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By email:
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Productivity Commission
Locked Bag 2, Collins St East
Melbourne Vic 8003



RE: Submission to the Productivity Commission on National Competition Policy Analysis

Mandala welcomes the opportunity to make a submission to the Productivity Commission on National Competition Policy Analysis.

Competition will be key to unlocking productivity and ongoing prosperity in Australia. As such, the Commission's methodology should be informed by an extensive use of microdata to ensure that it has a nuanced and precise understanding of the dynamics of competition, and the impacts of competition reforms on markets and the broader economy. Moreover, when measuring the economy-wide impacts of reforms, the Commission should incorporate metrics that capture innovation and industry dynamism as key outcomes of competition.

This submission to the Commission is informed by Mandala's recent research reports 'Surf Shop, Save: Online retail helps lower the cost-of-living' (see Attachment 1), 'Preparing Australia's Workforce for Generative AI' (see Attachment 2), 'The Net Zero Transition: how hard will it be for workers in coal mines to find new jobs?' (see Attachment 3), and 'Unlocking Tasmania's youth potential: A focus on engagement, skills, and economic growth' (see Attachment 4).

About Mandala

Mandala is a research firm with offices in Melbourne, Canberra, and Sydney. Mandala specialises in combining cutting-edge data and advanced analytical techniques to generate new insights and fresh perspectives on the challenges facing businesses and government.

Views and opinions expressed in this document are prepared in good faith and based on Mandala's knowledge and understanding of its area of business, markets and technology. Opinions expressed herein are subject to change without notice.

Further information

We would welcome the opportunity to provide the Commission with further information based on our submission if it would be of assistance.

The relevant contacts at Mandala for this work are myself or Dr Adam Triggs and we can be reached at admin@mandalapartners.com.

Yours sincerely,

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With deteriorating competition in Australia, it has never been more important to get competition reforms right

By many metrics, competition in Australia has been deteriorating. The Australian economy has become more concentrated over time, with the average four-firm concentration across Australian industries increasing by over two percentage points between 2001-2 and 2018-9.¹ 10 of the 20 largest industry classes by revenue are concentrated, with a four-firm concentration ratio above one-third.²

Market dynamism has also declined. Firm entry and exit rates have both declined by three percentage points between 2006 and 2020.³ Treasury analysis of ABS Labour Force microdata highlights that the share of workers who started a new job in the last quarter fell from almost nine per cent in the period between 2002 and 2008, to seven per cent in the period between 2008 and 2019.⁴

As competition has deteriorated, we have seen productivity and real wages decline, and mark-ups increase. Australia's labour productivity has stagnated since the mid-2000s. While labour productivity grew by an average of three per cent per year in the five years to 1999-2000, it has only grown by an average of 0.5 per cent per year over the last five years.⁵ Labour productivity is now growing at its slowest pace in the last 60 years.⁶ Low labour productivity has also seen real wages decline. Year-on-year real wages have declined every quarter since June 2021.⁷ Meanwhile, average firm-level mark-ups have increased by seven per cent between 2004 and 2017.⁸

However, competitive dynamics have not evolved in the same way across all parts of the economy. With competition deteriorating on average, but competitive dynamics varying between markets, it has never been more important for the Commission to develop a nuanced methodology to robustly model the impacts of competition reforms on the economy.

Microdata can provide nuanced and powerful insights into the dynamics of competition

An analysis of microdata can provide rich insights into the dynamics of competition at the market, submarket or cohort level, which is the level at which competitive dynamics occur. Microdata can also be used to understand how potential reforms could affect different cohorts in distinct ways. The Treasury's Competition Taskforce is already using microdata to build a detailed evidence base to inform competition policy reforms. For example, it has used Australian Bureau of Statistics administrative microdata on labour flows between businesses to estimate merger activity in the Australian economy, and to understand the impacts of mergers on business performance and employment.⁹ The Commission should similarly draw upon microdata to draw rich insights about competitive dynamics in the economy.

¹ Leigh (2022) *A more dynamic economy*.

² Mandala analysis of IbisWorld reports.

³ Australian Bureau of Statistics (2023) *Counts of Australian businesses, including entries and exits*.

⁴ Leigh (2022) *A more dynamic economy*.

⁵ Australian Bureau of Statistics (2023) *Estimates of industry multifactor productivity*; Mandala analysis.

⁶ Australian Treasury (2023) *Productivity*.

⁷ Australian Bureau of Statistics (2024) *Consumer Price Index, Australia*; Australian Bureau of Statistics (2023) *Wage Price Index*.

⁸ Hambur (2021) *Product market power and its implications for the Australian economy*; Mandala analysis.

⁹ Leigh (2024) *Game changer: harnessing microdata for a fairer competition landscape*.

Importantly, microdata can provide valuable and granular insights on how competition and markets are shaped by the very shifts in which the government has expressed interest, including digitisation, the net zero transformation and the growth of services.¹⁰

I. Value of microdata for understanding digitisation

Digital activity now contributes over A\$130 billion (over six per cent) to Australia's total economic activity.¹¹ In particular, the economic value of digital activity in retail e-commerce accelerated during the COVID-19 pandemic, increasing by over 40 per cent in 2020-1.¹² With digitisation growing in importance to the economy, microdata can provide valuable and nuanced insights on how digitisation affects competitive dynamics in retail markets.

Our research 'Surf Shop, Save: Online retail helps lower the cost-of-living' (see Attachment 1) in partnership with Amazon examined the impact of retail e-commerce on competition and consumer prices. The methodology for this research involved an analysis of product pricing microdata from the Australian websites of selected online retailers. It found that retail e-commerce intensified price competition, resulting in annual inflation rates that were 0.7 percentage points lower than they would have been if the online share of retail sales had not increased since 2019.

Digitisation also has significant and varied implications for labour markets, and microdata can be used to illuminate these dynamics. Mandala's research 'Preparing Australia's Workforce for Generative AI' (see Attachment 2) in partnership with LinkedIn examined the differential impacts that generative artificial intelligence (AI) will have on different occupations. Our methodology involved an analysis of LinkedIn and Australian Bureau of Statistics microdata to estimate, at the industry level, the proportion of the workforce which would have their roles augmented or disrupted by generative AI. It found that the impact of generative AI will vary significantly by industry – and that industries with a higher share of women workers, and industries that experienced slower growth in employment over the last five years, are more likely to be affected by generative AI.

Digitisation not only introduces new competitive dynamics to markets, including network effects and data collection,¹³ it also alters market dynamics in sometimes unpredictable ways. This heightens the need for the Commission integrate extensive microdata analysis into its methodology to gain a granular and timely view of competitive market dynamics.

II. Value of microdata for understanding the net zero transformation

Microdata also provides valuable insights about the impact of the net zero transformation on markets. The transformation will have profound, but not uniform, implications for competition across the economy. Our research note 'The Net Zero Transition: how hard will it be for workers in coal mines to find new jobs?' (see Attachment 3) estimated, at the occupation level, the length of time it would take for workers to find another job. The methodology involved an analysis of job posting microdata from Lightcast. The research found that, if a coal mine in New England closed and workers did not relocate, 28% of people would find another job within the New England and North West region within a year. However, this rate is not uniform across occupations. While truck drivers and electricians would more easily find a new job within the year, many drillers and miners would remain unemployed after three years.

¹⁰ Leigh and Chalmers (2023) *A more dynamic and competitive economy*.

¹¹ Australian Bureau of Statistics (2023) *Digital activity in the Australian economy, 2021-22*.

¹² Australian Bureau of Statistics (2023) *Digital activity in the Australian economy, 2021-22*.

¹³ Australian Competition and Consumer Commission (2019) *Digital platforms inquiry: Final report*.

As the government continues its work on competition reforms relating to labour markets (including the Treasury Competition Taskforce’s review of non-compete clauses and other restraints), analysis of labour market microdata, including online job posting data, to understand how the impacts of potential competition reforms might vary by occupation or geography.

III. Value of microdata for understanding the growth in services

The composition of the Australian economy has and will continue to experience a structural shift towards a service-dominant economy. While in 1994-5, services accounted for 73 per cent of GDP and 57 per cent of intermediate use, by 2017-8, services accounted for 80 per cent of GDP and over 70 per cent of intermediate use.¹⁴ In particular, the latest Census showed that 15 per cent of Australia’s workforce now works in the health care and social assistance sector, with the number of aged and disabled carers increasing by 72 per cent between 2016 and 2021.¹⁵ This sector is expected to continue to grow as Australia’s population ages.¹⁶

Australia’s shift to an increasingly services-based economy will require a more skilled workforce.¹⁷ To understand how the growth of the services sector will shape market competition (especially labour market competition), it is important to use microdata to gain a granular understanding of the alignment of workforce skills with those demanded. The level of skill alignment dictates the level of substitutability and competitive tension between different roles in the labour force.

Our research ‘Unlocking Tasmania’s youth potential: A focus on engagement, skills, and economic growth’ (see Attachment 4) in partnership with the Tasmanian Government involved an analysis of job posting (Lightcast) and Australian Bureau of Statistics microdata to understand the level of skills alignment between Tasmanian workers and available skilled roles. It found that while 64 per cent of available skilled roles require bachelors degrees and above, only 25 per cent of the Tasmanian workforce had this level of qualification.

The Commission should use microdata to inform robust parameters for CGE modelling

The Commission proposes a methodology which primarily uses Computable General Equilibrium (CGE) models to model the impacts of competition policy reforms, in line with methodologies used in previous reform analyses. When performed robustly, CGE analysis is an appropriate tool to quantify the impacts of large-scale reforms on economy-wide variables such as productivity and output.

CGE modelling is typically complex and involves many parameters to describe interactions in the economy. As a highly flexible and complex model, CGE outputs are sensitive to the assumptions and parameter inputs that are used in the model. As such, it is important that these inputs are robust – and the Commission should use microdata to inform these inputs.

In recent unpublished research, Mandala has applied this approach of using microdata to estimate CGE parameter inputs. Our research quantified the impact of increasing competition in Australia’s containerised freight market. To do this, we compiled a range of datasets on freight networks (including

¹⁴ Australian Bureau of Statistics (2019) *Services in the Australian economy*.

¹⁵ Australian Bureau of Statistics (2022) *A caring nation – 15 per cent of Australia’s workforce in health care and social assistance industry*.

¹⁶ Australian Government (2023) *Intergenerational Report 2023*.

¹⁷ National Skills Commission (2021) *Australia’s shift to a higher skilled, services-based economy*.

road and rail), cost functions for freight, and demand forecasts for containerised freight based on government forecasts. Based on these datasets, we modelled the potential cost savings from increased competition and productivity improvements over time. We subsequently used our estimates on cost savings as parameter inputs for the CGE model to quantify the broader economic impact in Australia.

In its modelling, the Commission should include metrics to capture innovation and industry dynamism

In its 2005 Review of the National Competition Reforms, the Commission used a variety of metrics including those listed in Figure 1 of the 'Call for submissions'.¹⁸ These metrics are foundational to understanding economy-wide impacts of competition reforms.

However, to generate a more comprehensive picture of the impact of reforms on the economy, the Commission should also include proxies for innovation and market dynamism, as these are two market outcomes that are increasingly shaping markets and the economy. In particular, innovation is becoming increasingly relevant in rapidly evolving markets (e.g., digital) where innovation is an outcome of competition and often competitive constraint to incumbents. Potential proxy metrics could include new patents (for innovation)¹⁹ or firm / worker exit and entry rates (for market dynamism).²⁰

Further, although the Commission's 2005 Review included some brief analysis of environmental impacts, as the net zero transition is one of the macro forces identified by both the Intergenerational Report²¹ and by Ministers,²² it would also be appropriate for the Commission's methodology to include some quantification of environmental impact (CO₂-equivalent, for example).

The addition of these metrics will provide the Commission with a more complete view of the macroeconomic impacts of these reforms. However, it is also important for the Commission to keep in mind that for many reforms, much of the impact would be experienced at the market or submarket level rather than at the macroeconomic level. In these cases, it may be more appropriate for the Commission to use robust partial equilibrium methodologies, rather than CGE models, to quantify the impact of the reforms.

¹⁸ Productivity Commission (2005) *Review of National Competition Policy Reforms*.

¹⁹ See e.g., Ponta, Puliga and Manzini (2021) *A measure of innovation performance: the Innovation Patent Index*.

²⁰ Leigh (2022) *A more dynamic economy*.

²¹ Australian Government (2023) *Intergenerational Report 2023*.

²² Leigh and Chalmers (2023) *A more dynamic and competitive economy*.