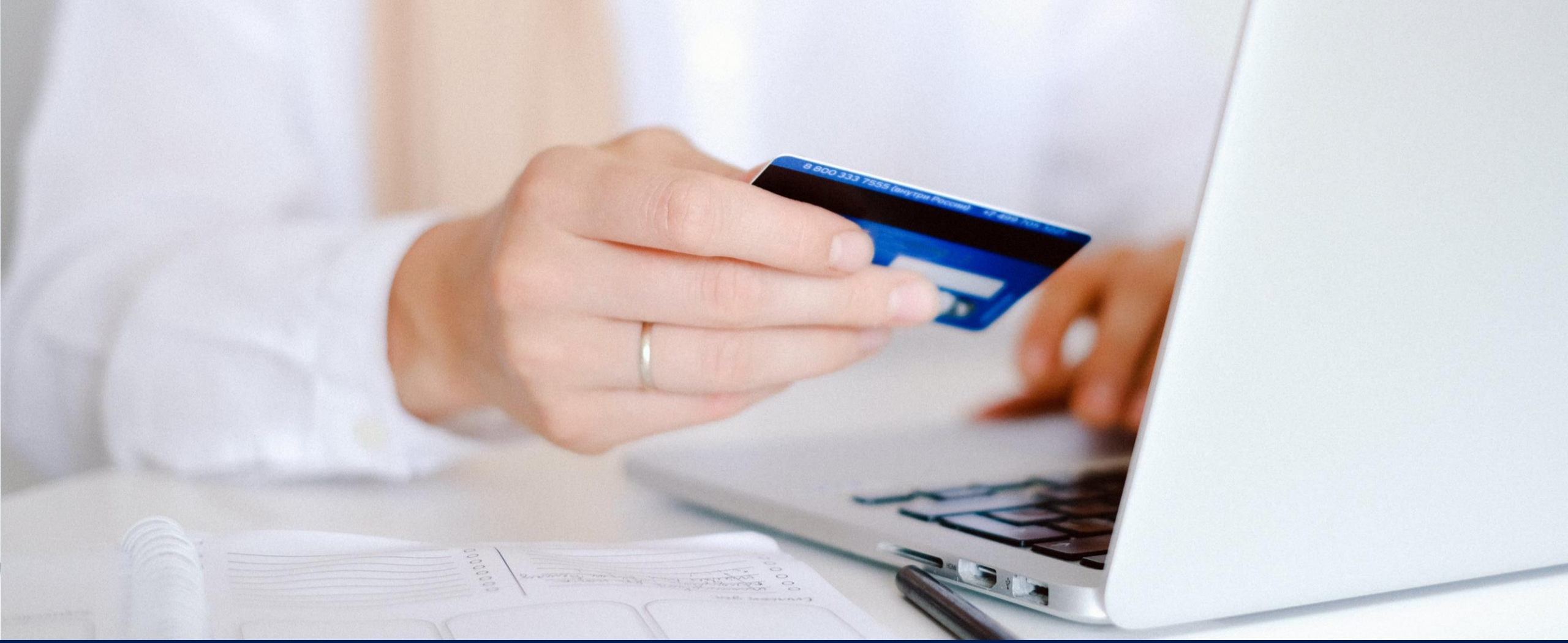


How Ecommerce can benefit consumers - An Australian study

Report – Prepared by Mandala

February 2024

MANDALA

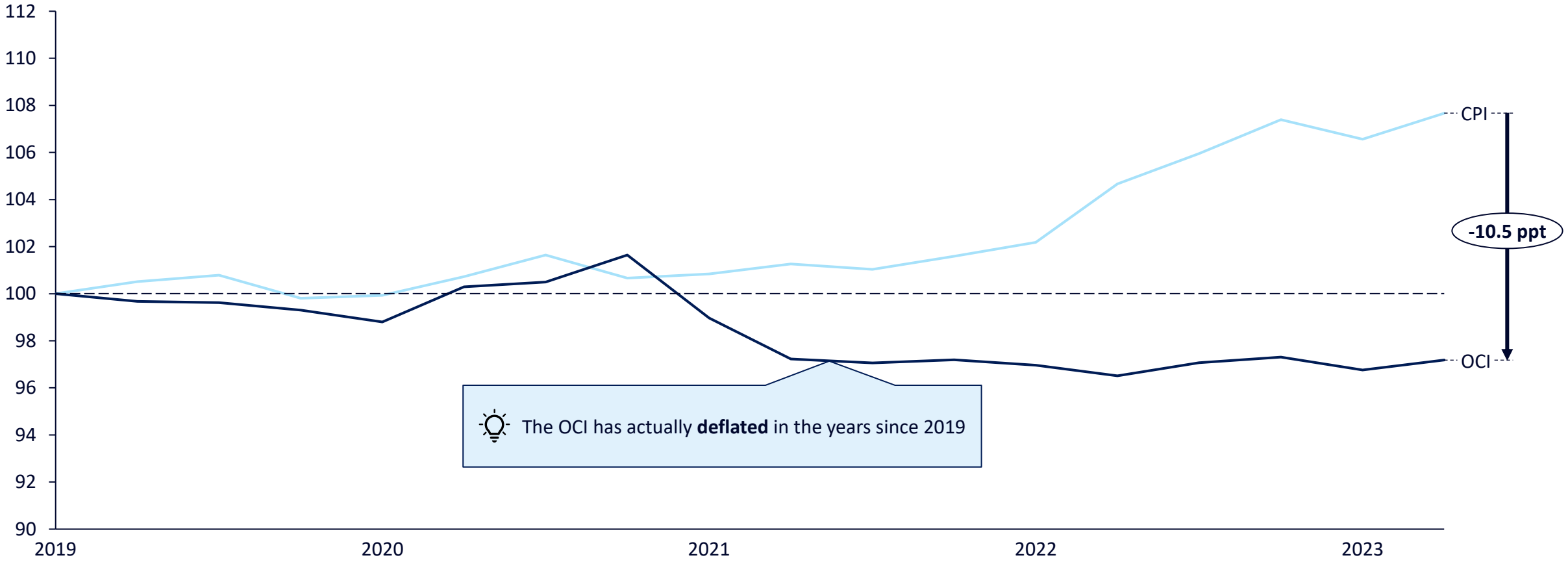
How e-commerce can benefit the economy

1. How much lower are prices online?
2. Are these effects big enough to shift inflation and interest rates?
3. Who benefits the most in the community?

We find that the 'Online Channel Index' has fallen, while the Consumer Price Index has grown since the start of 2019

Cumulative price growth in the 'Online Channels Index' versus the Consumer Price Index[1]

Index points, 100 = aggregate price level at start of 2019, 2019 – 2023

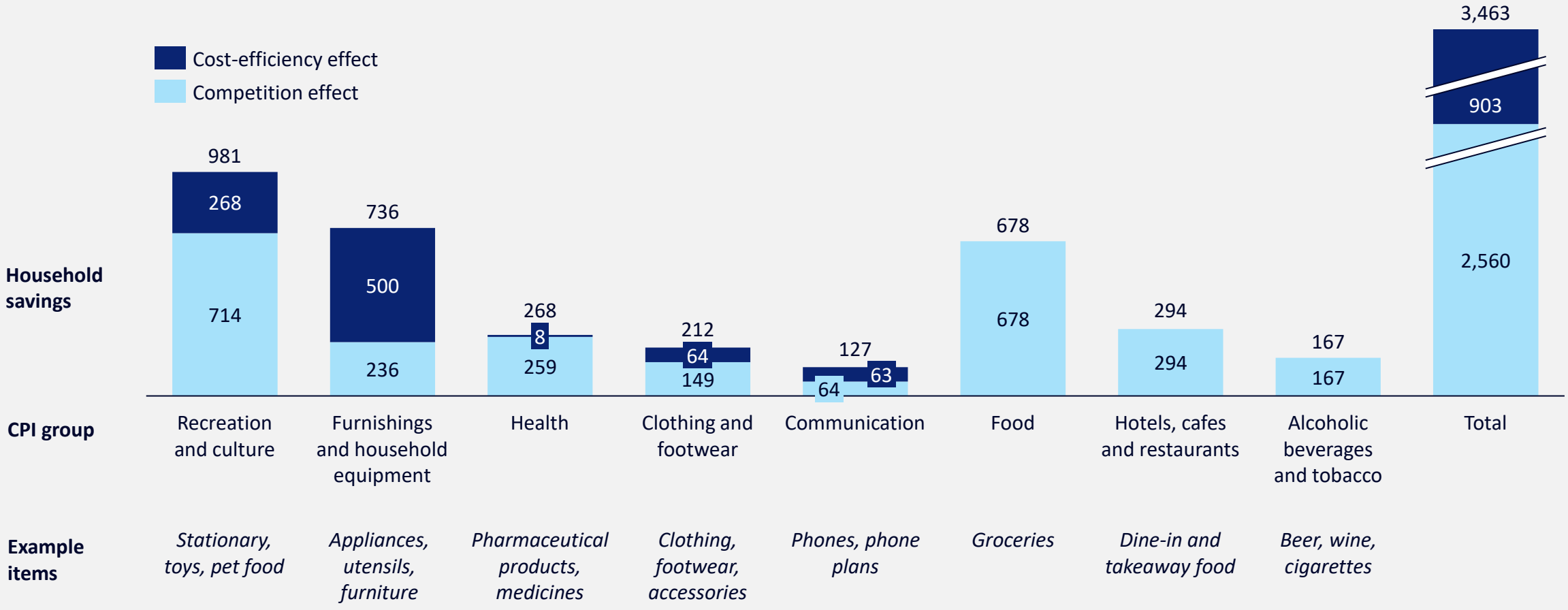


1 We used the same set of ABS expenditure classes to construct both our comparison CPI and the OCI. See appendix for details. Due to data availability, the price series for the OCI ends in Q2 2023. For the purposes of extrapolating the cost-efficiency effect in later sections, the difference between OCI and CPI is conservatively assumed to remain at this level for the remainder of 2023.
2 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 (2019) for more details.
Source: ABS (2023B); Data obtained for Mandala by Purpose Bureau; Mandala analysis.

These cost savings were largest for recreation and culture, where households have saved nearly $1,000 in the last 5 years

Cumulative average household cost saving due to online channels

$, 2019-2023 (cumulative)



Notes: We assumed parity between online and offline prices for Food; Alcoholic beverages and tobacco; and Hotels, cafes and restaurants throughout the sample period as we did not observe online prices for these groups.
Source: ABS (2022B); Data obtained for Mandala by Purpose Bureau; Mandala analysis.

On the supply side, online channels lower prices by passing cost savings directly to consumers and by increasing the competitive pressure faced by incumbents

While online channels are commonly associated with their demand side benefits for consumers, they are also critical in driving innovation and competition on the supply side, putting downward-pressure on consumer prices

Supply side effects

Online channels can facilitate lower prices through **two effects**

1 Cost-efficiency effect

First, online channels lower prices by selling more efficiently, passing on cost savings from:

- **Reduced in-store handling** (unpacking and stocking of shelves is limited to distribution centres)
- **Centralised inventory management** (inventory is stocked and managed across central warehouses rather than multiple stores)
- **Reduced cost of sales** (increased automation, improving productivity)
- **Reduced rent** (low-cost distribution centres replace expensive urban or suburban real estate)

2 Competition effect

The cost-efficiency effect then exerts competitive pressure across the retail sector, further lowering all prices through a competition effect, which sees:

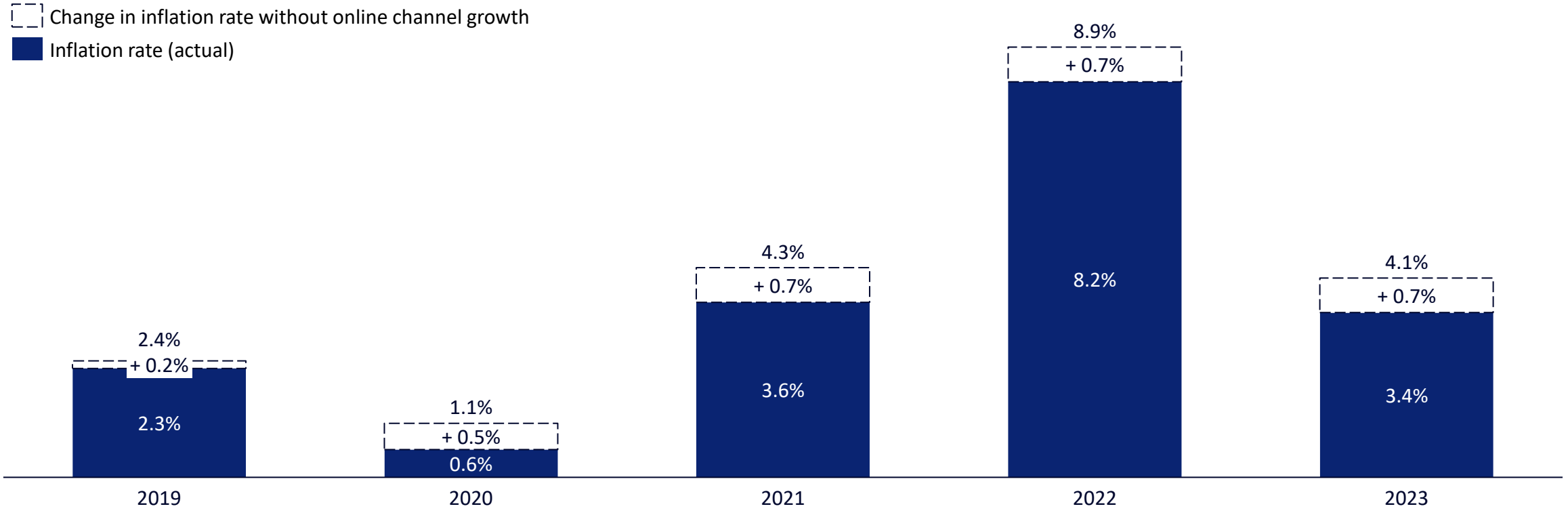
- **Margins reduced to competitive levels** (due to an increase in competition now that consumers can access goods and services through both online and offline channels)
- **Increased productivity** (firms seek to reduce marginal costs by increasing productivity in response to competitive pressure)
- **Innovation of new products** (firms create new products, increasing consumer choice and putting downwards pressure on prices)

Source: Basker (2005); Borenstein and Saloner (2001); Mandala analysis.

We find that annual inflation was 0.7 percentage points lower due to competitive pressures from growth in online channels

Actual inflation versus counterfactual inflation[1]

Percentage change in CPI in twelve months to December, 2019 – 2023

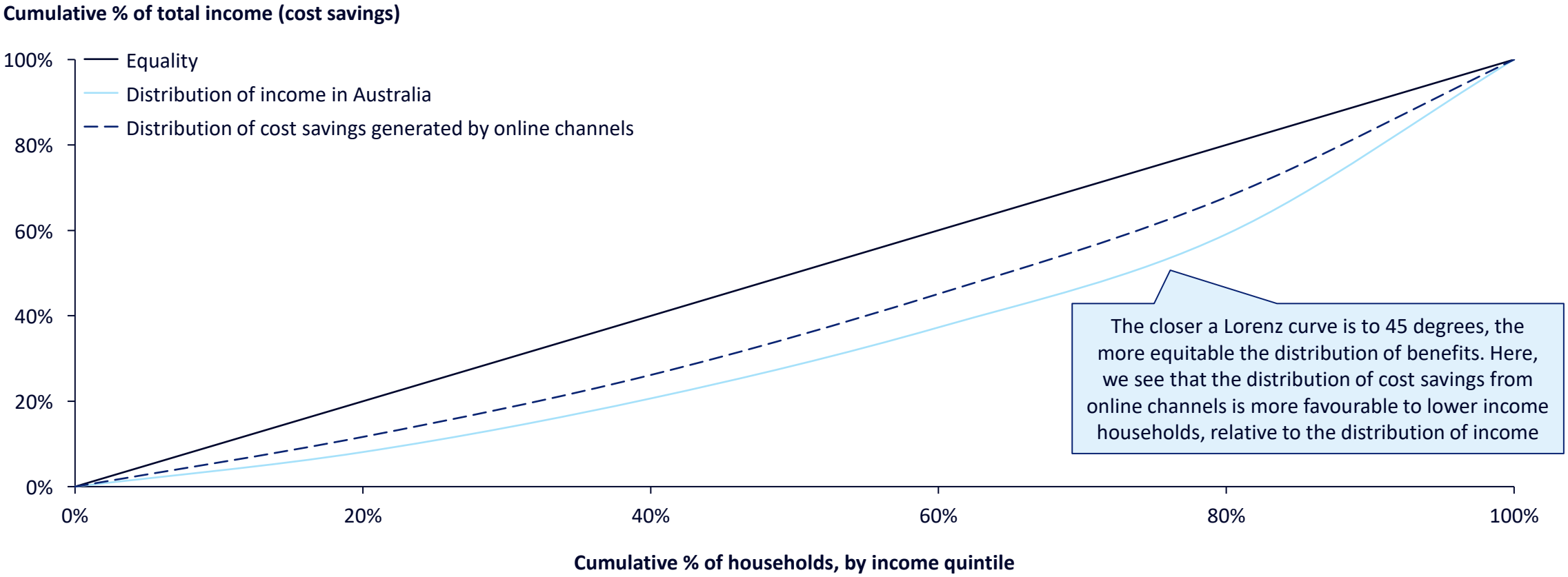


1 Inflation figures are based on the December figure from the ABS' monthly inflation series, differing minorly from the traditional quarterly figures. Use of the higher frequency monthly series was essential for modelling purposes.
2 The assumptions of this model ties competition benefits to growth in 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.
Source: ABS (2023C, 2023E); loans.com.au (2023); Mandala analysis.

All Australians benefited from online channels, but the cost savings generated by online channels delivered more benefits to households on lower incomes

Lorenz curve of the distribution of cost savings relative to the distribution of income

%, based on cumulative cost savings from online channels and disposable household income[2]



1 Wood, Chan and Coates (2023).

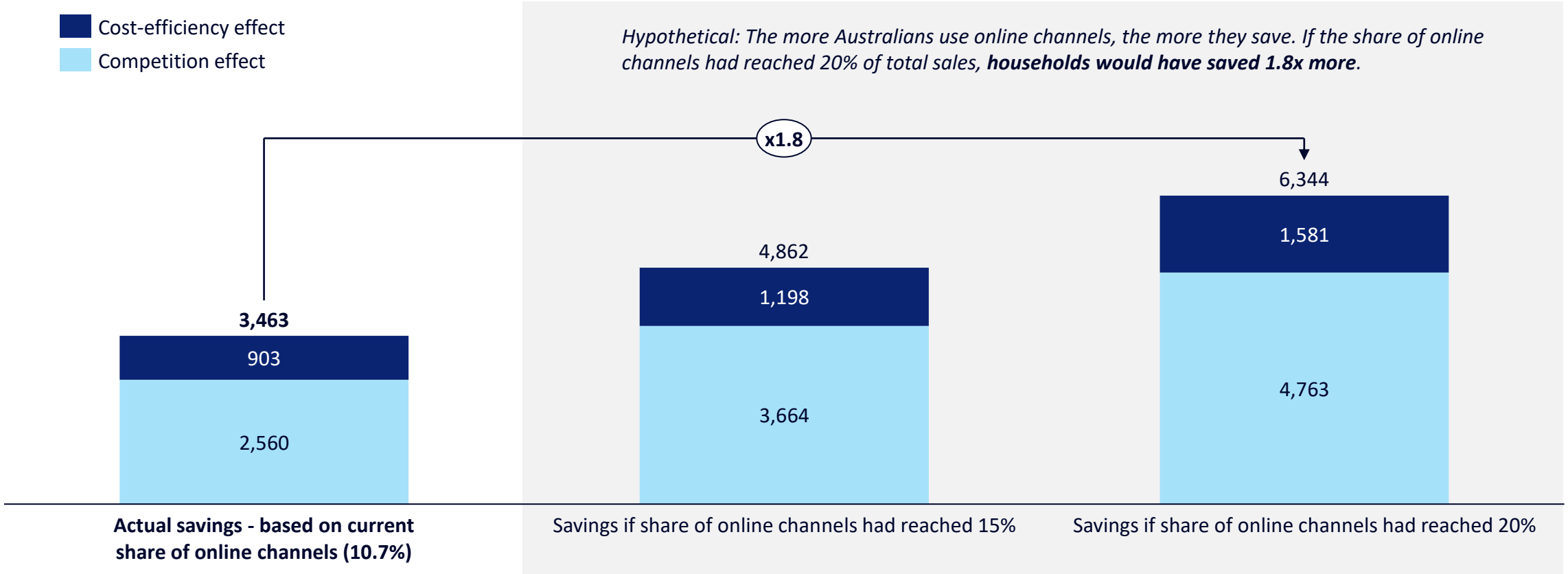
2 For each income quintile, a point on the Lorenz curve is calculated as the cost savings (or household income) that is attributable to that quintile, as a share of the total cost savings (or total household income). For example, the bottom 20% of households received around 12% of the cost savings, but earn around 8% of total income. This forms the Y-axis point for each Lorenz curve at the 20% mark. The Gini coefficient can then be calculated as the area between a Lorenz curve and the equality line, divided by the total area under the equality line. A lower coefficient indicates a more equitable distribution.

Source: ABS (2022A, 2022B); Data obtained for Mandala by Purpose Bureau; Mandala analysis.

The more Australians use online channels, the more they save

Total household savings from 2019-2023, by online channel scenario

$, household savings from 2019-2023 (cumulative), by online channel scenario



Source: ABS (2022B); Data obtained for Mandala by Purpose Bureau; Mandala analysis.

The combination of supply chain challenges and increased consumer demand after the pandemic saw the growth of consumer prices double from 2021 to 2022

Annual inflation rate in Australia and the OECD since 2015

CPI growth rate (%, p.a.), 2015-2023[1]

1 OECD Data is based on year-on-year inflation as at the December quarter, with the exception of 2023 which uses the latest available data from the September quarter.
Source: OECD (2024); ABS (2023B); Mandala analysis.