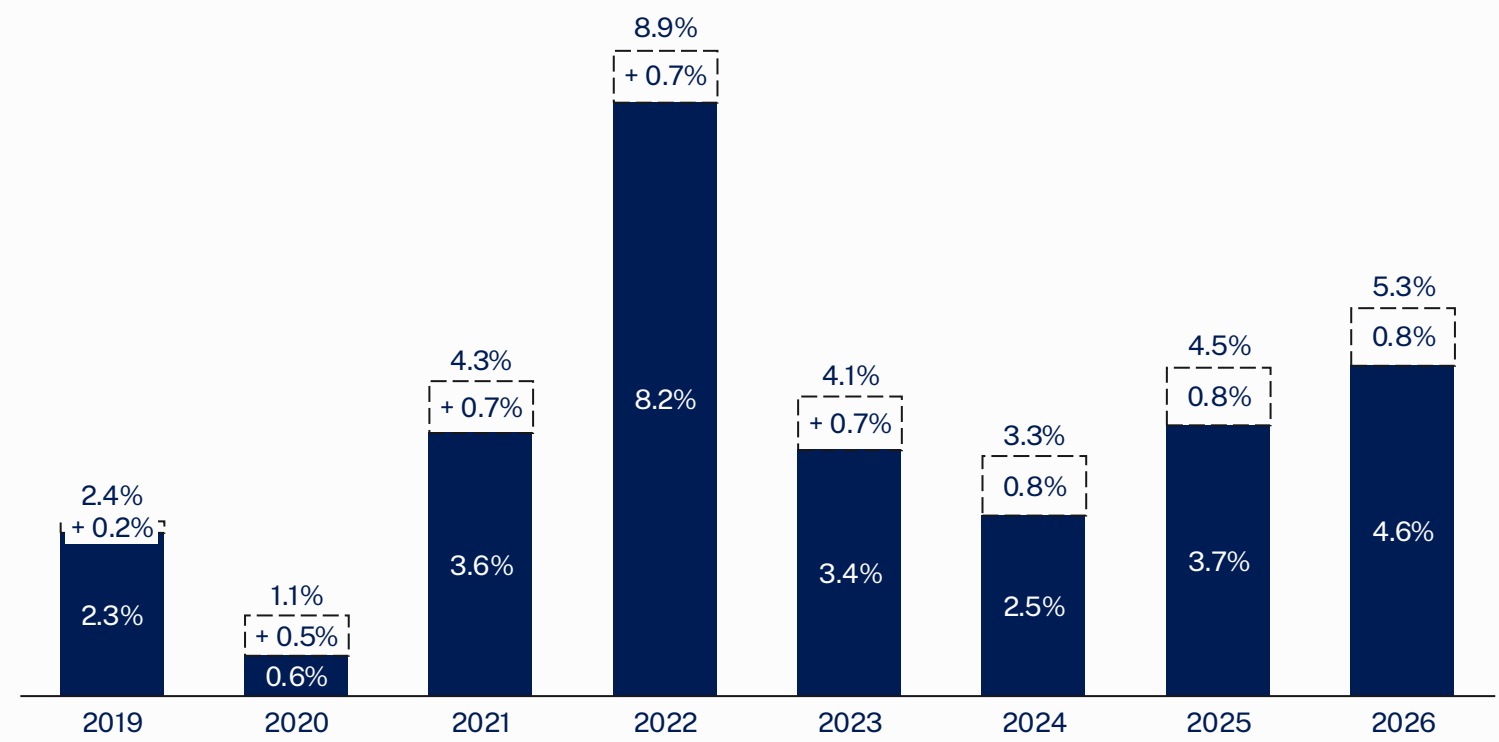
These are the first-order effects of online channels on inflation. Lower inflation also tends to mean lower interest rates. Without the competitive pressure of online channels, interest rates may have been up to 0.55 percentage points higher. On an average owner-occupier mortgage of \$734,000, this translates to up to \$4,000 in saved annual interest repayments.

Source: G-Cubed (2026) 6G; ABS (2026) Lending indicators; Mandala analysis.

**Inflation rate with and without online channels in Australia over time**

Annual percentage (%) change in CPI in twelve months to December<sup>1</sup>

▭ Change in inflation rate without online channel growth ■ Inflation rate (actual)

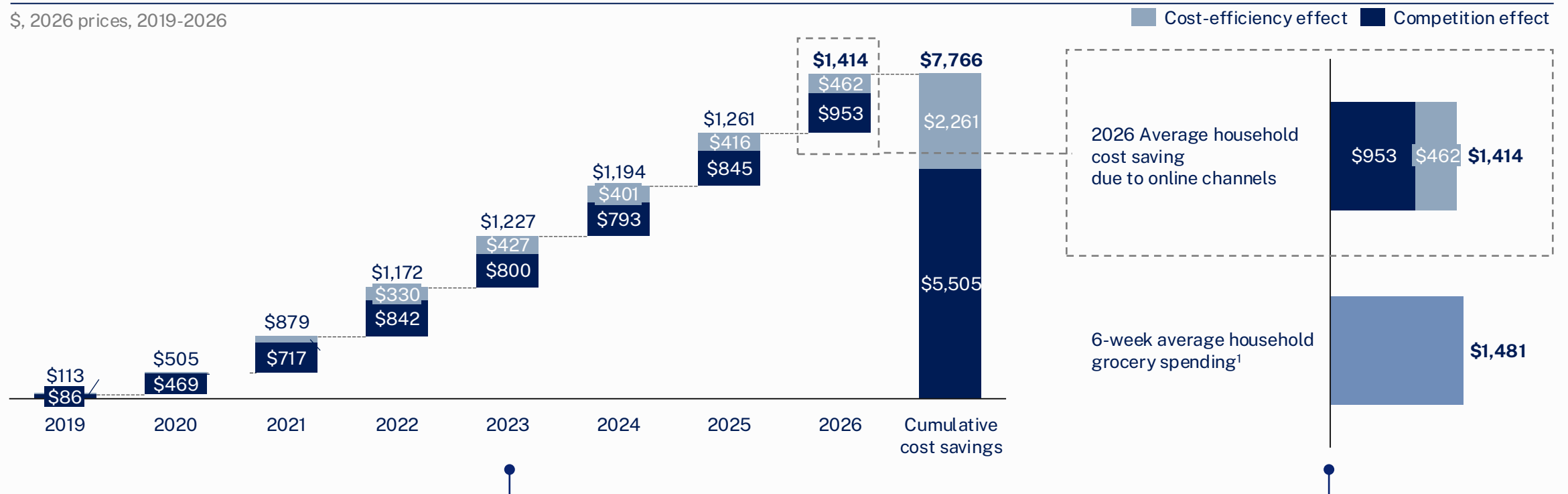


Note: Minor discrepancies in the inflation rate without online channel growth are attributable to rounding.  
 1 Actual inflation figures are based on the December figure from the ABS seasonally adjusted monthly inflation series, with the exception of 2026, which is based on the March figure.  
 Source: ABS (2026) Labour force status; ABS (2026) Online retail turnover; ABS Data Explorer (2025) Consumer Price Index; World Bank (2026) Commodity Price Data; Melbourne Institute (2026) Consumer Inflationary and Wage Expectations; Mandala analysis.

# Online channels are expected to save the average Australian household \$1,414 in 2026, roughly 6 weeks of grocery spending

Average annual household cost saving due to online channels

\$, 2026 prices, 2019-2026



The average household has saved \$7,766 since 2019 due to online channel growth. These savings come through two channels. A **cost-efficiency effect**, where online channels pass on lower operating costs through cheaper prices. A **competition effect**, where online expansion puts downward pressure on prices across the broader market.

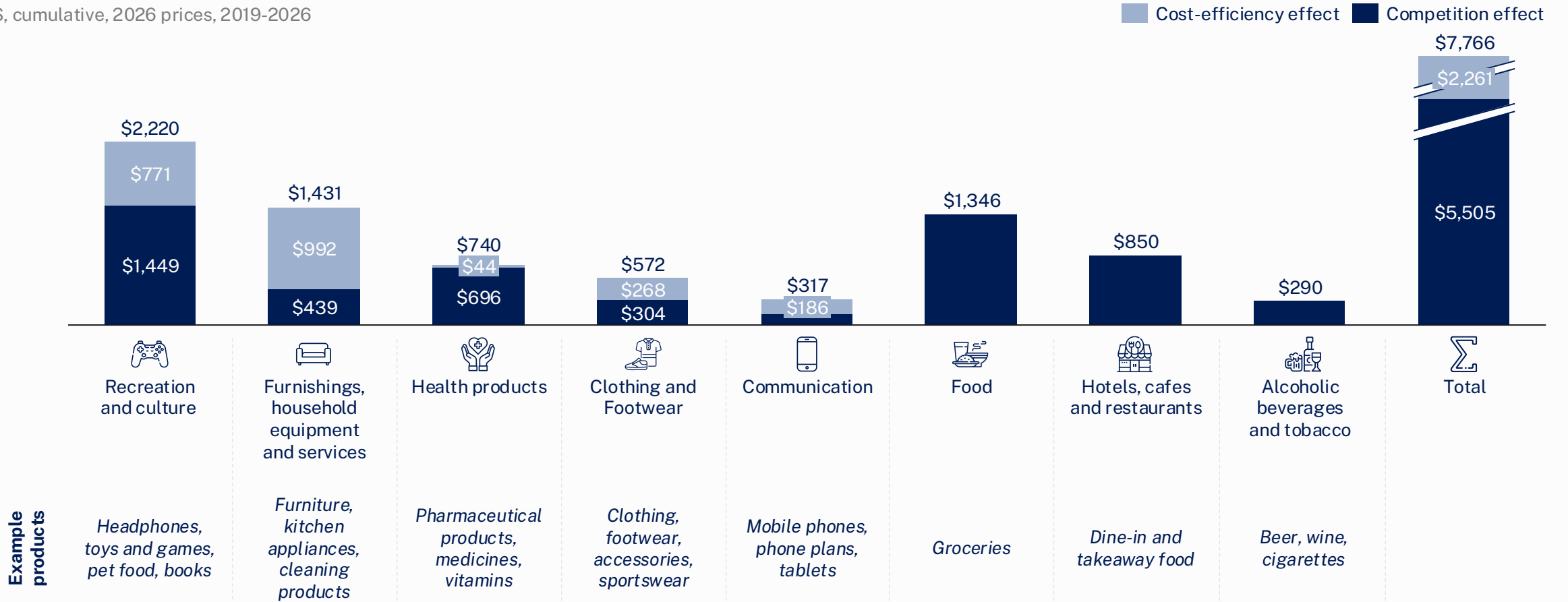
The average household is set to save approximately **6 weeks' worth of groceries** due to online channels in 2026.

<sup>1</sup> Groceries refers to the food and non-alcoholic beverages group of the ABS Consumer Price Index. Source: ABS (2024) Projected households; ABS (2025) Household consumption expenditure; ABS (2025) Weight update of the CPI; ABS (2026) Consumer Price Index; Mandala analysis.

# Savings are largest in recreation and culture, where the average household has saved \$2,200 over the past 7 years

Household savings from online channels by CPI group

\$, cumulative, 2026 prices, 2019-2026



Note: Online prices were not collected for Food, Alcoholic beverages and tobacco, and Hotels, cafes and restaurants. Price parity between online and offline channels was assumed for these categories. Source: ABS (2024) Projected households; ABS (2025) Household consumption expenditure; ABS (2025) Weight update of the CPI; ABS (2026) Consumer Price Index; Mandala analysis.

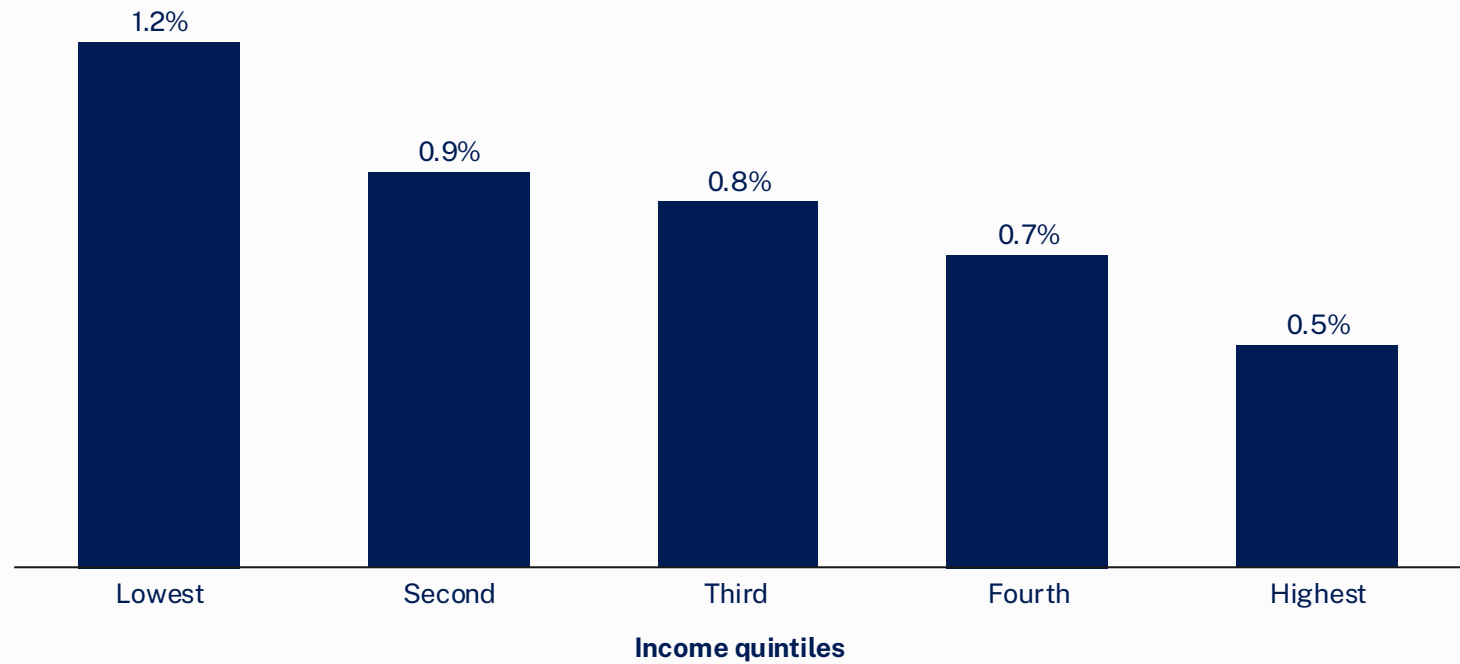
# Online channels benefit lower income households more as a proportion of their income

Online channels can provide greater savings to lower-income households as a proportion of income, given that they allocate a larger share of their earnings to expenditure compared to higher-income households.

Lower-income households also direct a higher proportion of their income to everyday essentials goods, like food and health products. This highlights the increasingly important role that online channels play in easing cost-of-living pressures for those most vulnerable.

Savings from online channels as a proportion of gross income by income quintile

% of gross income, income quintile, 2025



**Lower income households** benefit more proportionally, as they spend a greater share of their income on goods and spend a higher share on **everyday essentials like food and health products.**

Note: The analysis is based on 2022 proportions of household spending by income.  
Source: ABS (2025) Household Income Account, Current prices; ABS (2022) Household (excluding non-profit institutions serving households) income, consumption and wealth, per household, by household distributional indicator, \$, current prices; Mandala analysis.


# Online channels help reduce fuel consumption through fewer consumer trips and optimised delivery routes

Online channels can help reduce fuel consumption by ... 



**1. Reducing individual shopping trips**

Consumers make fewer individual shopping trips to the store by substituting in-store purchases with online orders. This reduces their direct fuel consumption.



**2. Leveraging optimised delivery routes**

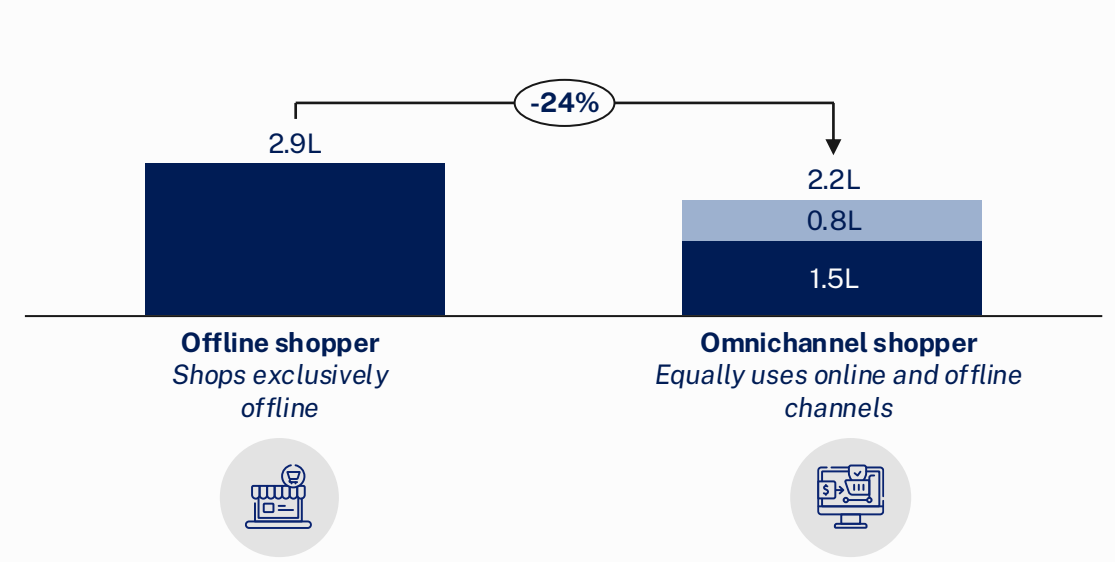
Rather than multiple consumers making individual trips to a store, purchases can now be fulfilled via an optimised last-mile delivery route.

The incremental fuel required to service an individual customer is hence less than what the customer would have used directly.

Source: Oliver Wyman (2021) *Is e-commerce good for Europe?*; Mandala analysis.

# Omnichannel shopping could cut fuel use by as much as 24% for shoppers making four trips per week

**Illustrative weekly fuel consumption allocated to shopping**  
 Litres, offline vs. omnichannel



The analysis compares total fuel consumption across two hypothetical scenarios:

- An offline shopper making 4 shopping trips per week
- An omnichannel shopper spreading 4 purchases across offline and online channels equally

Source: Mandala analysis.



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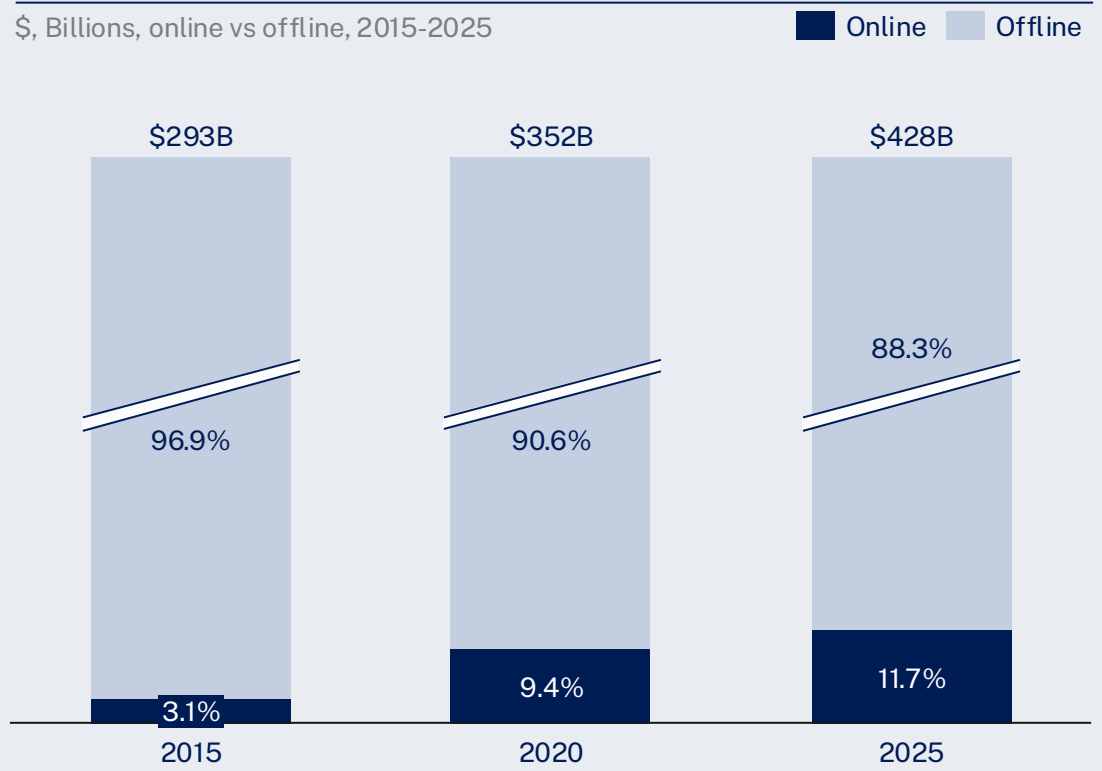
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Appendix

# Online channels account for nearly 12% of all retail sales

Australian online and offline retail sales



Notes: 2025 data is only available up till June and has been extrapolated to an annual basis.  
 Source: ABS (2025) Retail turnover, by industry group & Experimental series - online retail turnover Australia by type of activity; ABS (2025) Retail turnover, by industry group; Mandala analysis.

# Australia's largest, established retailers are increasingly omnichannel businesses

Online sales for major omnichannel Australian retailers

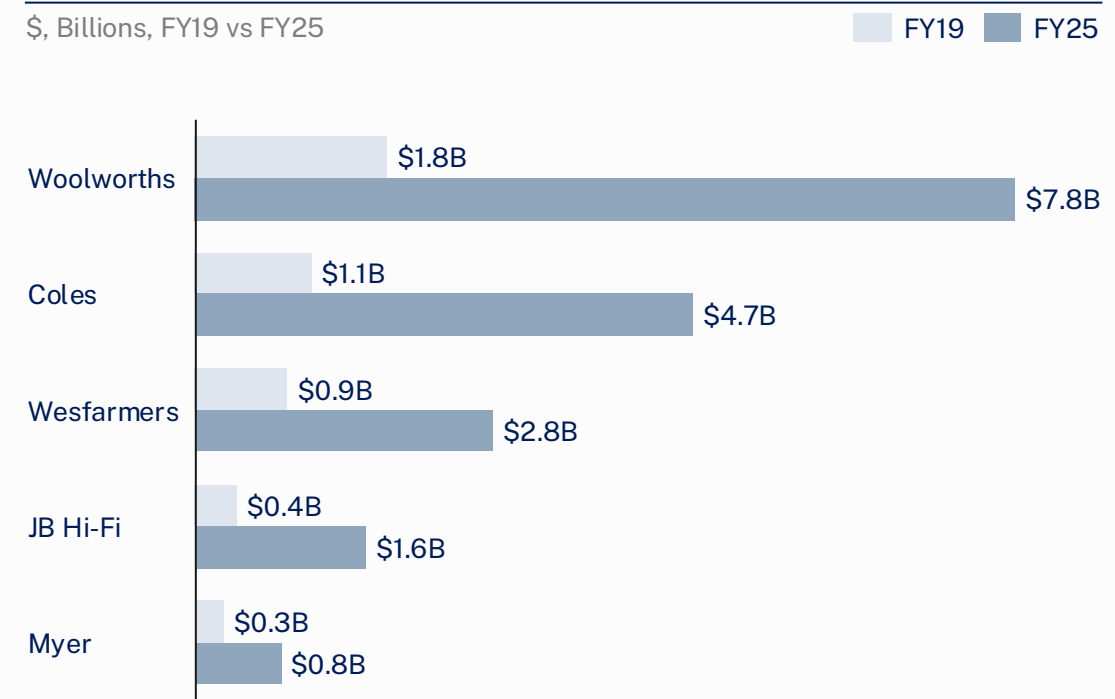
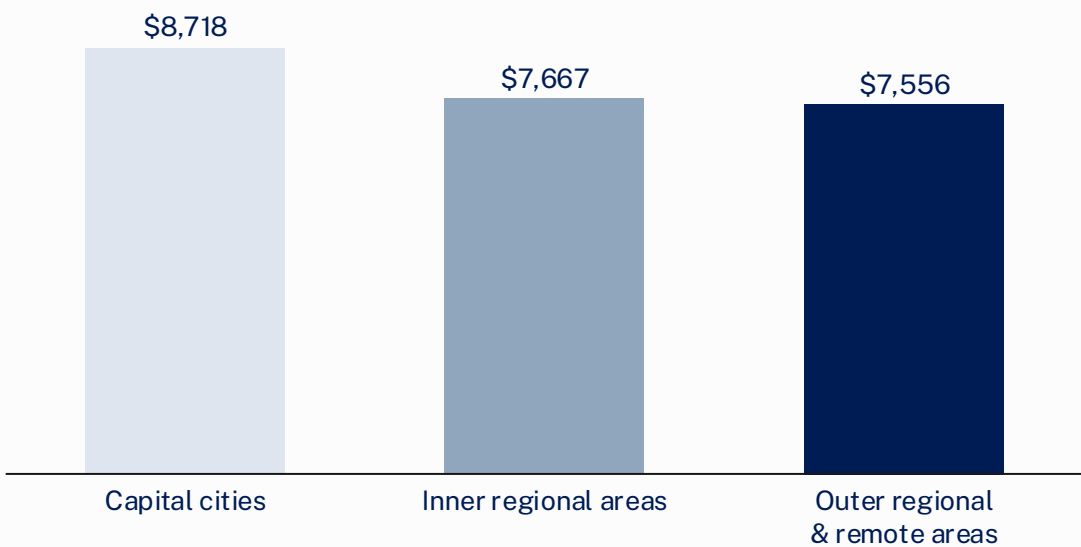


Chart excludes online-only retailers like Amazon, which reported \$4.8B in sales for 2025. Woolworths online sales includes Australian Food & BIG W segments only; for FY19, online sales are estimated based on the sales of these segments and online sales penetration of total sales in FY19. Coles online sales for FY19 represents sales through Coles Online; for FY25, online sales represent total eCommerce sales. Wesfarmers online sales in FY19 and FY25 represent the sale of retail goods online from contracts with customers, proportioned to the Australian share of total sales in the respective year. JB Hi-Fi online sales in FY19 and FY25 represent online sales for JB Hi-Fi and The Good Guys. Myer online sales in FY25 represent online sales for Myer Group, which is proportioned according to the Australian share of revenue from contracts with customers.  
 Source: Company annual reports; Mandala analysis.

# Households across Australia are spending more online, with growth over the last year highest in outer regional & remote areas

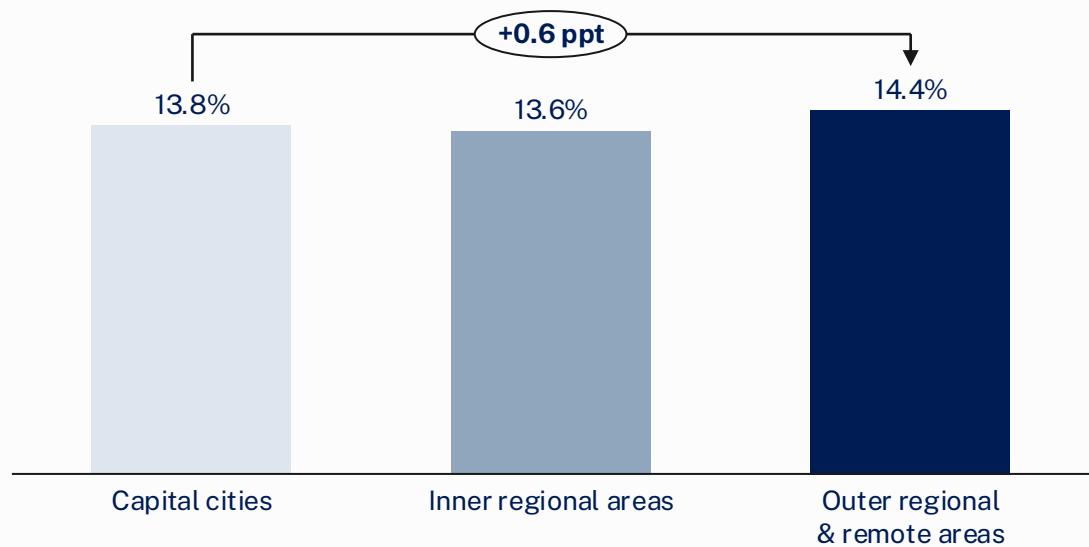
Online spend per household by region


\$, by region, 2025



Year on year growth in online spending

Percentage by region, 2025



 While metro households lead in online spend per household, regional and remote households are close behind. **Household savings from online channels are therefore felt across the country.**

 **Regional growth in online shopping has also been strong over the last few years.** Between 2019-2023, regional areas saw a 18% increase in number of households shopping online, compared to 16% for metro.<sup>1</sup>

Source: Australia Post (2026) Australia Post eCommerce Report 2026; Mandala analysis.

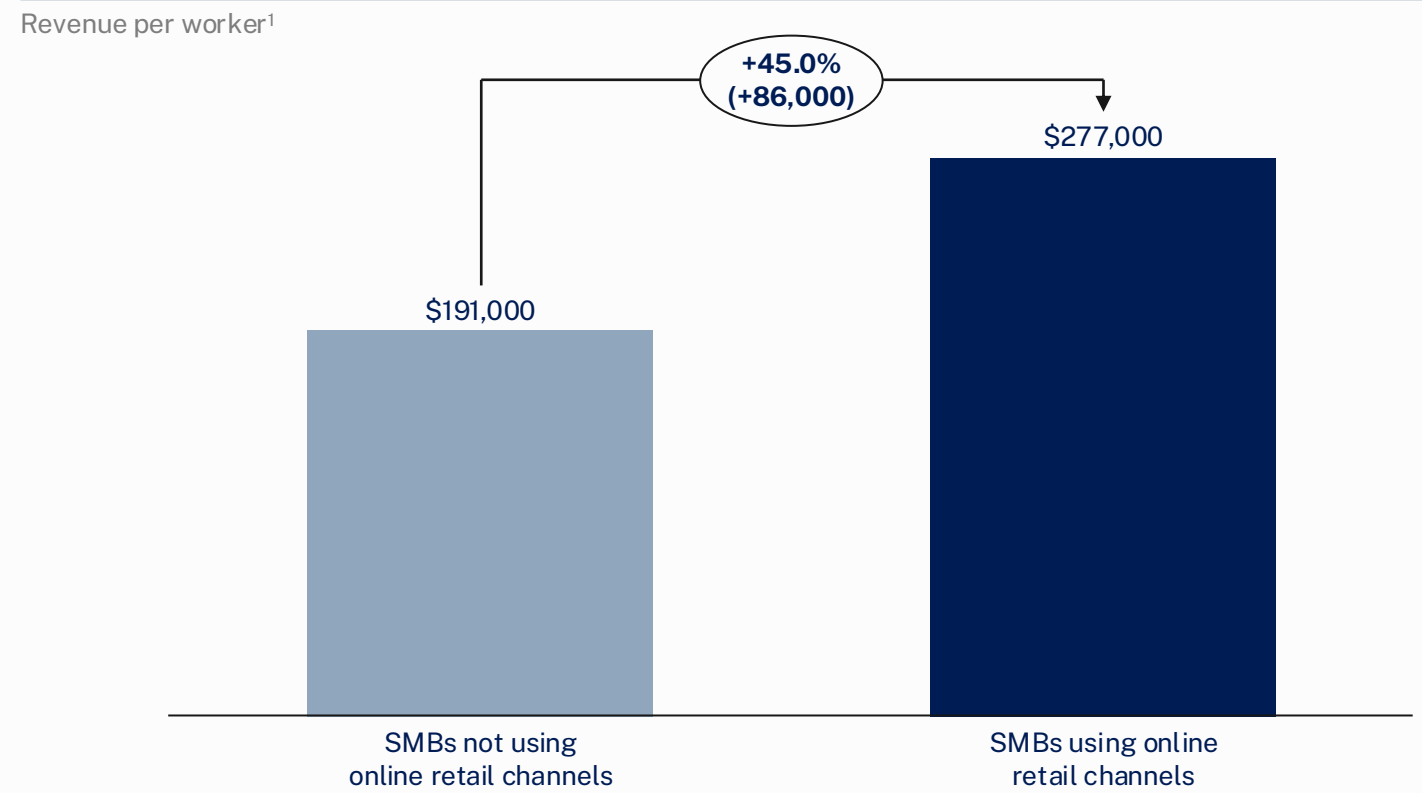
<sup>1</sup> Australia Post (2024) E-commerce industry report. Source: Australia Post (2026) Australia Post eCommerce Report 2026; Mandala analysis.

# Small and medium-sized businesses using online channels have significantly higher productivity

Online channels are a significant source of productivity for Small and medium businesses (SMBs), driving a 45% increase in productivity compared to SMBs not utilising online channels. In 2024-dollar terms, this translates to an \$86,000 increase in revenue per worker.

The productivity boost for SMBs using online channels can stem from both operational advantages (e.g. real-time inventory systems, process automation) and growth opportunities by offering a pathway for businesses to grow their market reach and customer base, both domestically and internationally.

Productivity of Australian SMBs by use of online retail channels



**Output per worker measures labour productivity** and is a key indicator of efficiency. This indicates how much revenue or value each worker generates.

**Higher output per worker indicates that** businesses are more efficiently using resources like time, technology, and labour.





<sup>1</sup> Revenue per worker measured in 2024 dollars.  
 Source: Mandala (2024) *How online retail channels boost Australia's small and medium businesses*; Mandala analysis.

# Online channels underpinned Curious Columbus's growth into an omnichannel children's education brand




Curious Columbus is a Sunshine Coast family business creating award-winning educational resources for children. The business designs and manufactures interactive fabric books, magnetic alphabet learning resources, and educational flashcards that encourage screen-free learning and play for young children. The business launched online in 2014, which gave them the commercial platform to grow their business and later expand into wholesale and direct-to-store channels.

### How online channels helped Curious Columbus:

-  **Operational freedom:** Amazon's FBA<sup>1</sup> service helped alleviate logistics complexities, giving the business space to focus on creating great products
-  **Global reach:** Online channels enabled access to US and UK markets from their Sunshine Coast base
-  **Brand awareness:** Online marketplaces provided access to a broad existing customer base and valuable advertising insights, helping the business grow brand awareness and reach families nationally and internationally
-  **Path to omnichannel:** Reaching scale online made later expansion into wholesale and physical retail viable



 Fabric activity books



 Flashcards



*Online channels are intrinsic to our brand. We started online, and our business likely wouldn't exist without it. It has allowed us to build scale, connect directly with families and expand our offerings through other channels.*



**Clare & Stuart**  
Founding partners

<sup>1</sup> Fulfilment by Amazon refers to Amazon's fulfilment process where sellers store products in Amazon's fulfilment centres, and Amazon handles picking, packing, shipping, and customer service  
Source: Mandala interview with Curious Columbus.

# Existing regulatory settings have supported the growth of a competitive, omnichannel retail sector

The Government has a critical role to play in ensuring that Australian households, businesses and the economy continue to benefit from the deflationary effect of online retail.

The analysis in this report shows that existing regulatory settings have supported the growth of a competitive, omnichannel retail sector, helping ease cost-of-living pressures.

As the Government works to maximise the benefits from increasing digitalisation of the economy, policy should focus on enhancing innovation and digitalisation in retail to facilitate the growth of consumer choice and cost savings.

## Existing regulation for retail in Australia


Selected regulations affecting Australian retail regardless of channel

<p>Consumer protection</p> 	<ul style="list-style-type: none"> <li>▪ <b>Australian Consumer Law:</b> consumer guarantees, misleading and deceptive conduct, unfair contract terms, unconscionable conduct</li> <li>▪ State and territory Fair Trading Acts</li> </ul>
<p>Competition &amp; conduct</p> 	<ul style="list-style-type: none"> <li>▪ <b>Competition and Consumer Act 2010:</b> anti-competitive conduct, mandatory merger regime (from 1 January 2026)</li> <li>▪ Mandatory industry codes: food and grocery, franchising, unit pricing</li> </ul>
<p>Product safety</p> 	<ul style="list-style-type: none"> <li>▪ <b>ACL product safety regime:</b> mandatory safety standards, information standards, bans, compulsory and voluntary recalls, mandatory reporting of serious injury within 2 days</li> <li>▪ Electrical Equipment Safety System (state and territory administered)</li> </ul>
<p>General retail obligations</p> 	<ul style="list-style-type: none"> <li>▪ <b>Work Health and Safety Act 2011</b> and state/territory WHS regimes</li> <li>▪ <b>Recycling and Waste Reduction Act 2020</b> and state container deposit schemes</li> <li>▪ <b>Fair Work Act 2009</b> and the General Retail Industry Award</li> <li>▪ <b>Modern Slavery Act 2018</b> (businesses with &gt;\$100m revenue)</li> <li>▪ State-based dangerous goods legislation</li> </ul>

Source: Desk top research

# Three guiding principles can ensure the policy environment continues to enable the benefits of online channels




Under current regulatory settings online channels deliver significant benefits to the economy...



**Online channels provide benefits to both businesses and consumers and are a source of relief against rising cost-of-living pressures**

- 6 ppt**  
deflation in the Online Channel Index since 2019
- \$1,414 p.a.**  
avg household saving due to online channels
- 0.8 ppt**  
lower inflation driven by online channels
- Lower fuel use**  
due to increased omnichannel shopping
- 45% higher**  
productivity for SMBs using online channels

To support these benefits, any additional regulation being contemplated should be guided by three key principles...

 <b>Build on existing frameworks</b>	<ul style="list-style-type: none"> <li>▪ Existing regulation has credibly supported competition in the retail sector without imposing new costs and compliance burdens on the industry, as evidenced by the lower cost of goods to consumers</li> <li>▪ Future policy settings should recognise the ways in which consumers move seamlessly between physical and online channels in Australia's dynamic and rapidly evolving retail sector</li> </ul>
 <b>Reform based on evidence</b>	<ul style="list-style-type: none"> <li>▪ Where governments do propose future regulation of the retail sector, this should be based on clear evidence of consumer detriment, with regulations targeted at specific harms rather than technologies</li> <li>▪ Regulation that is focused only on online channels will create an unlevel playing field between offline and online channels</li> </ul>
 <b>Reduce regulatory fragmentation</b>	<ul style="list-style-type: none"> <li>▪ A focus on reducing fragmentation in state and territory regulation should be prioritised, as regulatory inconsistencies are estimated to cost the Australian economy \$26 billion and households \$9.4 billion over the next 10-years<sup>1</sup></li> </ul>

<sup>1</sup> Mandala (2026) *The Fragmentation Tax: How regulatory inconsistency is costing Australian retailers and households*; Source: Mandala analysis.



1

Cost-of-living pressures are deepening amid rising inflation and energy market volatility, and online channels will be increasingly important in easing them

2

The price of goods sold through online channels has fallen since 2019 in an otherwise inflationary environment

3

Online channels help lower inflation and are set to save the average household \$1,414 in 2026

4

There is a single retail market in which participants operate across channels, making channel-specific policies misplaced

5

**Appendix**

# Informed by economic literature, we estimated both the cost-efficiency and competition effects to quantify the overall impact of online channels on prices

## 1 Cost-efficiency effect



### Description

Economic literature suggests that online retailers pass on marginal cost savings made by avoiding expenses such as in-store handling into lower prices.<sup>1</sup> This is the cost-efficiency effect of online channels.

### Method

To examine this effect, we analysed a sample of over 95,000 distinct products available through online channels, creating a time series of online prices over the period from 2019 to 2026.

Using this data, we constructed an 'Online Channels Index' (OCI) and compared each category of the OCI (e.g., clothing and footwear) to the corresponding sub-group of the ABS' Consumer Price Index (CPI). While the exact products in our baskets were not the same as the ABS', the categorisation, weighting and construction of the index was.<sup>2</sup>

### Relevant analysis

- OCI and CPI comparison
- Household savings (cost-efficiency effect)

### Relevant literature

This approach extends on Goolsbee and Klenow (2018) *Internet Rising, Prices Falling: Measuring Inflation in a World of E-Commerce*, and Cavallo (2013) *Online and Official Price Indexes: Measuring Argentina's Inflation*.

## 2 Competition effect



### Description

The competition effect represents the extent to which the expansion of online channels places downward pressure on prices quoted by offline channels. This effect is consistent with a Nash-Bertrand model of differentiated sellers with competition arising from entry or expansion.

### Method

To investigate the competition effect, we estimated a Phillips curve model that includes online retail sales' share of total retail turnover in Australia as reported by the ABS.

The ABS web scrapes around 5 percent of its CPI basket, limited to alcohol, car parts and a small number of clothing products.<sup>3</sup> Alcohol and car parts are excluded from the OCI to CPI comparison. The comparable CPI is assumed to reflect prices observed through offline channels.

### Relevant analysis


- Online channel impact on inflation
- Household savings (competition effect)

### Relevant literature

This approach is based on Csonto et al. (2019) *Is Digitalization Driving Domestic Inflation?* and Cavallo et al. (2022) *E-commerce During Covid: Stylized Facts from 47 Economies*.

<sup>1</sup> See, e.g., Borenstein and Saloner (2001) *Economics and electronic commerce*. <sup>2</sup> The categories of goods included in the OCI and CPI baskets were Recreation and culture, Furnishings and household equipment, Health, Clothing and footwear, and Communication. See ABS (2025) *Consumer Price Index* for more details. <sup>3</sup> ABS (2020) *Web scraping in the Australian CPI*  
Source: Mandala analysis.

# Cost-efficiency effect: Constructing an Online Channels Index for Australia

 Our approach to constructing the Online Channels Index (OCI) follows Cavallo (2013), adapted to align with the Australian Bureau of Statistics taxonomy of groups, sub-groups, expenditure classes and elementary aggregates, and ABS weighting methods.

## 1 Calculate the geometric mean of price changes for each elementary aggregate

For each elementary aggregate, expenditure class, and quarter, calculate the geometric mean of price changes across all tracked items:

$$R_{t,t-1}^{c,a} = \prod_{i \in N_{c,a,t}} \left( \frac{p_t^i}{p_{t-1}^i} \right)^{\frac{1}{|N_{c,a,t}|}}$$

where:

- $a$  is the elementary aggregate
- $c$  is the expenditure class
- $t$  is the quarter
- $p_t^i$  is the price of item  $i$  at time  $t$
- $N_{c,a,t}$  is the set of items tracked in elementary aggregate  $a$  of expenditure class  $c$  at quarter  $t$

## 2 Chain price changes into cumulative indexes for each elementary aggregate

Chain the price relatives from Step 1 into a cumulative price index for each elementary aggregate:

$$I_t^{c,a} = R_{1,0}^{c,a} R_{2,1}^{c,a} \dots R_{t,t-1}^{c,a}$$

where:

- $I_t^{c,a}$  is the price index for elementary aggregate  $a$  of expenditure class  $c$  at quarter  $t$
- $R_{t,t-1}^{c,a}$  is the price relative from Step 1

## 3 Aggregate elementary aggregate indexes to expenditure class level

Compute the weighted arithmetic mean of elementary aggregate indexes within each expenditure class:

$$J_t^c = \sum_{a \in A_c} m_t^{c,a} I_t^{c,a}$$

where:

- $J_t^c$  is the price index for expenditure class  $c$  at quarter  $t$
- $m_t^{c,a}$  is the market share of elementary aggregate  $a$  within expenditure class  $c$  at quarter  $t$
- $A_c$  is the set of elementary aggregates in expenditure class  $c$

## 4 Aggregate expenditure class indexes into the OCI

Aggregate expenditure class indexes into the OCI using ABS CPI weights:

$$D_t = \sum_{c \in C_{OCI}} \frac{w_t^c}{W_t} J_t^c$$

where:


- $D_t$  is the OCI at quarter  $t$
- $w_t^c$  is the official ABS CPI weight for expenditure class  $c$  at quarter  $t$
- $W_t$  is the sum of all weights at  $t$  included in  $C_{OCI}$
- $C_{OCI}$  is the set of expenditure classes tracked in the OCI

 Prices for individual items from 2019 to 2026 were scraped from the Australian websites of selected online retailers. Item prices, market shares and CPI weights were recorded on a quarterly basis. Both the OCI and the comparable CPI measure are indexed to Q1 2019 = 100.

Note: 1. Detailed methodology for the Australian Bureau of Statistics (ABS)'s approach to constructing the Consumer Price Index (CPI) can be found in ABS (2025) *Consumer Price Index*. 2. OCI values for Q4 2025 and Q1 2026 are extrapolated from a linear trend fitted to prior quarters, as limited sample size in those quarters produced an unusually sharp deflation signal. This is a conservative approach that avoids letting a low data sample drive results.

Source: ABS (2020) *Web scraping in the CPI*; ABS (2025) *Annual weight update of the CPI*; ABS (2026) *Consumer Price Index*; Cavallo (2012) *Online and official price indexes*; Cavallo (2017) *Are online and offline prices similar*; Statista (2023); *Elementary aggregate market share*; Goolsbee and Klenow (2018) *Measuring inflation in a world of e-commerce*; Mandala analysis.

# Competition effect: Estimating the effect of competition from online channels on aggregate inflation

 Estimating the competition effect of online channels on offline channels was conducted over two stages. First, we used a Phillips curve model to estimate the marginal effect of an increase in online channel market share on the ABS' CPI. We then applied the results of this regression to chart a counterfactual measure of CPI under a scenario where online channel market share did not grow beyond 2019 levels.

## Estimating the competition effect

Our Phillips curve model was specified as follows:

$$\pi_t = \delta_1^p \pi_{t-1} + \delta_2^f E_t \pi_{t+1} + \delta_3^g Y_t^{gap} + \beta_1^{online} \log(ORS_t) + \theta_1^{food} FOOD_{t-1} + \varepsilon_t,$$

- Where:
- $\pi_t$  is year-over-year inflation
  - $\pi_{t+1}$  is inflation expectations
  - $ORS_t$  is online channel share of retail turnover (ABS) (our proxy for online channel competition),
  - $Y_t^{gap}$  is the unemployment gap, calculated as the ratio of the difference between unemployment (ABS) and a HP filter series with  $\lambda=129,600$  and the filtered series,
  - $FOOD_t$  is a global food price index (World Bank).

We found that the estimate  $\hat{\beta}_1^{online} = -1.16$  is statistically significant at the 1% level. Given the linear-log specification, we concluded that a 1% increase in online channel share leads to a  $\frac{\hat{\beta}_1^{online}}{100} = -0.0116$  percentage point increase in CPI inflation.

## Charting a counterfactual inflation series

Modelling CPI inflation in a counterfactual world that lacks online channels, our counterfactual series was computed as

$$CPI_t^c = CPI_{t-12}^c e^{\pi_t^c/100},$$

where counterfactual inflation was computed as

$$\pi_t^c = \pi_{t-1}^c + (\Delta\pi_t - \hat{\beta}_1^{online} \ln(\Delta ORS_t)),$$

and

$$CPI_{t-12}^c = CPI_{t-12}$$

for the months of 2018. It was assumed that  $\hat{\beta}_1^{online}$  operates in each month from January 2019.

The assumptions of this model ties competition benefits to growth in online channels. It is likely that the static presence of competition from online channels (without relative growth) is likely sufficient in generating such benefits in and of itself. As such, this model may underestimate the size of the competition effect. Data for online share of retail is not available post June 2025; the trailing 12-month average is used in analysis beyond this date. Source: Mandala analysis.

# Estimating household cost savings due to online channels



For each expenditure category, total household cost savings from online channels are the sum of four components, capturing the cost-efficiency and competition effects across both online and offline household spending from 2019 to 2026

	Savings from online household consumption	Savings from offline household consumption
Cost-efficiency effect	(1) $HH\ Spending_i^{Online} * (e^{-A_i(1+\epsilon)} - 1)$	(2) 0, since we attribute all cost-efficiency effects to online household consumption
Competition effect	(3) $HH\ Spending_i^{Online} * (e^{-(A_i+B_i)*(1+\epsilon)} - 1) - (1)$	(4) $HH\ Spending_i^{Offline} * (e^{-B_i*(1+\epsilon)} - 1)$

**Where:**

- $HH\ Spending_i^{Online}$  is online household expenditure in category  $i$
- $A_i = \ln\left(\frac{OCI_i}{CPI_i^{Actual}}\right)$ , the difference between online and offline prices; and
- $\epsilon$  = the price elasticity of consumers, assumed to be -0.2<sup>1</sup>
- $B_i = \ln\left(\frac{CPI_i^{Actual}}{CPI_i^{Counterfactual}}\right)$ , the difference between actual and counterfactual CPI
- $HH\ Spending_i^{Offline}$  = total household expenditure in category  $i$  -  $HH\ Spending_i^{Online}$

The **cost-efficiency effect** can then be computed as **(1) + (2)**, the **competition effect** as **(3) + (4)**, and the total effect as **(1) + (2) + (3) + (4)**.

Note: The cost-efficiency effect captures savings from online retailers passing lower operating costs through to consumers as lower prices. The competition effect captures savings from online channels placing downward pressure on prices across all channels.

<sup>1</sup> This assumption is based on price elasticity estimates for food (Hasan and Sinning (2018) *Price elasticities for food*), petrol (Breunig and Gisz (2008) *Treasury working paper*), and electricity (Conway and Prentice (2020) *Household response to electricity prices*) in Australia.

Source: ECB (2015) *Effects of e-commerce on inflation*; Goolsbee and Klenow (2018) *Measuring inflation in a world of e-commerce*; IMF (2019) *Is digitalization driving inflation?*; IMF (2022) *E-commerce doing COVID*; Mandala analysis.

# Comparing fuel consumption for an offline and omnichannel shopper



Our approach to compare weekly fuel consumption between an offline and omnichannel shopper is as follows:

- **Offline shopper:** fuel consumption is based on number of shopping trips, round-trip distance, fuel efficiency for passenger vehicles, and fuel prices
- **Omnichannel shopper:** fuel consumption is calculated based on the above approach for offline purchases plus the incremental fuel required to fulfill the customers delivery of online purchases

## 1. Fuel consumption for an offline shopper:

Fuel consumption for an exclusively offline shopper is calculated as:

$$Shopper_{offline} = num\ of\ trips_{offline} * C_{offline},\ where$$

$C_{offline}$  is the fuel consumption per offline shopping trip:

$$C_{offline} = trip\ distance * fuel\ consumption * fuel\ price$$

The following assumptions have been made:

- The number of weekly shopping trips is assumed to be four, which is based on reporting<sup>1</sup> that suggests consumers make nearly three grocery trips a week. An additional weekly trip has been added to account for non-grocery shopping
- Typical distance of a round-trip shopping trip is assumed to be 6.6km, which is based on an NSW household travel survey<sup>2</sup>
- Average fuel consumption for passenger vehicles of 11.1 L / 100km<sup>3</sup>
- Average price of unleaded 91 per litre, in Sydney of \$1.81 per litre<sup>4</sup> as at 13<sup>th</sup> May 2026

## 2. Fuel consumption for an omnichannel shopper

Fuel consumption for an omnichannel shopper is calculated as:

$$Shopper_{omni} = num\ of\ deliveries * C_{delivery} + Shopper_{offline}\ where$$

$C_{delivery}$  is the fuel consumption per delivery:

$$C_{delivery} = \frac{Route\ distance * fuel\ consumption * fuel\ price * overhead\ multiplier}{number\ of\ stops}$$

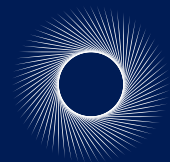
The following assumptions have been made:

- The typical delivery route distance is estimated to be between 100-150km per day, which is based on industry estimates<sup>5</sup>. The higher estimate of 150km has been used to account for regional deliveries.
- A typical delivery van is assumed to stop every 2km to fulfill a delivery, resulting in approximately 75 stops in a typical delivery route.
- Average fuel consumption for light commercial vehicles of 12.8 L / 100km<sup>3</sup>
- Overhead multiplier of 1.5 to account for failed deliveries and re-runs
- Average price of unleaded 91 per litre, in Sydney of \$1.81 per litre<sup>4</sup> as at 13<sup>th</sup> May 2026

Note: The above analysis is for illustrative purposes only

1 The Nightly (2024) The once-a-week supermarket shop is in decline. Here's what Coles and Woolworths expect next. 2 NSW Government (2025) Household Travel Survey. 3 ABS (2020) Average fuel consumption by type of vehicle. 4 ABC (2026) Track the latest petrol and diesel prices around Australia. 5 Roadboss (2024) Charging ahead.

Source: Mandala analysis.



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