

Competition in Australia and its impact on productivity growth

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Competitive pressure can lead to more efficient markets and drive firms to innovate. These benefits can lead to productivity growth. A range of competition indicators – including industry concentration, incumbency, and firm mark-ups – suggest a deterioration in competition in the Australian economy since the early 2000s. Further analysis in Treasury working papers suggests that increasing market power and changing technology are both playing a role. This increase in market power in turn has been shown to contribute to the slowdown in productivity in Australia via lower incentives for firms to innovate, for resources to flow to their most productive use, and for the least productive firms to exit the market.

Competition can affect dynamism and productivity

Declining competition has been suggested as a potential explanation for declining dynamism, and in turn productivity (see Article 1; IMF 2019). The mechanisms can be split into 2 channels: a between-firm reallocation channel, and a within-firm improvement channel.

Focusing on the within-firm channel, extensive research considers how competition shapes firms' decisions about their management and operations.¹ Competitive pressure can also drive firms to innovate. Some empirical evidence suggests that greater competition promotes more innovation. The UK Competition and Markets Authority (CMA) (2015), for example, assessed evidence of the impact of competition on R&D activity and patents. It found that competition can boost innovation, particularly when complemented by effective intellectual property rights. Other research has found

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¹ For example, Backus (2020) examines the US ready-mix concrete market, where the uniformity of the product simplifies the analysis. It finds that within-firm improvements in productivity are largely responsible for the correlation between competition and productivity. Bloom et al. (2015) finds evidence of a positive relationship in the public sector, showing that management quality improves with competition in the UK National Health Service.

that there may be a positive or negative relationship between competition and innovation, depending on the market structure (for example, Aghion et al. 2005).

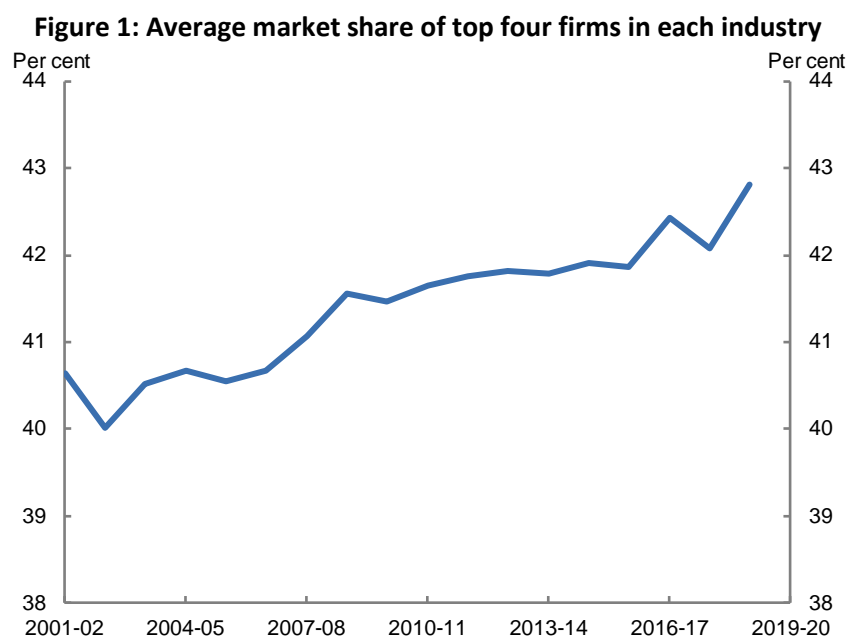
When considering the between-firm channel, competition can incentivise the flow of resources towards more productive firms and away from less productive ones. This is a process known as dynamic reallocation (for example, Decker et al. 2017 and Decker et al. 2020). Less productive firms are then more likely to exit the market than more productive firms (selection). The between-firm effect on productivity of unsuccessful firms being forced from the market has also been established in the literature (for example, Syverson 2004).

Given the clear link to productivity, it is important to examine how the state of competition in Australia has changed and whether declining competition could help to explain slower productivity growth. The sections below present evidence that competition has lessened across industries, and market power has grown from the 2000s to the present. This has weighed on productivity growth.

Measures of market power have increased in Australia

There is no single best measure of competition or market power (OECD 2021). As a result, we look at a range of measures to gauge the state of competition and its evolution since the early 2000s, including industry concentration, incumbency and mark-ups.

Industry concentration metrics seek to explain the extent to which a small number of firms dominate an industry. One simple way of measuring this is the proportion of sales accounted for by the largest firms. In 2018–19, the largest 4 firms in each industry (4-digit ANSZIC industry) made up around 43 per cent of total industry sales on average. This is around 2 percentage points higher than 2001–02 (Figure 1). A similar increasing trend is found using the Herfindahl-Hirschman Index (HHI), which is calculated as the sum of squared market shares of each firm. Increases in concentration since the early 2000s have also been experienced overseas (Bajgar et al. 2019).

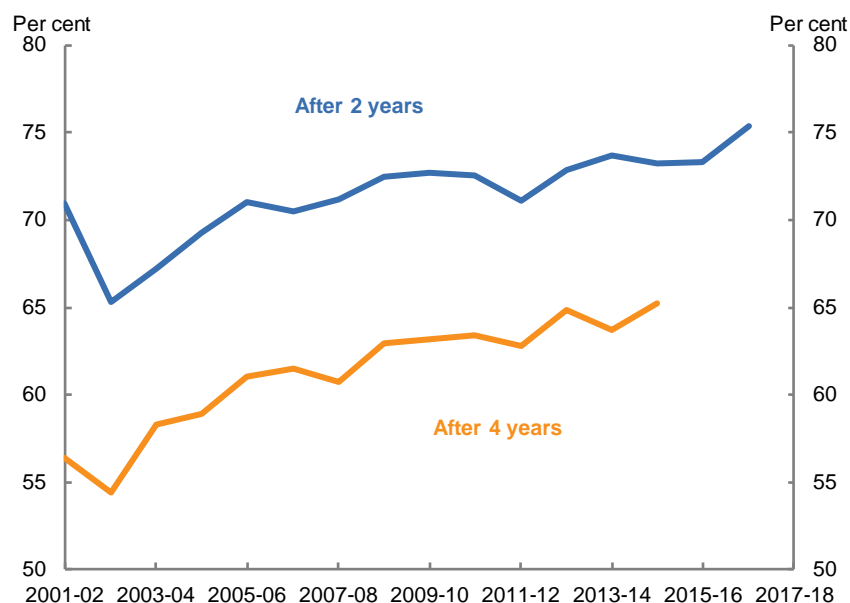


Note: Unweighted average of industries, excluding finance and non-market sectors.
Source: Treasury calculations based on ABS BLADE.

Incumbency metrics of competition explore how long firms can maintain a high market share relative to their competitors. A highly concentrated industry may still be competitive if leading firms are frequently displaced from their position by new firms.

One measure of incumbency is the proportion of top 4 firms in an industry that remain among the top for a substantial period (Figure 2). Around 75 per cent of firms in the top 4 of their industry in 2016–17, were still there in 2018–19. This has increased from around 71 per cent in 2001–02.

Figure 2: Share of top four firms that were still in the top four after 2 and 4 years

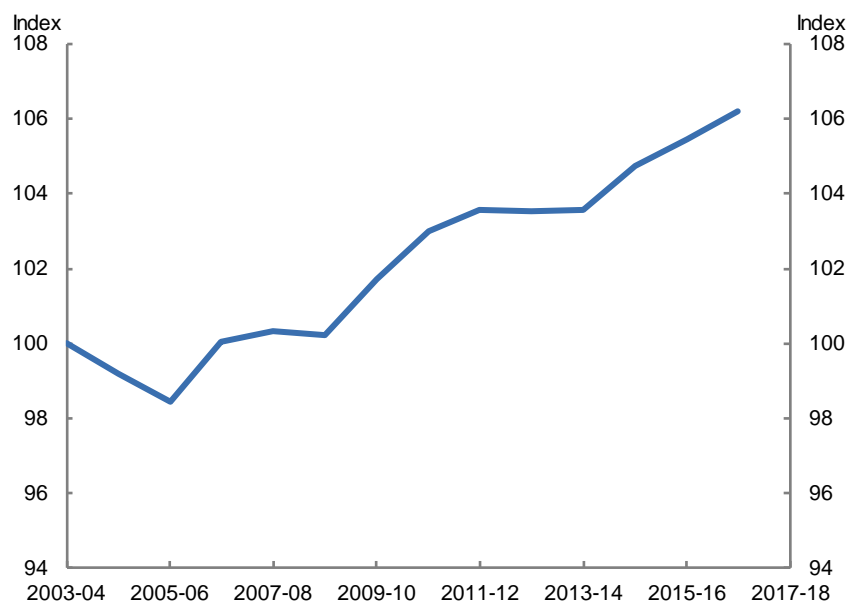


Source: Treasury calculations based on ABS BLADE.

Another proxy for market power that is increasingly popular in the literature is a firm's mark-ups, or the ratio of a firm's price to its marginal cost of production. This is a more direct measure of market power compared to concentration or incumbency since it provides insight into a firm's ability to influence the price it receives for the goods and services it sells.²

Mark-ups were estimated in a Treasury working paper for employing firms in the non-financial market sector, capturing on average about 60 per cent of the sales in each constituent industry division (see Hambur 2021). Average firm mark-ups increased by around 6 per cent between 2003–04 and 2016–17 (Figure 3). This was a little smaller than alternative estimates for Australia (De Loecker and Eeckhout 2018). While there is moderate variation in the evolution of mark-ups across industries, they appear to have increased for firms in most parts of the economy.

² This metric also has the advantage of better capturing international competition given that overseas competition would influence a firm's ability to increase their mark-up.

Figure 3: Average firm-level mark-ups

Notes: Index = 100 in 2003-04; unweighted.
Source: Hambur (2021)

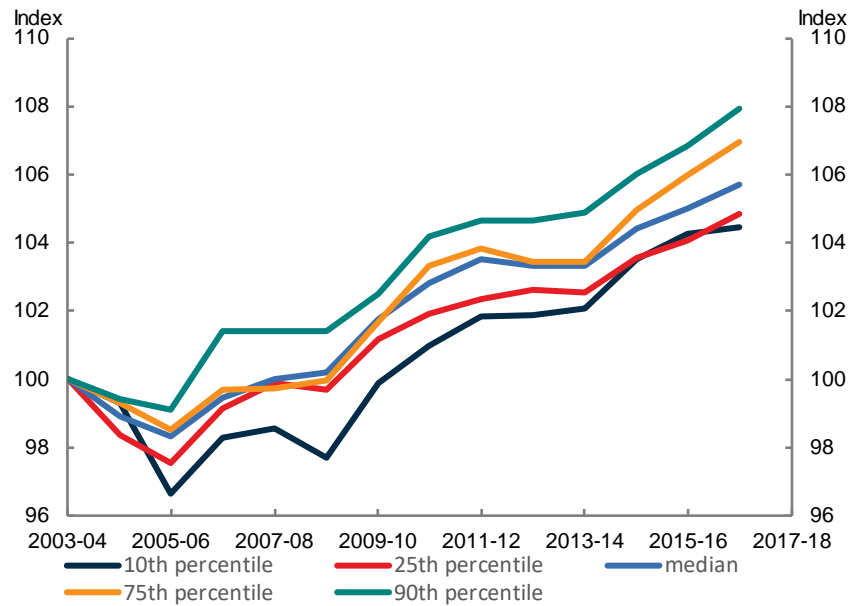
Taken together, measures of market power have trended upwards in Australia since the mid-2000s. Other economies have also experienced similar increases in market power (Bajgar et al. 2019; De Loecker et al. 2020; De Loecker and Eeckhout 2018; IMF 2019; CMA 2020) as well as decreases in dynamism (Decker et al. 2017).

Increases in market power metrics likely reflect decreases in competition

We examine several potential explanations for the rise in these metrics, including the superstar hypothesis, changing technology, and declining competitive pressure in the economy.

The increase in mark-ups may reflect a rise in 'superstar firms' where the most productive firms benefit at the expense of others (Autor et al. 2020). However, this does not appear to be the key driver of increased market power in Australia. While the increase in mark-ups is larger for the upper part of the mark-up distribution, the increase is broad based (Figure 4). The increase in firm mark-ups is driven by within-firm increases rather than reallocation in activity towards high mark-up firms (Hambur 2021). These findings provide evidence against the superstar firms hypothesis for Australia.

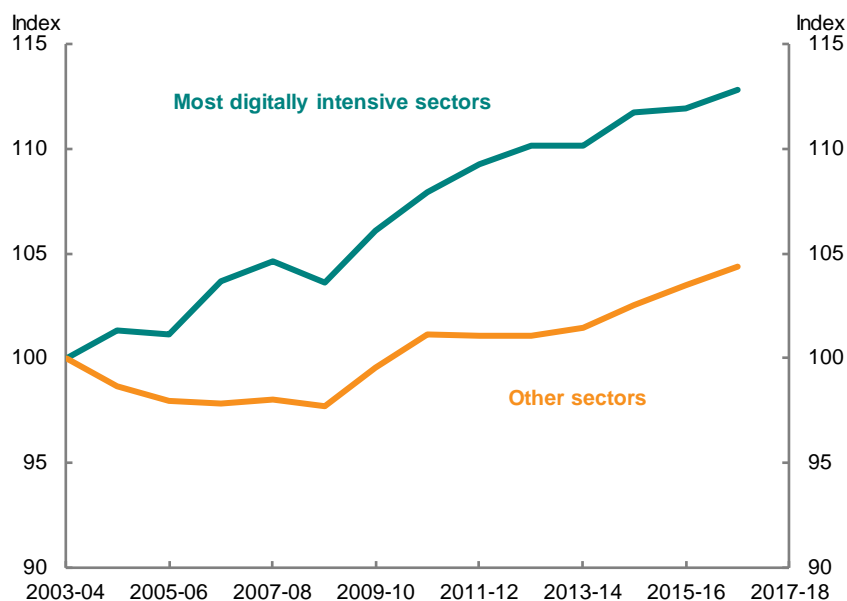
Figure 4: Distribution of firm-level mark-ups



Note: Index 2003-04=100; Unweighted distribution
Source: Hambur (2021)

Changing technology could explain higher firm concentration and mark-ups. Software and other digital technologies often have increasing returns to scale, which inherently offer greater benefits to larger firms. This is particularly true for digital firms which often have little to no marginal costs and operate in markets with strong network effects. Increasing measures of mark-ups and concentration and greater incumbency advantages may as a result be caused by the greater adoption of digital technologies.

The increase in mark-ups was more than twice as large for firms in the most digitally intensive sectors, suggesting some role for changing technologies (Figure 5). However, mark-ups have also increased for the other group of firms, suggesting other dynamics, like an increase in market power, are also important.

Figure 5: Mark-ups by digital intensity of industry

Notes: Index 2003-04=100. Industries assigned a digital intensity based on the taxonomy outlined in Table 3 of Calvino et al. (2018). Requires mapping of ISIC classifications used in that paper, to the ANZSIC classifications used in BLADE. Firm-weighted averages then taken for each quartile of industries. Most digitally intensive sectors are top quartile. All other sectors are an unweighted average of the series for the other three quartiles.
Source: Hambur (2021)

Finally, these increases in measures of market power could reflect declines in competitive pressure. Hambur (2021) provides evidence for this, showing selection and dynamic reallocation are weaker in industries with increasing mark-ups.

For dynamic reallocation, there is evidence that more productive firms increase employee numbers more slowly in industries with increasing mark-ups. We would expect to see this result if weakening competitive pressure reduced the ability of productive firms to attract resources at the expense of their unproductive peers. Likewise, the results show that as mark-ups increase, unproductive firms become less likely to exit the market.

The decline in competitive pressure appears to have weighed on aggregate productivity growth, through both the within- and between-firm channels. On the within-firm channel, Andrews et al. (2022) find that lower competitive pressure has led to Australian firms becoming slower to adopt the inventions and practices of frontier firms. On the between-firm channel, Hambur (2021) estimates that reduced dynamic allocation lowered annual labour productivity growth by 0.1 percentage points, accounting for about one-fifth of the observed slowdown since 2012.

Conclusion

A range of metrics point towards declining competitive pressures in Australia. Research by Treasury economists suggest that this is playing a non-trivial role in the productivity growth slowdown. However, further work is needed to better understand why market power has increased in Australia. Potential explanations for lower competitive pressures include regulatory burdens on entry, or financing frictions that prevent new and innovative firms from entering, growing, and challenging incumbents. A better understanding of the drivers will also help government design policy interventions for specific sectors.

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