



Australian Government  
The Treasury



Competition  
Review

# Background Note

Economic literature relevant to mergers

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# Economic literature relevant to mergers

## Industry concentration is increasing in Australia

In Australia, productivity growth and dynamism has slowed.<sup>1</sup>

There is some evidence that Australian industries have become more concentrated which might be indicative of rising market power:<sup>2</sup>

- Average industry concentration, measured by share of sales of the largest four firms, increased from 41 per cent in 2001-02 to 43 per cent in 2018-19.
- In 2001-02, 71 per cent of the top four firms were still in the top four two years later; in 2016-17, this had increased to 75 per cent.
  - Similarly, in 2014-15, 65 per cent of the top four firms were still in the top four years later, compared to 56 percent in 2001-02.
- Industry average price markups increased by around 6 per cent between 2003-04 and 2016-17.
  - Markups for the most digitally intensive firms increased by 12 per cent compared with 4 per cent for all other firms.
  - Hambur (2019) considered that higher markups were symptomatic of less competitive pressures as they are associated with weaker (within-industry) productivity-enhancing labour reallocation:

This has significant implications for aggregate productivity growth, with a simple counterfactual exercise suggesting that higher mark-ups, and associated slower reallocation, can explain one-fifth of the slowdown in non-financial market sector labour productivity growth. Declining competitive pressures are also likely to have weighed on productivity through decreased incentives to innovate, invest and adopt world-leading technologies...<sup>3</sup>

- Recent research on the effect of labour market concentration on wage growth (Hambur 2023) suggests that:
  - Wages tend to be lower in more concentrated markets, all else equal.
  - Larger firms tend to exert more market power and set lower wages (after accounting for differences in productivity).
- The impact of concentration on wages appears to have increased over time – for any given level of concentration, its impact on wages has more than doubled compared to the mid-2000s.

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<sup>1</sup> D Andrews and D Hansell, 'Productivity-Enhancing Labour Reallocation in Australia', Australian Treasury, 2019, Working Paper No 2019-06, accessed 28 October 2023; D Andrews, J Hambur, D Hansell and D Wheeler, 'Reaching for the Stars: Australian Firms and the Global Productivity Frontier', Australian Treasury, 2022, Working Paper No 2022-01, ISBN 978-1-925832-41-9, accessed 28 October 2023.

<sup>2</sup> J Hambur, 'Product Market Power and its Implications for the Australian Economy', Treasury Working Paper, 2021; I Day, Z Duretto, P Hartigan and J Hambur, 'Competition in Australia and its impact on productivity growth', Australian Government Treasury, 2020, accessed 28 October 2023.

<sup>3</sup> J Hambur, 'Product Market Power and its Implications for the Australian Economy', Treasury Working Paper, 2021, p. 2.

- Estimates suggest wages were a little under 1 per cent lower on average from 2011 to 2015 than they would have been had the impact of concentration not increased.
- Declining firm dynamism and entry rates over the 2010s is the most important factor, as incumbents faced less competition from new firms for workers.
- The Grattan Institute (2017)<sup>4</sup> found:
  - Most of the Australian economy has low barriers to entry, is trade-exposed or is mostly publicly provided.
  - Sectors with barriers to entry were quite a small part of the Australian economy – around 15 per cent of the total in 2016-17. ‘Barriers to entry’ included where there were natural monopolies, scale economies, and heavily regulated sectors.
  - Around 75 per cent of sectors with barriers to entry earned above the cost of equity (when sectors are weighted by the amount of equity), and 20 per cent earned more than 5 percentage points above the cost of equity.
  - Australia’s largest firms had held a steady revenue-share of the economy for more than 20 years. Over the past 20 years the average profitability of firms, and highly profitable firms, had not changed much.
  - A few major sectors had become more concentrated, including banks and (earlier in the 2000s) insurers. Some major sectors had become less concentrated, such as supermarkets and fuel retailing, but remained highly concentrated despite this.

## International retrospective econometric studies on the impact of mergers

Mergers can in principle be either anti- or pro-competitive depending on the specific features of the merger parties (e.g, the scope for economies of scale), the structure of the market (e.g., the number of remaining competitors) and the wider economic environment.

A natural question to ask is whether completed mergers have tended to promote or lessen competition. This can shed light on the related question of whether merger control regimes have struck the right balance in not blocking pro-competitive mergers (avoiding type I errors) and preventing anti-competitive mergers from proceeding (avoiding type II errors).

Our capacity to answer these questions is much better than even a decade ago, thanks to a growing body of retrospective studies across OECD countries that use econometric techniques to isolate the impact of completed mergers on prices and quantities in affected markets. Many of these studies take advantage of newly available, large and high-quality micro datasets.

Taken as whole, these international studies find that many, perhaps even most, mergers increased market prices and/or reduced output, with little evidence of efficiency gains. Put differently, a surprisingly large portion of mergers were found to be anti-competitive given the presence of well-established merger control regimes in most of the countries under study.

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<sup>4</sup> J Minifie 2017, ‘*Competition in Australia: too little of a good thing?*’ Grattan Institute, December.

Selected<sup>5</sup> international studies include:

- Bhattacharya et al (2023)<sup>6</sup> examined US retail mergers between 2006 to 2017 using detailed product-store scanner data. They found that even a modestly more stringent regime over this period would have resulted in lower prices and higher consumer welfare, by blocking more anti-competitive mergers that actually proceeded but still allowing the bulk of pro-competitive mergers to have proceeded.
- Demirer and Karaduman (2023)<sup>7</sup> examined the US electricity generation industry between 2000 and 2020 and find that acquired power plants in the US experience an average of 4 per cent efficiency increase 5 to 8 months after acquisition.
- Stiebale and Szücs (2022)<sup>8</sup> studied the impact of mergers on rival firms' markups across a broad set of industries in Europe and found that rivals increased their markups by between 2 and 4 per cent after mergers, with larger effects when market concentration was high and competitors few. Merger rivals also reduced their employment and sales, while measures of innovative activity also declined.
- Ganapati (2020)<sup>9</sup> provided a useful descriptive examination of detailed firm-level census data, which showed that between 1972 and 2012 concentration increases are positively correlated with labour productivity and real output growth but uncorrelated with price changes.
- De Loecker et al. (2020)<sup>10</sup> estimated the revenue-weighted average markup of publicly listed firms in the United States from 1955 to 2016. They found that the change in average markup is largely driven by a few firms that currently have much higher markups than decades ago. They further found that the rise in markups exceeds the rise in overheads, and conclude the rise in markups is evidence of a rise in market power. Subsequent studies suggest these markup changes are of a sufficient magnitude to contribute to broader aggregate effects (Edmond et al. (2019)).<sup>11</sup>
- Geurts and Van Biesebroeck (2019)<sup>12</sup> examined all Belgian mergers between 2005 and 2012 and found a persistent negative effect on employment on average but also a wide diversity in merger outcomes.
- Blonigan and Pierce (2016)<sup>13</sup> used firm level data on the entire US manufacturing sector to evaluate the impact of mergers. They found that mergers were associated with increases in average markups but no boost in firm-level productivity.
- Ashenfelter (2014)<sup>14</sup> conducted a survey of case studies on the effect of horizontal mergers and found, of the 49 studies surveyed, 36 found evidence of merger-induced price increases, including all of the airline and most of the banking and hospital industry studies. In particular,

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5 Based on the literature reviews in J Asker & V Nocke 2021, '*Collusion, Mergers and Related Antitrust Issues*' NBER Working Paper 29175; L Kaplow & C Shapiro 2007, '*Antitrust*' NBER Working Paper 12867.

6 V Bhattacharaya, G Illanes & D Stillerman 2023, 'Merger effects and anti-trust enforcement: evidence from US Retail'. *NBER Working Paper* 31123.

7 M Demirer & O Karaduman 2022, '*Do mergers and acquisitions improve efficiency: evidence from power plants*', Working Paper.

8 J Stiebale & F Szücs 2022, '*Mergers and market power: evidence from rivals' responses in European markets*'. *RAND Journal of Economics*, November.

9 S Ganapati 2020, 'Growing Oligopolies, Prices, Output, and Productivity'. *American Economic Journal: Microeconomics* 13(3): 309-327.

10 J De Loecker, J Eeckhout & G Unger 2020, 'The Rise of Market Power and the Macroeconomic Implications', *Quarterly Journal of Economics* 135(2), 561-644.

11 J De Loecker, J Eeckhout & S Mongey 2021, 'Quantifying Market Power'. *Mimeo*; C Edmond, V Midrigan & D Xu, 2019, 'How costly are markups?', *Mimeo*.

12 K Geurts & J Van Biesebroeck 2019, 'Employment growth following takeovers', *RAND Journal of Economics* 50(4), 916-950.

13 B Blonigan & J Pierce 2016, '*Evidence for the effects of mergers on market power and efficiency*', NBER Working Paper 22750.

14 O Ashenfelter, A Hosken & M Weinberg 2014, '*Did Robert Bork Understate the Competitive Impact of Mergers? Evidence from Consummated Mergers*', *Journal of Law and Economics* 57(S3), S67-S100.

they concluded the evidence shows mergers in oligopolistic markets can result in economically meaningful price increases:

Ex-post evaluations of consummated mergers have found that prices can increase following mergers leaving only three or four major market participants. This implies that mergers within oligopolistic industries can lead to consequential increases in market power, even if they do not result in monopolies or dominant firms.<sup>15</sup>

- Kwoka (2013) pooled the results of 60 merger retrospectives in the US. Of the 53 transactions, 40 resulted in post-merger price increases and 13 resulted in price decreases with an overall average price change of 6.04 per cent. Of the 46 true mergers, 38 resulted in price increases and 8 resulted in price decreases with an overall average price change of 7.29 per cent.<sup>16</sup>
- Panetta and Focarelli (2003) studied Italian banking mergers from 1990 to 1998. They find that while deposit rates paid to consumers fall in the years directly following a merger, in later years deposit rates increase above pre-merger levels.<sup>17</sup>
- Prager and Hannan (1998) studied the effects of major horizontal mergers in the U.S. banking industry during the early 1990s and find that substantial horizontal mergers reduce the deposit interest rates offered by the merging banks.<sup>18</sup>
- Kim and Singal (1993) examined fourteen airline mergers from the mid-1980s and conclude any efficiency gains from mergers between rival firms were more than offset by enhanced market power, leading to fares that averaged 10 per cent higher from merging firms.<sup>19</sup>

## Case studies on the impact of mergers

While these broad econometric studies provide useful insights for merger policy in general, they do not allow confident prediction of the effect of any individual merger (Shapiro 2019). Selected<sup>20</sup> international case studies are summarised below.

### Horizontal mergers

- Eliason et al. (2020)<sup>21</sup> presented an analysis of dialysis mergers and find mergers lead to profitable changes in internal firms' operations, albeit at the expense of the health outcomes of patients.
- An and Zhao (2019)<sup>22</sup> studied the 1997 Boeing-McDonnell Douglas merger in the wide-bodied aircraft manufacturing industry and find evidence of efficiencies through increased learning by doing due to the merger.

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15 O Ashenfelter, A Hosken & M Weinberg 2014, *'Did Robert Bork Understate the Competitive Impact of Mergers? Evidence from Consummated Mergers'*, Journal of Law and Economics 57(S3), 24.

16 J Kwoka 2013, *'Does merger control work? A retrospective on US enforcement actions and merger outcomes'*, Antitrust Law Journal, vol 78(3), 619-650.

17 F Panetta & D Focarelli 2003, *'Are Mergers Beneficial to Consumers? Evidence from the Italian Market for Bank Deposits'*, March.

18 R Prager & T Hannan 1998, *'Do substantial horizontal mergers generate significant price effects? Evidence from the banking industry'*, Journal of Industrial Economics 46:433- 452.

19 E Kim & V Singal 1993, *'Mergers and market power: Evidence from the airline industry'*, 83:549-569.

20 Based on the literature reviews in J Asker & V Nocke 2021, *'Collusion, Mergers and Related Antitrust Issues'* NBER Working Paper 29175; L Kaplow & C Shapiro 2007, *'Antitrust'* NBER Working Paper 12867.

21 P Eliason, B Heebsh, R McDevitt & J Roberts, 2020, *'How Acquisitions Affect Firm Behavior and Performance: Evidence from the Dialysis Industry'*, Quarterly Journal of Economics 135(1), 221-267.

22 Y An & W Zhao 2019, *'Dynamic efficiencies of the 1997 Boeing-McDonnell Douglas Mergers'*, RAND Journal of Economics, 50(3), Fall.

- Genakos et al. (2018),<sup>23</sup> in the context of telecommunications mergers, found evidence suggestive of increased investment per operator post-merger.
- Grieco et al. (2018)<sup>24</sup> found evidence of returns to scale in production which they translate into marginal cost reductions for the Molson and Coors merger.
- Ashenfelter et al. (2015)<sup>25</sup> found that shipping costs reduced from the Miller-Coors merger but took two years to be passed on. Market power effects were realised much faster. Prices were higher in more concentrated markets and less high with smaller shipping distances.
- Braguinsky et al. (2015)<sup>26</sup> examined the Japanese cotton spinning industry from 1896 to 1920. More profitable firms bought less profitable firms. Market power did not increase profits. Firm productivity increased through better use of capital.
- Vita and Sacher (2001)<sup>27</sup> found large price increases not reflecting increases in service quality following a hospital merger in Santa Cruz, California.

### Vertical mergers

- Luco and Marshall (2020)<sup>28</sup> found when Coca-Cola integrates with a bottler, the price of Coca-Cola products goes down and the price of Dr Pepper products (a non-vertically integrated firm) goes up.
- Crawford et al. (2018)<sup>29</sup> found evidence consistent with the elimination of double margins for vertical integration in cable television.
- Hortascu and Syverson (2007)<sup>30</sup> found that integrated cement and concrete firms are better able to realise scale economies when the integrated entity operates multiple concrete plants in the same market.
- Gil and Warzynski (2014)<sup>31</sup> found that integrated games developers produce higher revenues and sell more units at higher prices as a result of better release and marketing strategies.

### Other studies of note

- Cunningham et al. (2021)<sup>32</sup> used data from the US pharmaceutical industry to estimate between 5 to 7 percent of acquisitions in the sample are killer acquisitions and disproportionately occur just below the notification threshold.
- Collard-Wexler (2014)<sup>33</sup> studied the US ready-mix concrete industry and finds that it takes between nine and 10 years for an entrant to respond to a merger from duopoly to monopoly.

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23 C Genakos, T Valletti & F Verboven 2018, 'Evaluating market consolidation in mobile communications', *Economic Policy* 33(93), 45-100.

24 A Grieco, J Pinkse & M Slade 2018, 'Brewed in North America: Mergers, Marginal Costs, and Efficiency', *International Journal of Industrial Organization* 59(C), 24-65.

25 O Ashenfelter, D Hosken & M Weinberg 2015, 'Efficiencies brewed: Pricing and consolidation in the US beer industry', *RAND Journal of Economics* 46(2), 328-361.

26 S Braguinsky, A Ohyama, T Okazaki & C Syverson 2015, 'Acquisitions, productivity and profitability: evidence from the Japanese cotton spinning industry', *American Economic Review*, 105(7): 2086-2119.

27 M Vita & S Sacher 2001, 'The Competitive Effects of Not-for-Profit Hospital Mergers: A Case Study', *Journal of Industrial Economics*, vol 49, 63-84.

28 F Luco & G Marshall 2020, 'The Competitive Impact of Vertical Integration by Multiproduct Firms', *American Economic Review*, 110(7), 2041-2064.

29 G Crawford, R Lee, D Whinston & A Yurukoglu 2018, 'The Welfare Effects of Vertical Integration in Multichannel Television Markets', *Econometrica*, 86(3), 891- 954.

30 A Hortascu & C Syverson, 2007, 'Cementing Relationships: Vertical Integration, Foreclosure, Productivity and Prices', *The Journal of Political Economy*, 115(2), 250- 301.

31 R Gil & F Warzynski 2014, 'Vertical Integration, Exclusivity, and Game Sales', *Journal of Law, Economics, and Organization*, vol 31, 1143-1168.

32 C Cunningham, F Ederer & S Ma 2021, 'Killer Acquisitions,' *Journal of Political Economy*, vol. 129(3), 649-702, University of Chicago Press.

33 A Collard-Wexler 2014, 'Mergers and Sunk Costs: An Application to the Ready-Mix Concrete Industry', *American Economic Journal: Microeconomics* 6(4), 407-447.