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APPLIED ECONOMIC &
SOCIAL RESEARCH

MELBOURNE INSTITUTE COMPENDIUM 2022

*Economic & Social Policy:
Towards Evidence-Based
Policy Solutions*

Edited by Professor Peter Dawkins
& Professor A. Abigail Payne

60
YEARS
IMPACT

60
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IMPACT

**Celebrating 60 years of the Melbourne Institute:
Applied Economic & Social Research, University of Melbourne**

Truly a year to celebrate, 2022 marks the Melbourne Institute's 60th Anniversary. Established in 1962 with Ronald Henderson as the founding Director, the Melbourne Institute: Applied Economic & Social Research has clearly established itself as a significant contributor to informing and shaping Australia's economic and social policy as well as publishing key academic articles that focus on issues faced by Australians. For 60 years our world-class economists have conducted rigorous, independent research and analysis, providing an evidence base for effective policy reform.

The Melbourne Institute has undertaken integral research that has shaped and continues to shape our nation: from the 1968 proposals for a national compulsory health scheme that would ultimately become Medicare, to the creation of the Henderson Poverty Line in 1972, and the commencement of the longitudinal Household, Income and Labour Dynamics in Australia (HILDA) Survey in 2001 which provides policy-makers with unique insights about Australians.

Alongside these flagship projects, the Melbourne Institute continues to bring its well-rounded expertise to focussed research areas including education and child development, health and healthcare, income and economic wellbeing, labour markets and employment, macroeconomic modelling, forecasting and policy analysis, taxes and transfers, and poverty.

With this key anniversary comes the legacy of the depth, breadth and impact of six decades of economic and social policy research. In the ever-changing landscape of Australian economic and social policy, the Melbourne Institute looks forward to providing a tangible impact for decades to come, helping to shape debate and drive evidence-based change with the intention of making Australia a better place to live.

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Foreword



Paul Kelly, The Australian

This Compendium from the Melbourne Institute: Applied Economic & Social Research could not be more relevant or timely. There is a growing recognition in Australia of the need to rediscover our commitment to quality public policy. The advent of a new federal Labor Government opens the door of opportunity, as does any change in the political cycle. The challenges are daunting but this signal from the Melbourne Institute in its 60th anniversary year highlights its commitment to help shape the national conversation.

In this Compendium the Institute, under its Director and Ronald Henderson Professor, Professor A. Abigail Payne, publishes papers pertinent to the issues of full employment, real wage gains, tax reform, productivity enhancement, full employment, a skilled workforce, support for low-income earners, poverty reduction and improved health and education affordability and delivery. The approach is anchored in the traditions that have distinguished the Institute – that economic prosperity and social wellbeing can be mutually reinforcing and that reducing inequality and improving economic performance should not be seen as competing goals.

The underlying philosophy in this publication is that public policy, directly or indirectly, touches the lives of most Australians. Research and analysis are not confined to the halls of academic theory but are ultimately the fuel that drives our political system to implement national interest improvements. As Professor Payne argues in this Compendium, many data sets remain locked up or limited and Australia needs a more effective evidence base as the foundation for decision making. Technological advances should be harnessed to ensure that available data collected as business-as-usual activities can be available for social science research.

The chapters in this Compendium contain relevant messages for governments, state and federal, for institutions from the Reserve Bank to the Fair Work Commission to treasury departments and for public servants giving policy advice. They contribute to what is becoming an urgent requirement – reversing the malaise in economic and social reform that has seen a deterioration in Australia's relative performance across a range of indicators.

The Compendium coincides with the 2022 Economic and Social Outlook Conference, a long-established partnership between the Melbourne Institute and The Australian newspaper with this year's conference centred on the theme 'Opening Doors of Opportunity.'

"The doors are open for embracing opportunity," the authors say in the opening chapter. "Will we move forward and walk through these doors? There is no shortage of economic and social problems to solve." These challenges coincide with difficulties confronting the national budget, a test for monetary policy in combatting the most serious inflation for decades, an ominous downturn in global growth, severe strains in energy markets, a war in Europe and geo-strategic strain in Asia. Governments are facing multiple objectives. The need, as far as possible, is for policy that is sound and well-based.

Pivotal to the publication is the debate about employment, participation and productivity. In this chapter Professor Peter Dawkins, a former director of the Institute, and Professor Ross Garnaut, review the economic outlook offering a set of prescriptions and suggestions on a new reform agenda. They begin with an overarching concern about the policy balance, saying too much priority is put on fighting inflation rather than delivering the benefits from full employment. They question the scale of Reserve Bank policy tightening during 2022 saying that in current settings "we are relying too little on fiscal and too much on monetary tightening to reduce demand." Then goes to the most crucial

assessment in macroeconomic policy.

While the Reserve Bank said it was worried about a wage-price spiral as occurred in the 1970s, there is no sign of this in current labour market pressures. Meanwhile real wages are falling "at an unprecedented rate."

The authors review the history saying while full employment was the first goal of economic policy from 1945 to the mid-1980s the focus in recent decades shifted to the Non-Accelerating Inflation Rate of Unemployment (NAIRU). Their concern, however, is that the bank has declined to pursue its investigation of the full employment level or the NAIRU - that could be 3 percent or even 2 percent as it was in the postwar decades – by pursuing inflation as the priority. The authors point out that in their current stance the Reserve Bank and Treasury expect monetary policy will cause unemployment to rise to 4 percent during 2023 after being reduced previously to 3.4 percent without creating wage inflation.

"The authors express the hope the incoming Labor Government will "herald a new era of evidence-based economic reform" that centres on full employment, productivity, participation and increasing real wages. They open the door to a series of critical reform options tying the economic and social together putting on the table the ambitious notion of a review of the tax and transfer system."

In a warning to the bank and the prevailing orthodoxy Dawkins and Garnaut say the greater risk in policy now is rising unemployment and the danger of "an unnecessary recession" – a stance that overlooks the large social and productivity benefits from full employment. More optimistically, they note that in October, the Reserve Bank reduced the rate of increase of interest rates and mentioned full employment again, in its monthly statement.

The authors express the hope the incoming Labor Government will "herald a new era of evidence-based economic reform" that centres on full employment, productivity, participation and increasing real wages. They open the door to a series of critical reform options tying the economic and social together putting on the table the ambitious notion of a review of the tax and transfer system. They advocate structural changes in tax and transfer policy. Given inflation they recommend consideration of an earned income tax credit or a minimum basic income payment as possible alternatives to a substantial rise in the minimum wage to support low-income families.

Paul Kelly, The Australian (continued)

In the current environment of high profit share they say the best means of achieving redistribution is by tax changes rather than changes in wage regulations, a decisive conclusion. This could involve a range of options – shifting the base for corporate tax from conventional accounting income to cash flow and higher tax on mineral rents. They agree with current sentiment that childcare and early childhood education seem to be “the single most promising avenue for boosting labour force participation.” Widening the policy lens, the authors say: “Conscientious pursuit of full employment, refocusing immigration on high skills and permanent residence and reform of competition policy to reduce the power and influence of oligopolistic arrangements would contribute to reversal of the declining wage share without raising the NAIRU.”

Moving to the macroeconomic ‘big picture’ the authors put forward the bracing conclusion: getting to full employment and lifting productivity and participation demands a “major economic reform agenda” and, given the budget, “this will inevitably require a substantial increase in the share of taxation in GDP alongside public expenditure reductions in areas that have low or negative benefits for equity and economic efficiency.” This conclusion has widespread support both within and outside government but is highly contentious. Its acceptance involves substantial political challenges where support from outside institutions could play an important role.

This chapter sets the scene for a series of more specific policy chapters. These chapters both reinforce and challenge the instincts of the new Albanese Government. Labour market specialist Professor Mark Wooden examines the data and finds “very little evidence” to support the claim by the union movement that job insecurity in Australia has been steeply rising and has reached crisis levels.

After reviewing the data Wooden said “the likelihood of an Australian worker being involuntarily removed from their job was, at the start of 2022, both very low and less than it has been at any other time during the past 40 years.” Wooden finds little support for the widely held view that the Australian workforce has become increasingly casualised over time. Instead, he finds the numbers of casual workers have changed little over the past two decades. This contrasts with Labor’s election platform pledging to implement a secure jobs plan with a range of policy changes – a signal that it opposes many non-traditional forms of employment. Wooden concludes the best means to reduce job insecurity is to reduce unemployment and underemployment. An aspect to watch, therefore, is whether Labor policy, as implemented, is consistent with evidence-based assessments and results in adverse consequences.

The chapters on health and education identify critical areas for reform. The health chapter by Dr Susan Méndez, Professor Anthony Scott and Professor Yuting Zhang says Australia’s health status is high and achieved by spending only 10.2 percent of GDP but comparisons in terms of access, affordability and timeliness are less favourable.

The cost burden is growing and greater for people on low incomes. The authors identify three issues influencing access – affordability, private health insurance and the geographic distribution of the medical workforce. They recommend better targeting of subsidies and incentives to deliver better equity. The authors find ‘out-of-pocket’ costs are high and better improvements in access need to become a “key policy issue to improve population health care” with natural disasters, pandemics and recessions in recent evidence.

The education chapter “Youth transitions after high school” by Dr Steeve Marchand and Professor A. Abigail Payne highlights that both males and females have high rates of unsuccessful transition. The full-time retention rate for school years 7/8 to 12 for females over the last decade exceeds 85 percent while the rate for males is closer to 80 percent. For males the rate Not in Employment, Education or Training (NEET) is higher than that for the United States and many other countries. Disadvantage is substantially place-based. The risk is that poverty becomes entrenched. Factors leading to low education achievement include anxiety, depression, truancy, alcohol and drug consumption.

The Melbourne Institute is engaged in developing a data-driven set of tools to track and map measures of youth disadvantage. The information will lead to better understanding of the sources of youth disadvantage and means to combat the problem.

It is interesting, however, to note that another chapter in relation to evidence-based policy makes the arresting conclusion that despite many billions now pledged to the expansion of early childhood and pre-school education in Australia there is an absence of proper evaluation of such programs. In a paper that questions the evidence for expanding early childhood education, Professor Marco Castillo and Professor Ragan Petrie point out the Victorian Government is rolling out funded preschool to three-year olds arguing that “two years are better than one” at a cost of \$9 bn over the decade and the NSW Government has committed \$5.8 bn to expand four-year old education.

An analysis conducted by the authors assessed the relationship between preschool enrolment and five school readiness indicators.



Reporting the results they say, “An increase in preschool enrollments in the previous year is associated with a decrease in all five school readiness indicators.” They say that in Victoria and NSW an increase in preschool enrolments had “no effect” on school readiness while in other states it was associated with a decrease.

Noting that federal and state governments are deeply vested in boosting enrolments to improve school readiness, the authors say, “Our results provide a cautionary note on the benefits of preschool as it is currently implemented. The findings show that the expansion of preschool has had, at best, neutral results in terms of child development measures for some children and, at worst, bad outcomes for others.”

The authors say evidence on the benefits of universal early childhood education is mixed. Are new preschools of sufficient quality? What is the ideology at work in the preschools? These are pertinent questions. The Compendium points to alternative research showing that investment in early childhood education results in potentially large benefits for productivity and participation when these children are adults.

There is, however, a bigger question looming in these related debates: the conjunction of increased funding for school education simultaneous with declining Australian school performance relative to other nations. There is now growing alarm that a pivotal factor is not getting sufficient attention: what happens in the classroom and the absence of focus of the science of learning.

The Compendium does not pretend to be comprehensive. That would be unrealistic. But the issues it selects are pressing and relevant. They penetrate to the dynamics of our public policy, the need to produce more evidence-based research and offer better guidance to political decision-makers.

For the past two decades Australia has been seeking a synthesis between market-based reform and the wellsprings of the good society. The inaugural Economic and Social Outlook Conference between the Melbourne Institute and The Australian newspaper in 2002 revolved around the theme of ‘hard heads, soft hearts’ – the need to have economic and social reform blended together. That is still the great challenge. It is time for Australia to renew its reform tradition.

Part 1

Introduction

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Chapter

1

Towards evidence-based
policy solutions in
economic and social
policy: An introduction

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Professor Peter Dawkins & Professor A. Abigail Payne



INTRODUCTION

The Melbourne Institute's 60th anniversary

The Melbourne Institute was founded in 1962 to undertake applied economic and social research into important public policy issues. Over its history the Institute has made important contributions to policy thinking on macroeconomic policy, poverty, wages, employment, unemployment, taxes and transfers, and health policy, amongst many other important policy areas. The Melbourne Institute also produces a range of regular economic indicators and survey data to contribute strongly to the economic and social policy infrastructure of Australia, such as the annual Household Income and Labour Dynamics in Australia (HILDA) Survey, the Taking the Pulse of the Nation (TTPN) Survey, and the quarterly Consumer Attitudes, Sentiments and Expectations (CASiE) Survey. The Melbourne Institute Data Lab (MIDL) also plays an instrumental role by providing a secure environment to access and analyse big data sets, to support the undertaking of field trials, and through the training of the next generation of data scientists who are developing skills through the lens of economic and social science.

To mark our 60th anniversary, we have produced this Compendium of papers on a range of contemporary issues, under the umbrella theme of evidence-based policy solutions in economic and social policy. We do not aim to be comprehensive or to cover all of the big issues of the day. We cover a range of issues that reflect the range of expertise in the Melbourne Institute.

In keeping with the tradition of the Melbourne Institute, we focus on the economic analysis of important social issues, such as employment, health care and education. In so doing we are sceptical of the idea that there is a trade-off between economic prosperity and social wellbeing. Rather, we see them as mutually reinforcing. Promoting economic prosperity helps to achieve social wellbeing. But, equally, promoting social wellbeing helps to provide the conditions for economic prosperity. See, for example, OECD (2015) on why less inequality benefits all. This interplay between the economic and the social runs through several of the chapters in this Compendium.

Evidence-based policy: Needs and opportunities

Davis and Althaus (2020) remind us that 'public policy permeates every aspect of our lives'. Thus, working through all elements of good policy-making is critical. The Melbourne Institute's work has served as part of a critical backbone for effective policy-making, namely supporting the fundamental stage of undertaking and interpreting analysis to develop a framework that allows one to utilise a scientific approach toward identifying options and potential outcomes of changes in policy or practice.

There is a substantial literature on what is needed for sound evidence-based policy. A major contribution to this literature is the two-volume conference proceedings of the Productivity Commission (2010). At that conference, Head (2010) observed three crucial enabling factors that underpin modern conceptions of evidence-based policy. The first is high-quality information databases on relevant topic areas. The second is cohorts of professionals with skills in data analysis. The third is political incentives for utilising evidence-based analysis in governmental decision-making processes.

On these three counts, the current environment in Australia would appear to be quite hopeful. There are more extensive high-quality information bases available now than ever before. There are also many professionals with skills in data analysis in universities, government and the private sector.

There are also reasons to be hopeful about the political incentives for utilising evidence-based analysis. There is a new federal government in place which has no shortage of economic and social problems to address and, as yet, has not become too committed to pre-determined solutions.

The government's recently held Jobs and Skills Summit covered policy questions that included, for example:

- What actions can be taken to boost productivity growth across the economy?
- What actions can be taken to ensure that the benefits of productivity improvement are harnessed to lift the living standards of all Australians?
- What policies would be most effective for sustaining full employment into the future and what are the biggest challenges and risks to achieving this?
- How can we best take advantage of structural changes like digitisation, climate change, the shift to renewable energy, the ageing population, and the growth in the services sector and care economy to boost productivity and sustain full employment?

- How can we reduce barriers to employment for some Australians?
- How do we ensure that emerging employment practices benefit workers' economic security?
- How can governments and business better integrate training and employment pathways?
- Are the current systems for higher education and vocational education and training (VET) appropriately tailored to respond to Australia's needs now and in the future?
- How can government and business maximise the opportunities presented by the structural trends impacting the economy, including energy and climate transition, while ensuring the benefits are shared fairly?
- What investments in education and skills are needed now to take advantage of these opportunities? (Treasury, 2022)

This Summit engendered extensive public discussion to which academic researchers contributed strongly. They opened the opportunity to draw on a vast array of existing evidence and undertake further investigation and analysis. Several of these questions are confronted in this Compendium and several others are at least touched upon.

There are many other important questions that were not addressed at the Summit which are equally important today. These questions concern macroeconomic management, health policy and tax policy. We touch on some of these questions in this Compendium.

The 2022 Economic and Social Outlook Conference, organised through a partnership between the Melbourne Institute and *The Australian* newspaper, centred on the theme of 'opening doors to opportunity'. Creating and building a strong evidence base, deepening the intellectual capacity to understand, debate and shape future policy, and engaging openly with Australians are critical to the infrastructure needed to ensure a prosperous and fair Australia. Equally important are the finances that are needed to sustain this infrastructure and, more importantly, to act and deliver. Does the government have sufficient revenues to address the existing and emerging needs and opportunities to ensure a strong workforce, a healthy society, and healthy innovation and productivity? As we demonstrate in this Compendium, it may be time for a serious review of our tax and transfer system.

Contents of the Compendium

Many of the chapters in this Compendium reflect the underlying importance of tackling poverty and disadvantage in Australia. The Melbourne Institute's Breaking Down Barriers project, funded through the Paul Ramsay Foundation, has issued a number of reports that highlight the big issues around poverty and the fact that rates have remained flat but that education and employment are strongly correlated with cycling out of poverty (Payne and Samarage, 2020; Ananyev, Payne, and Samarage, 2020); that children of families living in disadvantage are more likely to experience disadvantage as young adults (Vera-Toscano and Wilkins, 2020 and 2022); and that single parents exhibit high rates of disadvantage (Broadway and Kalb, 2022). These reports represent a subset of the many reports and papers that have been written to understand disadvantage in Australia. Throughout the Compendium we examine how we can better tailor our policies to address poverty and disadvantage by capturing relevant information, testing ideas, and creating shared environments for research and analysis.

Is it time for industry and foundations to step up and work with government in the financing of field trials, evaluations and initiatives that will promote innovation and productivity and provide relevant social support? We can look to other countries for examples where donors and industry have stepped up. For example, private support has been used to trial targeted income payments in many US cities (Lee, 2022). To fill teaching vacancies in the United States, the Department of Education is collaborating with several businesses to focus on promoting current opportunities and building the future teaching workforce (Department of Education, 2022). To better support STEM (science, technology, engineering and mathematics) needs for Space exploration and innovation, the United States has created a coalition of philanthropy, industry and government to inspire and employ the future Space workforce (White House Briefing Room, 2022).

This Compendium comprises 10 chapters, including this overview chapter. We present them in four parts. This chapter forms Part 1. Part 2 relates to aspects of monetary policy, fiscal policy and labour markets. Part 3 includes chapters on health and education. Part 4 contributes to the literature on the importance of creating and building an evidence base to support better policy-making. While evidence-based decision making is a theme running through the whole Compendium, the chapters in Part 4 specifically address critical components to encourage meaningful evidence-based decision making.

Throughout the Compendium, we see the recurrent theme that epitomises the 60-year history of the Melbourne Institute: How do we support those on low incomes and/or experiencing social or economic disadvantage? The inaugural director of the Melbourne Institute, Ronald Henderson, was known for his work which demonstrated that poverty is not a personal attribute but one that arises out of the organisation of society (Saunders, 2019). While there have been many policy changes that have resulted in a positive impact and opportunities for those at the lower end of the income distribution, we remain far from reaching the United Nations' first Sustainable Development Goal of eliminating poverty by 2030.

Throughout the chapters in this Compendium, evidence is provided, and ideas that will help us get closer to the reduction or elimination of poverty are presented. These ideas range from a consideration of targeted approaches such as providing rent assistance (Lim et al., Chapter 2) and providing better coverage of out-of-pocket health-care costs (Méndez et al., Chapter 6) or increasing JobSeeker Payments (Wooden, Chapter 4), to more general approaches such as providing minimum income support (Dawkins and Garnaut, Chapter 3) or developing targeted understanding of community and individual needs and opportunities to create stackable approaches to addressing disadvantage and providing economic opportunities (Marchand and Payne, Chapter 7).

With a menu of options available for policy innovation, especially as it relates to the overall economic and social wellbeing of Australians, how do we know which option will be most efficient and provide the needed inroads for creating sustainable economic opportunities for all? Creation, exploration, testing and evaluation of data are critical components to our being better informed. In Chapter 8, Payne and Samarage highlight the value of data collected for purposes other than research; in Chapter 10, Botha and de New demonstrate the value of using private sector information to capture financial wellbeing; and Castillo and Petrie, in Chapter 9, highlight the value of testing and exploring before rolling out major policy changes.

MONETARY POLICY, FISCAL POLICY, LABOUR MARKETS

Part 2 of the Compendium focuses on the backbone of Australia's economy and organisations. It raises the macroeconomic policy issues we are facing: what we should be doing to address these conditions and how we might also use our tools and knowledge to address the broad economic and social issues we are and will be encountering. Also highlighted are issues connected to the existing tax and transfer system, and how tools such as taxation might better target behavioural issues that affect society (for example, alcohol taxation in Chapter 5).

Rising interest rates and financial vulnerability

In Chapter 2, Lim, Nguyen, Robinson and Tsiaplias discuss the likely impact of the rising interest rates that Australia has experienced in 2022, especially on the financial vulnerability of different demographic groups, using data from the Consumer Attitudes, Sentiments and Expectations (CASiE) Survey.

The authors show there has been a significant rise, since 2019, in the number of young mortgagors, those aged 18 to 34. Their situation improved during the period of the loosening of monetary policy and low interest rates, but, with the tightening of monetary policy and low fixed-rate mortgages expiring, this is likely to have a negative impact on them.

With respect to renters, since 2020, there has been a sharp rise (11.4 percentage points) in the proportion of young renters living in low socio-economic areas.¹ Prior to the COVID-19 pandemic (2018–2019), 60 percent of young renters residing in these areas reported feeling financially vulnerable. We should anticipate that many of these renters are particularly sensitive to key stress factors such as higher inflation and rental prices.

Recent evidence from CASiE indicates a rising proportion of households reporting worse-off financial conditions. Specifically, there was an increase of 37–44 percent after the interest rate increases, which is the largest proportion since 2012. This may have also been made worse by the impact of rising interest rates on the labour market. In a recent analysis of TTPN data, Payne (2022) reports that perceptions of financial stress and mental distress, although having fallen since mid-2020, remain quite high, especially for families and young adults.

Given we are experiencing a tightening of monetary policy, it will be important for the Reserve Bank of Australia (RBA) to be mindful of such data to ensure it understands the effect it is having on household balance sheets and budgets. Lim et al. argue that the government should also keep a close eye on these data in deciding whether to provide temporary fiscal relief to renters. In addition, it should consider the impact of its assistance to first home buyers during a time of low interest rates, which may have induced them to take on larger mortgages than they would have done, or indeed any mortgage at all. Increasing interest rates that are unanticipated even by the RBA could leave these buyers in a financially precarious situation.

In commenting on the current tightening, Lim et al. argue the current circumstances are complex for several reasons, making the setting of monetary policy also complex. The current inflation has been caused largely by supply shocks associated with the pandemic and the war in Ukraine. Strong demand for goods and services is also having some impact, which is the RBA's justification for raising interest rates. Early evidence from the Melbourne Institute's survey is that consumer intentions to buy major household items have moved sharply lower, and a moderation of the pace of rate hikes soon may be appropriate, to prevent a sharp contraction in demand and precipitate a recession. They also note that while the Melbourne Institute survey finds short-term expectations are elevated, measures of long-term expectations are consistent with the RBA's target range.

¹ Lim et al. define low socio-economic areas as falling in the bottom quintile of areas measured by the ABS-SEIFA index.

Achieving full employment

In Chapter 3, Dawkins and Garnaut point out the risk of placing too much weight on containing inflation rather than achieving full employment. They highlight evidence that an overly tight monetary policy kept unemployment too high for too long (Garnaut, 2020; Gross and Leigh, 2022). In that context they argue that the RBA's explicit emphasis in 2021 on achieving full employment before tightening monetary policy was an important breakthrough.

In turn, they question the substantial tightening that has occurred in 2022, without real evidence of accelerating wage inflation, and note the Treasury and RBA's forecast that unemployment will revert to 4 percent in 2024, having got it down to 3.4 percent in 2022. They note, however, that the Bank has slowed the rate of increase in interest rates in October 2022 and started mentioning full employment again in their monthly statement.

As reaching 3.4 percent unemployment has not created accelerating wage inflation, it is possible that the full employment level of unemployment (or the NAIURU), could be 3, 2.5, or 2 percent or below as it was from 1944 to the mid-1970s. We are unlikely to know for quite some time unless there is an easing of monetary policy. This is an interesting example of evidence-based policy, where we are only likely to find out what the NAIURU is when we get there by expansionary demand management and/or through experiencing accelerating wage inflation.

Maintaining full employment was one of five themes addressed in the recent Jobs and Skills Summit. The other four were: boosting job security and wages; lifting participation and reducing barriers to employment; delivering a high-quality labour force through skills, training and migration; and maximising opportunities in the industries of the future. The chapter by Dawkins and Garnaut touches on most of these issues. Chapter 4, by Wooden, focuses specifically on job security/insecurity.

As Dawkins and Garnaut write, 'We hope the Summit and the White Paper herald a new era of evidence-based economic reform. This should have a central focus on achieving full employment, raising productivity and participation and increasing real wages, with a view to achieving sustainable growth in living standards and ensuring a fair distribution of income. That is the subject of this chapter, which draws on a range of evidence and highlights ways in which additional information and analysis can support the development and refinement of this policy agenda'.

They go on to outline some key elements of such a reform agenda, drawing on their previous work as two of the five economists who wrote to John Howard in 1998 with a five-point plan to reduce unemployment and raise labour force participation. A key ingredient will be ensuring that full employment is reaffirmed as a key priority of the RBA in undertaking the current review.

Insecure employment

Increasing job security was one of the objectives identified at the Jobs and Skills Summit. In chapter 4, Wooden interrogates whether job security has declined and briefly discusses some of the policy options being considered.

Wooden explores the various definitions of job security/insecurity, such as the level of uncertainty surrounding employment continuity, the perceived threat of job loss, and the extent of non-standard or temporary forms of employment. He then reviews available data that could be thought of as reasonable quantitative indicators of job insecurity, such as the level of unemployment, underemployment and underutilisation of labour; the extent of involuntary separation rates; the extent of casual employment; the extent of people on fixed-term contracts; the level of self-employment; and the level of multiple job holders. He finds that all of these possible indicators of job insecurity have either been declining in recent years or have been more or less flat. He also looks at subjective measures of job insecurity and finds no long run trend, but a slight tendency, as one would expect, for the perception of job insecurity to be counter-cyclical, increasing when the economy contracts and unemployment rises.

How does Australia compare with other countries? With limited data availability, Wooden refers us to Hipp (2016) who uses 2005 data on job insecurity for several OECD countries. Australia performed better than most of these countries, being above the multi-country average, even though Australia reports higher levels of fixed term and casual employment.

The lack of a long-term upwards trend, or the lack of evidence of perceived job insecurity being high by international standards, need not prevent a government from seeking to increase job security or reduce job insecurity, and to aim to achieve very high levels of security and low levels of insecurity by international standards. We note that addressing job security was part of the new Labor Government's election platform.

The evidence from Wooden's chapter suggests the main lever to pull to reduce job insecurity is to reduce unemployment and underemployment, and the main risk to job insecurity is the possibility of rising unemployment. Wooden outlines other possible policy options but warns against the risk of unintended consequences.

Such options being considered at the federal level include:

- extending the powers of the Fair Work Commission to cover 'employee-like' forms of work;
- amending legislation to provide for an objective test to determine when a worker can be classified as casual that better aligns with traditional common law definitions;
- ensuring that workers employed through labour hire or other employment arrangements such as outsourcing will not receive less pay than workers employed directly; and
- limiting the use of fixed-term contracts.

Wooden's discussion of the first three suggest they will be challenging to implement. The fourth option is evidently more straightforward, but he argues there is a substantial risk of negative unintended consequences. Evidence from Spain and Portugal suggests that removing restrictions on fixed-term employment led to increased total employment, and imposing restrictions on fixed-term employment led to reduced total employment.

The lesson here is that if attempts are made to reduce fixed-term employment or casual employment to reduce unemployment and underemployment, extreme care needs to be taken to avoid unintended negative consequences.

Fiscal policy

Dawkins and Garnaut point out that the federal government's budget is in a perilous state. Fiscal consolidation will require expenditure cuts, but increases in tax revenue should also feature.

A better balance between fiscal and monetary policy is required. If reductions of demand to contain inflation are achieved with tighter money and looser budgets, the real exchange rate will be higher. More of the growth in employment will come in domestic and less in trade-exposed industries. Full employment would be achieved with larger amounts of public and international debt. That will reduce future relative to current living standards.

The need for more tax revenue will make it imperative for the government to focus on the efficiency and equity of the tax system. On the equity side, care will especially need to be taken of low-income families, especially given the rise in the cost of living in the short term and problems of housing affordability.

In this context the government should be encouraged to rethink its 'stage three tax cuts'. In the short term, the government could consider the use of an earned income tax credit as a cheaper alternative to the tax cuts, to support low-wage earners in low-income families, and as possible alternative to arguing for another large rise in minimum wages next year. Such a policy would have a larger benefit for low-wage earners in low-income families than a wage increase, and another substantial increase in minimum wages at a time of rising unemployment and weakening demand would impose further risk to the employment prospects of low-wage earners. In the longer term an overhaul of the tax transfer system, which is discussed below, should be explored.

EMTRs and increasing labour force participation

Dawkins and Garnaut discuss the problem of high effective marginal tax rates (EMTRs), associated with Australia's tightly means-tested welfare system, and explore various ways of dealing with this to raise labour force participation and hours of work.

A very promising area for raising labour force participation is government investment in expanding support for child care and quality early childhood education, which also has the potential to provide substantial enhancement to human capital development and productivity. Policies at the state and federal level are moving in this direction, but there is considerable scope for further enhancement. The Centre for Policy Development (2021) proposed such an agenda under the name A Guarantee for Children and Young Families, which includes free or low-cost early education from birth to school, with more days available at minimal cost, and more shared paid parental leave for parents and carers.

With respect to parents' labour supply, studies by Wood et al. (2020), Wood and Emslie (2021) and Dixon and Hodgson (2020) indicate the potential for large impacts of such policies on labour supply and GDP, which could also at least make a large contribution to the budget cost of such measures.

Dawkins and Garnaut note that there is significant scope to build on this evidence and provide more detailed estimates of likely effects of such policies through the use of simulation modelling. The Melbourne Institute and the Centre of Policy Studies (CoPS) have put together a proposal to join the Melbourne Institute Tax and Transfer Simulator (MITTS) and CoPS's dynamic CGE modelling to simulate the economy-wide effects of such policies. To do this the MITTS model would need to be enhanced with additional data such as HILDA Survey data, which provide information on child-care costs and labour supply to allow for the modelling of changes in the elasticity of labour supply when one includes changes in child-care costs.

One of the benefits of linking the MITTS and CoPS CGE modelling is that it would factor in the constraint that would be imposed by a limited supply of child-care workers and early childhood educators. Noting that supply of workers for any major program is not infinite or readily available, undertaking a modelling exercise to understand the impacts illustrates the importance of undertaking caution when considering the speed of introduction of such policies. We encourage the federal treasury to explore supporting collaborations with external researchers such as has been proposed above to help guide government policy on important policy priorities.

Taking a holistic approach and embarking on universal programs with informed analysis is important. Also important, however, is to consider strategic programs for targeted groups that are structured to provide flexibility in the way resources are used. For example, the Melbourne Institute has been working with the Brotherhood of St Laurence and the Murdoch Children's Research Institute to develop a proposed field trial that would enable families with young children to address their financial and social constraints by providing them with financial resources that they can use for their specific needs, be it day care, housing, food or other needs. By providing families with the discretion to allocate resources as they see fit, we would not only be addressing concerns about labour participation/supply but also concerns around family wellbeing and child development.

As highlighted by Marchand and Payne in Chapter 7, there can be value in targeting programs based on geographic and/or population considerations. Marchand and Payne illustrate this point in the context of youth transitions from high school. As a given geographical area may face different structures tied to employment opportunities, training and higher education, an evidence base that permits data-informed contexts for communities and both simulation and evaluation at such a level will also support the development of policy and practice on big issues such as employment and labour supply.

Is it time for a comprehensive review of the tax and transfer system? Dawkins and Garnaut argue that it is timely to review the whole design of the tax transfer system as it relates to the relationship between income tax and welfare support. Their argument is premised with a view to simplification, reducing effective marginal tax rates, and supporting low-income households against the various risks they face, such as inflation, increased unemployment, high housing costs, etc., in a new compact with Australian families. They explore variations on this theme, such as the Guaranteed Minimum Income (GMI), Australian Income Security (AIS) and Conditional Minimum Income (CMI) with an employment conditional benefit.

Taxes on alcohol

In Chapter 5, Yang points out that alcohol taxation is an important policy instrument for correcting the market failure associated with creating excessive alcohol consumption. In Australia, the social cost of alcohol use in 2017–2018 was estimated to be nearly \$67 billion (Whetton et al., 2021).

Yang uses data from the first six waves of the Australian National Drug Strategy Household Survey (NDSHS), which provides a sample of about 150,000 individuals. His analysis links 10 alcohol beverage types to drink driving and hazardous, disturbing or abusive behaviours when intoxicated. He finds that regular-strength beer and pre-mixed spirits in a can rank highest in their links to negative behaviours, followed by mid-strength beer, cask wine and bottled spirits and liqueurs. In contrast, drinking low-strength beer or fortified wine reduces the probability for these risk behaviours. Bottled wine has a positive association with a greater incidence of drink driving but is linked to a reduced chance of other behaviours.

The policy implication is that existing volumetric tax rates per litre are not the best way to impact these external costs of alcohol consumption. Yang concludes that 'The current Australian alcohol tax system is complex, anomalous and incoherent', and is in 'great need for reform and simplification'. For example, cask wine appears to be significantly under-taxed relative to its external cost to society. Regular- and mid-strength beer are comparable to pre-mixed drinks in terms of these external costs, and, yet, there is significant disparity across their tax rates.

In response to similar concerns, the UK Government undertook an alcohol tax review (2020) and has since produced a proposal for a simpler volumetric tax system that is more consistent across beverages but with a progressive structure so that lower alcohol concentration products are assigned lower duty rates.

Yang demonstrates that the same amount of alcohol in different beverage types is linked to different probabilities of harmful behaviours, which leads to different magnitudes of negative externalities. This evidence should allow policy-makers to develop policies that target the taxation of alcoholic drinks based on the extent to which they are considered more harmful, thus achieving the highest efficiency at the societal level.

While Yang's research points to a direction for reform, he notes that he cannot provide the exact amount of tax that should apply to different beverages. To undertake a more comprehensive analysis would require, as in Srivista et al. (2015), the linking of his research on the negative externalities of different alcohol types with an analysis of demand responsiveness and substitution effects between different alcohol types.

HEALTH AND EDUCATION

This section focuses on targeted concerns that, while affecting us all, require specific evaluations to understand the intentional and unintentional consequences of policies and regulations. We focus on health and education to illustrate how best to use evidence-based approaches to address these issues. The work, however, could easily be extended to cover additional pressing concerns such as energy and the environment.

Improving access to health care in Australia

In Chapter 6, Méndez, Scott and Zhang point out that comparisons of Australia's health system performance with other rich countries are favourable with respect to high health status, which is achieved with health spending representing only 10.2 percent of GDP. Comparisons to other critical features of a health system, such as affordability and timeliness, however, are less favourable when compared to these other countries.

Affordability is a growing issue in Australia because out-of-pocket costs have been rising much faster than wages. Out-of-pocket expenses are around 20 percent of the average person's annual health expenditure. The proportion of average annual income devoted to personal spending on health care was 2.6 percent in 2018–2019 and this proportion is increasing by an average of 1.4 percent per year. The cost burden is higher for those with low incomes. For households at the lowest income deciles, individuals are 15 times more likely to have catastrophic health expenditures when compared to households with high incomes. Higher-income households, in contrast, spend as low as 10 percent of their net income on out-of-pocket health-care costs. While this difference is a bit mechanical—if one earns more, one will by calculation spend less on necessities—it also illustrates that the pressure of increasing health-care costs is not evenly distributed across the population.

The authors examine the three issues influencing access to health care in Australia: affordability, private health insurance, and the geographic distribution of the medical workforce. They conclude that subsidies and incentives relating to these three issues should be better targeted if we want to achieve more equitable outcomes.

Addressing health-care affordability, Medicare subsidies should be better targeted for those on low incomes. In relation to addressing issues about private health insurance adoption and costs, Méndez et al. present several proposals. First, subsidies for private health insurance should be better targeted to population groups with lower incomes and to those who are likely to be more responsive to price incentives, such as young adults. Second, the Medicare Levy Surcharge should be redesigned to encourage Australians to purchase private health insurance that provides adequate coverage as well as lower out-of-pocket costs. Third, policies that lower the result in lowering the cost of private health care should be developed.

In relation to the distribution of medical workers across Australia, the use of financial incentives to encourage doctors to relocate to and stay in rural areas could be better targeted at younger doctors who have recently completed training and are more mobile. Moreover, we should learn from our experiences during the pandemic, which saw an increase in virtual and telephone medical visits; we should also incorporate new technologies that will better address the persistent gaps in sufficient medical staffing in rural and remote areas.

School-to-work transition

A key issue that was canvassed at the Jobs and Skills Summit is how to meet the future skills needs of the Australian economy. This is a major concern for the business sector because there are relatively few job applicants for each vacancy as the labour market has tightened.

Critical to a successful workforce are the decisions high school students make that lead to a successful transition to employment. As Marchand and Payne (Chapter 7) point out, prior to the pandemic the youth unemployment rate in Australia was close to 12 percent and today it remains high, despite lower unemployment rates across all ages. Moreover, both males and females exhibit higher rates of unsuccessful transition as illustrated in the rate of young adults who are not in employment, education, or training (NEET). The NEET rate for Australian males is higher than the rates for males in the United States, New Zealand, and many other countries. The NEET rate for Australian females is lower than for males, and females have lower NEET rates than in countries such as the United States, the United Kingdom, and Canada.

Despite efforts over the last decade to improve high school completion rates in Australia, Marchand and Payne illustrate that a high proportion of students do not continue high school beyond year 10. At the height of the pandemic, many Australians expressed a high level of financial stress. For those aged 25 to 34, the factors that contributed to this stress included not being employed, only being part-time employed and not pursuing degrees beyond high school.

Marchand and Payne point out the following critical factors that contribute to low educational achievement and/or negative employment situations:

- Place-based disadvantage: living in areas with high disadvantage is associated with lower educational achievement and lower income as an adult.
- Experience of health disorders such as anxiety, depression and the like is associated with dropping out of school.
- Not attending school and disengaging with school at an early age place students at higher risk for an unsuccessful transition into employment.
- Engaging in risky behaviour such as heavy alcohol or drug consumption in high school often results in long-lasting consequences if there is no intervention early on.

The authors demonstrate that the solutions for encouraging staying in school and promoting successful transitions into employment are multi-faceted. They illustrate how, by bringing data together and developing metrics at a community level, we will be better poised to develop, test and evaluate policy and actions designed to support youth in high school and in the years immediately following high school. Chapter 7 also illustrates the importance of addressing what can be considered a universal problem through a place-based lens.

Workforce skills

In their chapter, Dawkins and Garnaut mention the additional argument made by Keating (2022), that skills enhancement can help arrest low wage growth, which contributes to low productivity growth. Keating (2022) argues that low wage growth depresses consumer demand and in turn investment in new plant and machinery. He argues that 'technological change and globalisation have hollowed out routine middle level jobs, depressing pay in these occupations relative to higher-paid occupation' and that investment in education and training is the best way to confront this.

Dawkins and Garnaut also point to research and policy analysis on tertiary education by the late Peter Noonan and other colleagues at the Mitchell Institute and elsewhere (Dawkins et al., 2019; Noonan et al., 2019; Bean and Dawkins, 2021), which highlight important improvements that could be made to strengthen workforce skill development by encouraging connections between industry and the higher education and VET sectors.

Early childhood education

There is a strong evidence base supporting investment in early childhood education and how this investment results in potentially large benefits for productivity and participation when these children are adults (see Dawkins and Garnaut, Chapter 3). In previous work, Vera-Toscano and Wilkins (2020, 2022) point to the ramifications for young adults of growing up poor in Australia, highlighting another reason for early childhood investment. Melbourne Institute reports by Tseng et al. (2017, 2018) demonstrate the importance and value of strong investment in families and children, especially those who are experiencing extreme disadvantage. The Early Years Education Program has been awarded many accolades and is expanding to reach more children and families in Australia.

Dawkins and Garnaut point to the proposal from the Centre for Policy Development (2021). From an economic perspective this has the potential to increase the labour supply of parents and to have a long-term impact on the health, wellbeing and educational achievement of children and their future careers and productivity. In calling for more research on their proposals, the authors argue that it is a very promising agenda as it addresses unmet needs from birth until school at a cost that is low or free.

In Chapter 9, however, Castillo and Petrie urge caution in implementing a major expansion in early childhood education, pointing to evidence that the expansion that has already occurred in Victoria and New South Wales has not yet yielded improvements on measures of school readiness for five-year-olds. They argue for randomised trials to find evidence of what kinds of early childhood education interventions yield tangible benefits.

And, as mentioned above, a proposed initiative by the Melbourne Institute, the Murdoch Children's Research Institute and the Brotherhood of St Laurence emphasises the importance of investing in families with young children so that they can allocate resources based on their needs in combination with programmatic support that can address financial, social and emotional wellbeing for children and their parents. Thus, a debatable issue is the best way to allocate scarce government resources to support early child development and family wellbeing. With data and proposals from several organisations, we are well placed to create a stronger evidence base through trials, analyses and evaluations.



THE IMPORTANCE OF CREATING AND BUILDING AN EVIDENCE BASE TO SUPPORT BETTER POLICY-MAKING

Evidence-based policy-making (EBPM) is, admittedly, a loaded phrase. We use it freely but often do not articulate what we mean by it. From a scientific perspective we should be strict in the application of EBPM to create a clear link between a theory or hypothesis and the results from an application of that hypothesis. A looser definition would include an interpretation of information and then use of that interpretation to persuade or argue for a particular set of reforms or policies. Of course, policy-makers still have to make big judgments, and decide what weights to place on different desired outcomes, but hopefully draw on the best evidence available in making those judgments. Also included in EBPM would be the adoption of what might be referred to as ‘policy diffusion’: see what works elsewhere and apply those policies to a different context, taking or not taking into account the features of the given situation (for example, population, geography, laws/practices) that could result in different outcomes.

In our context, we focus on the roles that the creation of data, the use of existing data, and the testing of theories and hypotheses play in helping us to better understand issues at hand and to predict how a change in policy or practice will result in the addressing of the issues, considering both intended and unintended consequences. To inform policy, as economists (and more broadly social scientists), we are not simply using data and the ever-increasing bag of tools for data analysis. We must start with a framework, be it formal or informal, for thinking through an issue, considering how we live and work in Australia, what might motivate us or support a change, and how our public sector operates. It is through a social science (or economic) lens that we can then consider what data would be most suited to testing ideas and/or evaluating policy/practice to apply the most relevant statistical techniques to embrace notions of exploring more than correlations or statistical significance.

‘Big data’—lots of observations and/or many years of observation—presents opportunities to contribute meaningful evidence. Big data, however, comes with a cautionary tale of not simply relying on statistical significance without a relevant consideration of the frameworks/hypotheses and an understanding of what we can and cannot measure with data.

The importance of making the most of administrative data to create an evidence base

In Chapter 8, Payne and Samarage highlight the importance of the recent passage of the Data Availability and Transparency Act (2022) (‘DATA’) by the Commonwealth government. Not only will DATA enable better access to Commonwealth data, there will also be opportunities for state governments to follow suit and develop stronger governance frameworks that support the use of secure data environments that allow for the targeted development of data from government, service providers and industry to undertake deeper and more rigorous analyses of Australian challenges and opportunities.

The authors reflect on the current underutilisation of an important and valuable treasure of the many data elements collected as it relates to understanding actions taken, what works, and what is not working in Australia. And, yet, we are well positioned to take up the opportunity to make the most of government and private sector data through collaboration and sharing of information. Payne and Samarage also highlight the critical role of administrative data and data collected for purposes other than research or analysis on their own, in combination with survey data, and as part of field trials, in identifying relevant treatment groups, developing testable hypotheses, and in short- and long-term evaluations of trial results.

Critical to greater use of Australian data is ensuring there is a range of platforms that can host data, and enable analysis and the reporting of results. When data are sufficiently de-identified or provided at a group level (geography, population, other characteristics), open access platforms are sufficient. Data that are proprietary, contain personal information even though they are deidentified, and/or contain sensitive information, require secure platforms that adhere to requirements of data custodians and respect the individuals, households, communities, and/or organisations under study. These platforms require strong governance and oversight, cooperation with data custodians, and a range of protocols to minimise the risk of unauthorised access or reidentification of individuals.

A second critical component for effective data analysis is a willingness by the data custodian to provide access to the data and to support efforts to permit the linking of measures across data sets. While DATA has enabled the sharing of data across government departments, releasing and enabling linking of the data are not mandated under the legislation. This highlights the importance of the work undertaken by the Office of the National Data Commissioner. Equally important will be for those custodians not governed under DATA, such as state and local governments and service providers, to embrace the principles of the legislation.

Payne and Samarage illustrate a few of the many ways that administrative data can be used to inform and test hypotheses. Importantly, they provide a framework for how we can and should be moving forward to enable the building and support of platforms that enable the sharing of data to allow an increased undertaking of independent and credible analysis by a range of stakeholders. Importantly they demonstrate the critical roles that universities and groups such as the Melbourne Institute play in the establishment of platforms, shared data environments, and rigorous analyses.

The importance of testing before undertaking major policy changes

Castillo and Petrie, in Chapter 9, highlight that the government invests billions of dollars to support various programs that increase the economic and social prosperity of Australians. Some of these investments, however, are based on beliefs or evidence that they work elsewhere. These beliefs and/or evidence are not always grounded insofar as we understand the mechanisms or drivers behind the observed (or anticipated) success. This lack of grounding can lead to an inefficient and, in the worst case, ineffective use of taxpayer dollars.

The authors highlight the importance of undertaking trials that randomise recipients and non-recipients of the policy or practice being explored. They stress the importance of taking a scientific approach that will permit an understanding of the intended and unintended consequences of the proposed change, in addition to what may happen if the policy or practice is adopted and, thus, 'scaled-up'.

While ex-post policy evaluation is a useful tool, Castillo and Petrie point out that, without information pre-policy change, which can then be used with ex-post policy change, it can be challenging to establish that a policy has had its intended effects. One way of ensuring strong policy effectiveness is to first undertake a trial. If a policy is implemented, then one should also consider the importance of collecting information pre and post implementation to allow for further analyses, including being able to capture the medium- and longer-term effects of a policy. In Chapter 8, Payne and Samarage highlight the importance of undertaking this data collection and the importance of using administrative data to support such analyses.

To illustrate the importance of undertaking a randomised trial, the authors use recent expansions of funded preschool for four-year-olds as an example. Many studies have established that investing in child development at early ages results in better student outcomes in school and better employment prospects beyond school. What is less clear are the best options for undertaking an investment in child development.

With funded preschool (or day care as is offered in other countries), there could be a range of impacts: child development, labour force participation by parents, and family economic and social wellbeing. Castillo and Petrie illustrate the importance of incorporating trials by focusing on the correlation between measures of school readiness before and after the change in policies regarding public funding of preschool. Using data at

a community level (local government area), the authors find limited impacts of increased preschool enrolment on measures of school readiness in the first year of full-time schooling. Their results, however, also illustrate regional differences. They find that communities in Victoria and New South Wales have close to no effect on school readiness and that increases in enrolment in communities located in the other states have a slightly negative effect on school readiness.

As Castillo and Petrie point out, there are many hypotheses that would explain their findings. But the underlying reasons and the mechanisms for these results are difficult to discern because of the lack of data available for analysis and the ex-post approach that was required to undertake the analysis.

Chapter 9 highlights the importance of structuring an evaluation plan as a policy is being developed. Such a plan can assist in the creation of stronger policies, thus resulting in policies being more targeted in terms of addressing the challenges for which a solution is available.

How does understanding financial wellbeing help us create better policies?

In the final chapter of the Compendium, Chapter 10, Botha and de New illustrate the importance of capturing detailed information on households and recording this information over repeated intervals. They illustrate the development of financial wellbeing scales that reflect their finances and capture three temporal periods: day-to-day expenses, big ticket emergency expenses and one-time future expenses.

By capturing this real-time information on household spending patterns, the authors illustrate how this allows us to observe actual behaviour on a quarterly basis (or more frequently). Information on actual behaviour is particularly useful when there are major economic disruptions, for example, during the pandemic and resulting lockdowns, changes in work patterns, and related issues that affected many household finances. The impacts of more recent events such as increases in interest rates and fuel prices are additional examples.

Botha and de New's chapter illustrates the work that is being undertaken to create more informative measures that can be used on their own or in analyses to understand current or emerging issues.

CONCLUSIONS: TOWARDS AN EVIDENCE-BASED POLICY AGENDA

The doors are open for embracing opportunity. Will we move forward and walk through these doors? If so, we must be mindful of the importance of reflecting and embracing change through the lens of a strong and objective evidence base. There is no shortage of economic and social problems to solve. There are more information bases than ever to analyse, and many expert analysts to assist the policy-makers. We have a new federal government that recognises the existence of significant economic and social policy challenges. Now is the time to create a sustainable environment for testing ideas, embedding and developing evidence to understand issues and to allow for real time before, during and following evaluations of the solutions.

This Compendium highlights the interplay between equity and efficiency for a number of pressing economic and social issues. In the tradition of the Melbourne Institute, we focus on the many challenges that households with lower incomes face, the challenges of providing meaningful opportunities and skills acquisition for our children and youth, and the pressing need to sustain a vibrant yet fair health system. One very good thing is that unemployment and underemployment have been declining and we have been approaching full employment, which has offered much promise for wage earners.

Yet, as we move out of the pandemic, face global macroeconomic and energy crises, and combat climate change, the agenda of the new government is full and challenging. The government's budget is in serious difficulty and will worsen with slowing growth and rising unemployment. A constrained budget will constrain the government's ability to meet the needs of the disadvantaged or invest in education, training and the health of the population.

This narrative emerges from much of the analysis in this Compendium. We encourage government to aim for such a policy focused on inclusive growth. To achieve these aims, we must not forget the importance of modelling, testing and evaluating to create what is long overdue, a strong and deep evidence base to permit effective and positive change.

In this Compendium we focus on a number of these challenges, pointing to a range of possible solutions and the further research that would be needed to refine these solutions. This is in the tradition of the Melbourne Institute over its 60-year history. We hope that it stimulates debate and further research and analysis. The Melbourne Institute itself is committed to continuing to play a strong role in the Australian evidence-based policy landscape in the decades ahead.

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Part 2

Monetary Policy, Fiscal Policy
and Labour Markets

Chapter

2

Rising cost of living:
Interest rate hikes and
financial vulnerability

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Inflationary pressures and interest rate hikes are occurring in an environment of high housing costs and low wages growth. The impact of rate hikes is uneven and has resulted in a sharp rise in the proportion of renters living in relatively disadvantaged areas. While targeted fiscal assistance and a moderation in the pace of monetary tightening could help alleviate financial vulnerability in the short term, an improvement in productivity growth is needed for higher long-term growth and prosperity.

INTRODUCTION

Inflationary pressure and interest rate hikes

Inflationary pressure is on the rise and in early 2022 underlying inflation increased to above the top of the Reserve Bank of Australia's (RBA) target range of 2 to 3 percent, after languishing below 2 percent since early 2016. Figure 1 shows the evolution of this underlying inflation (which the RBA focuses on due to its reflection of persistent inflationary pressure). It also shows the cash rate and the periods of monetary tightening (that is, rate increases) since the turn of the century.

The period of closest parallel to today is from late 2009 onwards, following the global financial crisis (GFC). To mitigate the impact of the GFC on output and unemployment, interest rates (which had been in a tightening phase due to high inflation) were lowered dramatically. In late 2009 these extreme policy settings were viewed as no longer necessary and unwinding them commenced.

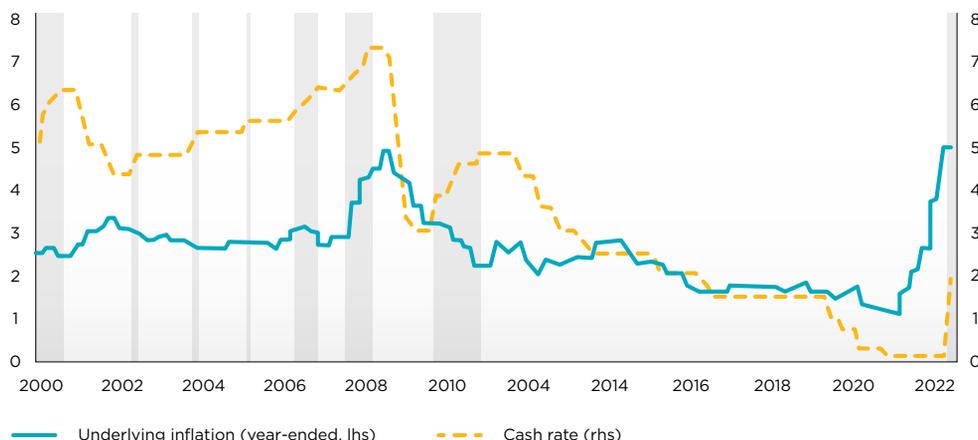
The phase of tightening monetary policy in Australia is clearly underway. Since May 2022 the RBA has undertaken successive increases in interest rates and has signalled that more are likely in the near term.¹ This is earlier than previously indicated by forward guidance from the RBA; the economy has recovered faster than many had expected, and unanticipated inflationary pressure has emerged. The immediate policy question is how much higher and how soon will the cash rate rise again.

The setting of monetary policy is a complex, multi-faceted decision, but the current circumstances are even more complex for several reasons. Apart from being a return from the extreme settings that were in place during the COVID-19 pandemic, there is a need to consider the nature of the shocks impacting the economy. In general, if inflation is driven by positive demand shocks, because the economy is operating above capacity, then increasing interest rates is an appropriate monetary policy response.

Currently, inflation appears to reflect both demand growth and supply shocks, namely the implications of the war in Ukraine for oil and gas prices; supply disruptions to coal-based electricity generation and stemming from the floods along the Eastern seaboard early in 2022; and rising construction costs.²

While the economy is influenced by a mix of shocks, the current substantial role of supply shocks arguably also makes determining the extent of spare capacity in the Australian economy, and hence the appropriate setting for interest rates, more difficult than normal.³ Nevertheless, with the labour underutilisation rate at a historically low level and job vacancies surging it appears that excess demand may well exist. The setting of macro policy is also complicated by the slow growth in wages and the size of the fiscal debt. Regardless, inflationary pressures and rising rates are likely to continue in the near term and the immediate issue is providing relief for those under financial stress.

Figure 1.
Inflation and the cash rate.



Notes: Shaded areas indicate RBA's tightening cycles. Underlying inflation is the trimmed-mean CPI.
Sources: Reserve Bank of Australia (RBA) Statistical Tables F1 and G1 and authors' calculations.

Figure 2.
Measures of housing affordability (2015=100).



Source: Organisation for Economic Co-operation and Development (OECD) Housing Prices. Standardised-price income and price-rent ratios for Australia.

¹ Some of the unconventional monetary policies that had been adopted during the pandemic ceased earlier.

² Monetary policy, because it is a demand-side instrument, is usually thought to not respond to supply-side shocks.

³ Relatedly, it is uncertain how long the war in Ukraine will last, and importantly for Australia the extent to which it has engendered a long-term shift in energy demand away from Russia in Europe and therefore that energy prices will remain elevated.

Problem of housing affordability at record high

The increase in the cash rate will be transmitted to the rest of the economy and will engender increases in loan and, to a lesser extent, deposit rates. This will likely benefit lenders, but the increased cost of loans will add to the financial stress of borrowers. Focusing on borrowing by households, tackling the issue of housing affordability will be even more important given that the problem of housing affordability is at a record high.

Longer term, the deterioration in housing affordability is highlighted in data compiled by the OECD. In the 1970s and 1980s, Figure 2 shows that the index value for the OECD's house price-to-income ratio averaged around 76 for Australia, rising to an average of 85 during the 1990s. Given both rising prices, fuelled by record low interest rates, and stagnant wage growth, the ratio is now at its highest point on record. Current affordability levels raise significant concerns about access to housing, particularly for lower-income earners.

Uneven impact of rate hikes on mortgagors, renters and outright owners

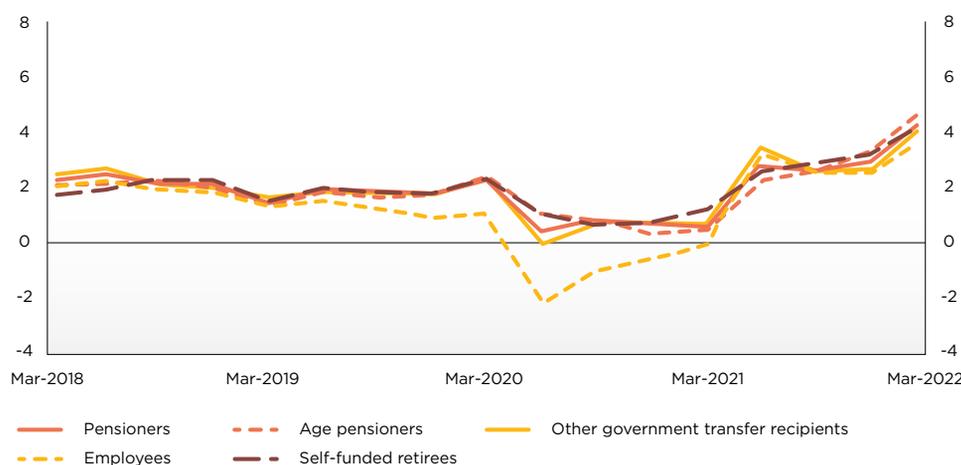
The cost of housing is a large component of household expenditure, but the anticipated tightening of monetary policy will impact groups unevenly. Figure 3 shows the cost of living across pensioners, age pensioners, self-funded retirees, employees and households receiving other government transfers. The results indicate that, with higher food prices, fuel and health costs, cost of living pressures have increased in recent months for each of the selected groups. In recent months, this increase has been particularly large for age pensioners, primarily due to a sharp rise in health-related costs.

A key difference between the cost of living measures and the Consumer Price Index (CPI) is that mortgage rates are part of the former, but not part of the latter. An interesting property in the data is that low interest rates have resulted in lower mortgage pressure for households, particularly for employee households. As such, the cost of living for employees has been substantially lower than overall CPI. In the March 2022 quarter, employee households recorded 3.8 percent growth in their cost of living, relative to 5.1 percent annual growth in the CPI. However, given the substantial interest rate hikes observed in recent months, this is likely to change. The increase is likely to be greatest for employee households, who will observe a rise in their cost of living that is attributable to larger mortgage repayments. In contrast, older households, which have a higher proportion of outright homeownership, will experience a smaller rise in the cost of living attributable to greater mortgage repayments.

Rate cuts during the pandemic led to record low interest rates, greater take-up of mortgages and higher house prices. A more direct analysis of housing stress stemming from a shift in monetary policy in an environment of strong recent house price growth can be obtained by considering housing status. In this respect, the anticipated monetary tightening, resulting in substantially higher interest rates, may cause a significant proportion of mortgagors to experience financial stress. However, the effects of higher interest rates are unlikely to be restricted to those with mortgages. Landlords may well seek to pass on costs associated with higher interest payments via the imposition of higher rents. Thus, both mortgagors and renter households will likely have to outlay a greater proportion of their income to housing-related expenditure, thereby increasing their propensity to experience financial stress.

The aim of this chapter is to provide new and timely data on the incidence of household financial stress from the Consumer Attitudes, Sentiments and Expectations (CASiE) Survey to inform possible policy responses. We first discuss the demographic groups experiencing financial stress, and follow with comments about housing policy issues.

Figure 3.
Cost of living (annual % changes).



Note: Pensioners includes all government payments (for example, disability), Age pensioners does not.
Source: ABS Selected Living Cost Indexes (ABS Cat 6467 - Table 1).

HOUSING-RELATED FINANCIAL STRESS

This section examines housing-related financial stress over the period 2018 to 2022. In addition to focusing on different demographic groups' financial stress, we also investigate their access to economic resources. Both are key factors in assessing overall household economic vulnerability and provide vital information for targeted and effective fiscal support. We focus on identifying the demographic groups that were financially vulnerable pre-COVID, and whose situation has been made worse by the pandemic. This is useful information (especially for state governments) to support the formulation of policies designed to promote inclusive growth, including policies aimed at ensuring a more even spread of living and working conditions throughout Australia.

To undertake the analysis, we rely on information relating to financial conditions (where worsening financial conditions are a sign of financial vulnerability) based on the information provided in CASiE about self-reported family finances. Specifically, the survey question—Would you say you and your family are better off or financially worse off than you were at this time last year? —is concerned with how people are coping financially. Responses to the question are measured on a four-point scale:

1. Better off
2. Same
3. Worse off
4. Uncertain/Don't know/It depends

For information about access to resources, we rely on the Australian Bureau of Statistics (ABS) (Index of Resources (IER) measure). The ABS has recognised the importance of the spatial elements of socio-economic disadvantage for a large, geographically dispersed country such as Australia. The ABS, as such, has developed the Socio-Economic Indexes for Areas (SEIFA), which is based on a multi-dimensional concept encompassing the socio-economic conditions of a community or neighbourhood. It includes factors such as the availability of public resources and transport infrastructure to capture advantages and disadvantages associated with occupational, financial, and educational disparities.

The ABS-SEIFA ranks areas in Australia according to their relative socio-economic advantage and disadvantage and each postcode is assigned a decile ranking (with decile ranks 1 to 10 corresponding with most to least social-economically disadvantaged; alternatively ranked least to most well-resourced). In this analysis we use the measure for access to economic resources (IER).⁴

Our aim is to identify which demographic groups have, over time, been particularly financially vulnerable (defined as the proportion of survey respondents whose finances have remained the same, plus the proportion who reported being worse off less those who reported being better off). We have adopted this measure to take into account the three likely states (worse, same, better) as, a priori, groups with a high percentage of financially vulnerable respondents will possibly require policy attention. Our results are presented below.

Financial stress by housing status: Mortgagees, renters and outright owners

Figure 4 presents information from CASiE relating to whether Australians are financially vulnerable, disaggregated by housing status (renter, mortgagor, outright owner). We consider changes over four years, from 2018, taking into account the pandemic years of 2020–2021 where macro-policies were in place to support jobs. Figure 4 also shows the financial stress disaggregated by ABS-IER, by quintiles.

The CASiE data do not show any discernible trend in recent years in the proportions of respondents within a housing status group (namely owners, mortgagors and renters) who indicated being financially vulnerable (left-hand side of Figure 4). In general, outright owners and renters appear to be more stressed than mortgagors, with the proportion of financially vulnerable in the former two groups drifting upwards since 2020. The greater financial vulnerability of outright owners compared to mortgagors is also likely to reflect the more interest-sensitive older age of outright home owners. However, there is no clear evidence of an ongoing widening of the gap between owners, mortgagors and renters.⁵

As shown in the right-hand side of Figure 4, the financial vulnerability indexes disaggregated by 'access to resources: IER' tend to co-move across quintiles. This co-movement includes 2020, with a particularly notable improvement for Quintile 1 (Q1). But from 2021, while the financial situation for the Q1 and Quintile 5 (Q5) groups appears to be back to pre-pandemic days, the situation for the middle groups covering Quintiles 2 to 4 (Q2–Q4) has remained relatively bleak.

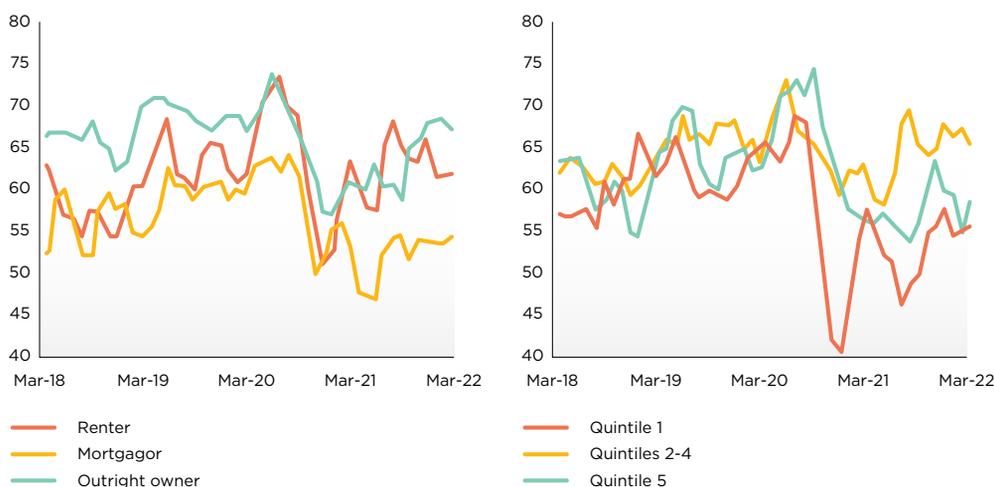
However, a closer look at the data reveals that there is a change in the housing status of Australians—namely that the proportion of respondents who are mortgagors has risen in the past few years. This is especially so for young mortgagors who are also typically first homeowners. The left-hand side of Figure 5 shows the proportion of mortgagors aged 18 to 34 relative to the proportion of renters in the same age category. Although the proportion of renters is always higher than the proportion of mortgagors (at least over the period 2018 to the present), there has been a decline in the proportion of renters and an uptick in the proportion of mortgagors in the past two years. The results suggest that, during the recent downturn, the lowering of interest rates increased the capacity of younger persons to borrow, leading to a rise in the number of young mortgagors.

⁴ The IER, which measures economic resources, was last published in 2016 by the ABS.

⁵ At the beginning of the COVID-19 pandemic, we observed a spike in financial vulnerability for full-time employees disaggregated further by housing status, although the spike was substantially more pronounced for renters. From late 2020 to mid-2021, with the massive fiscal stimulus, financial vulnerability declined for renters, mortgagors and outright home owners.

Figure 4.

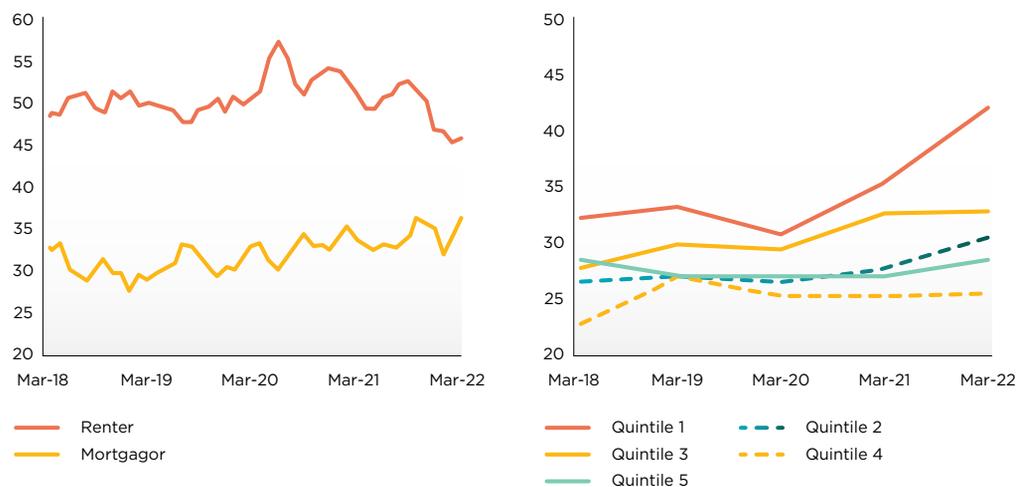
Financial vulnerability (proportions within housing groups and IER quintiles) (three-month moving averages).



Sources: Melbourne Institute's Consumer Attitudes, Sentiments and Expectations (CASiE) Survey; ABS Socio-Economic Indexes for Areas (SEIFA) 2016; and authors' calculations.

Figure 5.

Change in housing status in the 18–34 age group and by SEIFA IER quintiles.



Sources: Melbourne Institute's CASiE Survey; ABS SEIFA 2016; and authors' calculations.

Although the proportion of young mortgagors has risen in recent months, renters continue to constitute approximately 30 percent of households. In this respect, when we classify respondents with reference to the IER of their residential location in the right-hand side of Figure 5, **the data indicate a sharp rise in the proportion of renters living in the most (relative) disadvantaged areas** (that is, living in the first quintile of IER values, Q1).

To date there has been an 11.4 percentage-point increase in the proportion of renters living in Q1-designated locations relative to 2020, with the proportion of renters rising from 31 percent in 2020 to 42.4 percent in 2022. Over this same period, the proportion of homeowners with a mortgage living in Q1-designated areas declined by 3.2 percentage points, with the proportion of absolute homeowners falling by 7.6 percentage points. By comparison, the proportion of renters living in Q5-designated areas (which are the most advantaged) rose by a meagre 1.4 percentage points over the period 2020 to 2022, well below the 11.4 percentage-point change in Q1-

designated areas. Thus, the data show spatial heterogeneity in the vulnerability of renters, with a substantial rise in the absolute number of financially vulnerable renters living in disadvantaged areas.

More broadly, about 60 percent of renters in Q1-designated areas reported being financially vulnerable pre-pandemic. While in 2020 there appears to be self-reporting of some improvement in their household financial conditions, a large number of renters living in disadvantaged areas will likely be particularly sensitive to key stress factors such as higher inflation and rental pressures.

We also note that while the situation for mortgages improved with the low interest rates, the situation is likely to change with the considerable tightening of monetary policy and low fixed-rate mortgages expiring. In this respect, looking forward, higher interest rates pose a key risk for household financial stress, namely the direct risk of higher mortgage repayments. Although current household balance sheets are likely to be in good condition (Bullock, 2022), households

may experience difficulty in absorbing higher mortgage repayments in the presence of sharper-than-expected rate hikes. There is also the associated risk that the tightening of monetary policy may significantly weaken labour market conditions, thereby hampering the capacity to make mortgage and rental payments. Recent evidence in CASiE indicates a rising proportion of households reporting worse-off family finances. Since May's rate hike, the proportion of households reporting a decline in family finances increased from 37 percent to 44 percent in July. The latter proportion of households reporting worse-off financial conditions is the highest since 2012, highlighting the downside of tighter monetary policy.

Policy discussion

Our focus will be on renters and mortgagors, given federal and state government support for first homeowners and the likelihood of increased financial stress in the presence of tighter monetary policy.

SUPPORT FOR FIRST-HOME BUYERS

Since the increase in the proportion of young/first-time mortgagors is concurrent with record low interest rates, the tightening of monetary policy over the course of 2022 and 2023 raises concerns about the propensity for this group to experience financial stress. A key concern is that the mortgagors in our dataset are accustomed to relatively low interest rates, with many experiencing rate hikes for the first time in 2022.

With rising interest rates, it is likely that some mortgagors will experience financial stress associated with mortgage repayments. It is possible that this proportion will be small, since lending standards typically benchmark against the possibility of higher rates in the future, and, as the RBA noted, the aggregate saving ratio increased sharply during the pandemic (see Bullock, 2022).

This raises attention to the potential ramifications of existing policies, which typically focus on supporting the purchase of homes. These include the First Home Guarantee scheme, whereby the federal government acts as a guarantor for up to 15 percent of a home loan, and the New Home Guarantee and Family Home Guarantee schemes. The former is for building or purchasing new homes, while the latter is for single-parent households. These policies allow for home ownership with only a 5 percent deposit. Moreover, single parents are able to purchase a home with only a 2 percent deposit in the Family Home Guarantee scheme. These loans would normally attract additional lender's mortgage insurance payments, since borrowers have not yet shown a capacity to save a reasonable amount. There is potential for these schemes to exacerbate financial stress, with mortgagors who have received larger than normal loans now facing higher repayments.

NEED FOR THE PROVISION OF ADDITIONAL RENTAL SUPPORT AND SOCIAL HOUSING

The most startling result is the rising proportion of renters living in the IER Q1 quintile of their residential location since 2020. It is expected that residents in Q1 areas (which have the lowest level of economic resources) should have a higher proportion of renters, and this is borne out in the data. However, the surge in the proportion of renters in 2021 and 2022 is inordinate, highlighting increased difficulties in access to housing for low-income households.

Rent-related financial stress is a key issue in the demand for social housing and rental support. This is an important policy issue not only for affected households but also because of spillover into economic growth. Notwithstanding expectations of a moderation in house prices, it is not clear that a corresponding correction will also be observed in rents. For example, according to the ABS, property prices fell in every quarter from March 2018 to June 2019, falling by over 8 percent in total. During this same period, rents did not fall in any quarter, and instead rose overall.

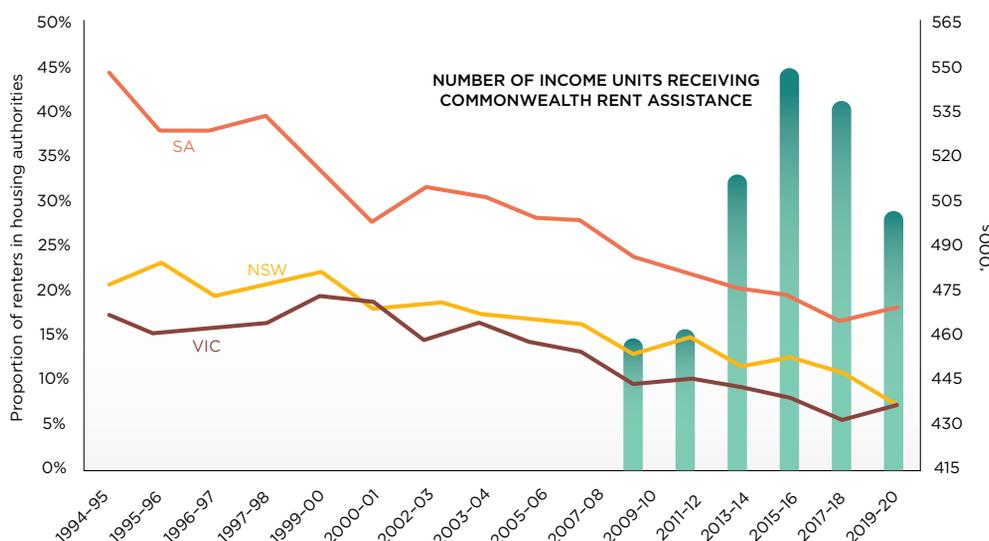
A related issue is that landlords who have purchased property during the boom conditions observed during COVID may be unduly influenced by the tightening of monetary policy. This may result in additional pressure for rent hikes, which are likely to be particularly onerous for lower-income households. The results highlight the need for the provision of additional rental support and social housing but show that the demand for such support is not uniform.

Although federal government policies typically focus on supporting the purchase of homes, the expansion of rental assistance schemes (such as Commonwealth Rent Assistance) is likely to yield greater benefits for households with lower socio-economic resources. Home-buyer schemes are typically subject to generous caps on maximum assessable income (\$200,000 for a household and \$125,000 for a single person for access to the first home loan deposit scheme), which indicates that middle-income households are the primary intended

recipients of such schemes. Thus, there continues to be a need for targeted support to lower-income households.

Another area of concern is the declining supply of social housing. In contrast to support for home ownership, federal policies provide limited scope for new social housing units. Figure 6 shows that the proportion of renters in housing authorities has been declining steadily since the 1990s. In New South Wales and Victoria, the proportion of renters in housing authorities is now below 10 percent. Although there has been a partial shift from social housing to community housing schemes (with community housing, which is privately run, going from below 5 percent of total social housing in 1996-1997 to 23.8 percent in 2020), the additional supply is well below the estimated demand for social housing (AIHW, 2021).

Figure 6. Proportion of renters in housing authorities and number of income units receiving rental support



Notes: The left-hand-side y-axis is the proportion of renters in housing authorities. The right-hand-side y-axis is the number of income units receiving Commonwealth Rent Assistance (in '000s).

Sources: ABS Housing Occupancy and Costs 2019-20, AIHW Housing Assistance in Australia data.

THE WAY AHEAD: THE BROADER PICTURE

We have drawn attention to the macro environment of interest rate hikes and have focused on how tighter monetary policy is likely to impact housing costs, for mortgagors and renters. In this section we turn to broader considerations regarding the impact of rising rates and macroeconomic policies.

Fiscal deficits: Should we care?

Further tightening of monetary policy will amplify cost-of-living pressures for disadvantaged households. Many of the housing policy responses we have advocated—such as increased expenditure on public housing—are a fiscal response. However, these will add to the already substantial public debt as a share of GDP. To lessen the impact on the Budget, the increase in rental assistance should be targeted to low-income households. This assistance could be temporary, also reflecting that some of the current cost-of-living pressures may well lessen in the future.

More broadly, the new government is committed to no new taxes and improving the fiscal situation through savings. On this, high inflation in the near term will increase bracket creep, which will impact disadvantaged households in particular. There are limits to the savings that can be made without compromising the services the public sector provides. It is important that Australia's fiscal situation improves to ensure that there is the capacity to respond to future major shocks, and that this improvement occurs in ways that do not fall disproportionately on the disadvantaged.

Nevertheless, while Australia's fiscal debt-to-GDP ratio increased markedly due to the pandemic, it remains relatively low by international standards. Consequently, providing targeted temporary cost-of-living relief to disadvantaged households, particularly if it is offset with measures to lessen the budgetary impact, is desirable.

Wage-price spiral and the importance of anchoring expectations

Another way to lessen financial stress is through higher wages. In June 2022 the Fair Wage Commission raised the minimum wage rate by 5.2 percent to \$21.38 per hour. While the wage-setting system in Australia now is not the same as it was in the years before the Accord—there is much more flexibility—an important lesson learnt from the experience of the 1970s is that the management of inflation expectations is crucial, particularly for the medium to long term.

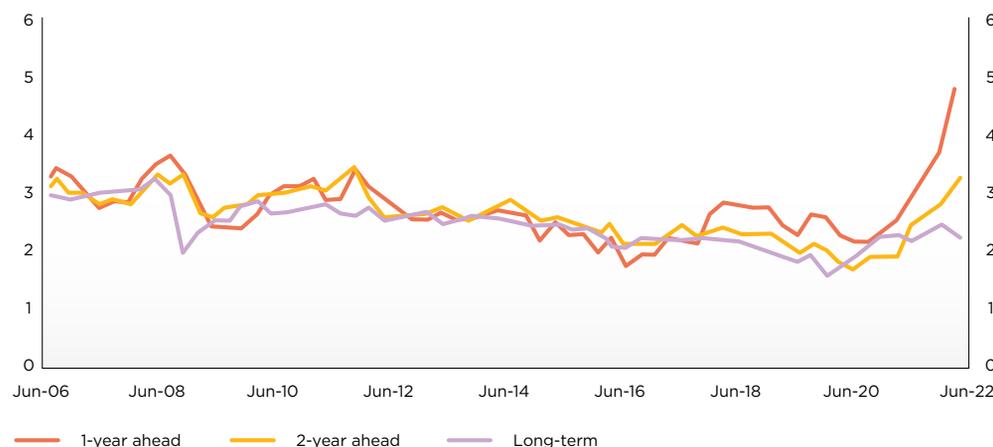
This is to prevent high inflation feeding into inflation expectations, which then gets built into wage negotiations, resulting in a wage-price spiral and higher and higher inflation without necessarily being accompanied by growth and employment.

Today, monetary policy in Australia is markedly different to that of the 1970s. There is a floating exchange rate, which allows greater independence from monetary policy settings overseas, and the inflation target provides a clear anchor for inflation expectations.

Currently, inflation expectations for the year ahead are considerably above the RBA's target band. However, there is some evidence that inflation expectations remain anchored. Figure 7 shows that expectations for two years ahead, while elevated, are considerably lower, and long-term expectations are around the mid-point of the target band.⁶

Management of inflation expectations is important. In the early 1990s, following the adoption of the inflation-targeting regime by the RBA, it took several years of low inflation for inflation expectations to drift down and reflect the new economic environment. Essentially, history suggests that regardless of the mix of shocks that caused it, if high inflation expectations become entrenched, significant real costs may have to be incurred to bring them back down.⁷

Figure 7. Expectations of the inflation rate: One-year, two-year ahead and long-term (%)



Sources: Melbourne Institute's CASiE Survey; RBA Statistical Table G3; Ruberl et al. (2021) and Consensus Economics.

⁶ The one-year-ahead expected inflation rate is the average of the Melbourne Institute's trimmed mean measure of the expected change in prices perceived by consumers and the expected inflation rates reported by market economists and union officials from the RBA. The two-year ahead rate is an average of the latter two rates; the long-term rate is an average of the inflation-linked bonds breakeven rate (RBA) and the six- to 10-year-ahead forecasts from Consensus Economics. For a review of the available measures see Moore (2016).

⁷ We note that while there are concerns about whether inflation expectations are anchored, and therefore whether policy should react, the issue is complicated by the fact that inflation expectations are not straightforward to measure (see, for example, Ellis, 2019).

Supply-side issues and further monetary policy responses

Pre-pandemic Australia recorded a period of sluggish productivity growth. While this experience was not unique to Australia, it has been an important factor contributing to weak real wages growth and the financial position of Australian households. A lift in productivity growth would improve both their financial position and help facilitate the fiscal consolidation in a less regressive way.

Engendering productivity growth, however, is by no means a simple policy problem that can be quickly addressed. Nevertheless, undertaking reforms to the Australian economy to promote productivity growth, in addition to direct assistance to disadvantaged households, should be a policy priority for the new government.

Getting actual inflation down by raising rates will take time as changes in borrowing and spending happen with a lag. The frontloading of the initial tightening should help ensure that medium- and long-term inflationary expectations remain contained. While the quick and sharp hikes were an appropriate unwinding of extreme policy settings implemented during the pandemic, an issue is when the pace of tightening should be moderated further.

This is not straightforward as considerable uncertainty surrounds what constitutes the new normal level of interest rates. But while it is too early to see the dampening impact of the rate hikes in official data, more timely indicators already show that consumers' intentions to buy major household items and house price expectations have moved sharply lower (Figure 8). Thus a further moderation of the pace of rate hikes soon may be appropriate, which together with close monitoring of the dampening impact on activity, may prevent a sharp contraction in demand. In other words, managing inflationary pressure by engineering a period of below-trend growth rather than risk incurring excessive real costs, namely precipitating a recession.

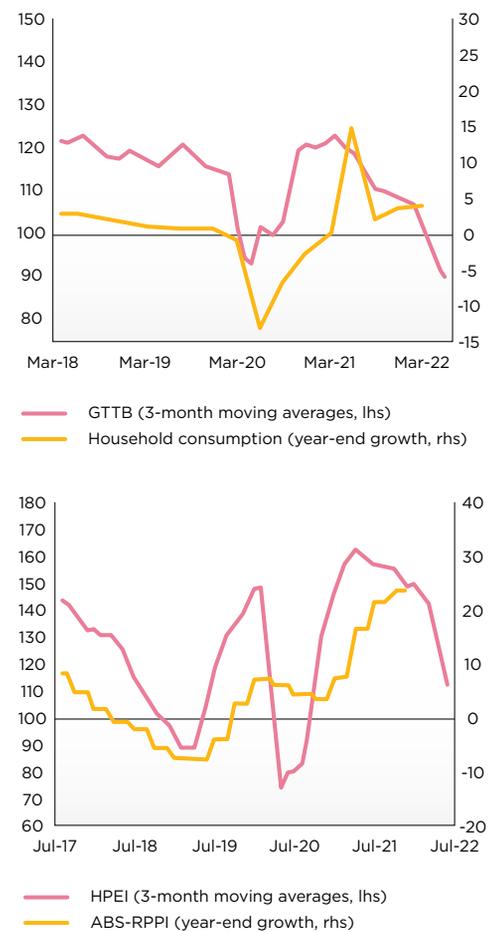
CONCLUDING REMARKS

Australian households currently face a challenging environment of rising interest rates, and high inflation and housing costs. This chapter demonstrates the insights that can be obtained about household financial stress from the CASiE data set. Using a combination of CASiE and ABS data, we identify that renters living in certain disadvantaged areas are amongst the most financially vulnerable. We suggest that a case can be made to provide a targeted fiscal policy response, namely providing temporary financial support to this demographic group (especially while monetary policy continues to be in a tightening phase).

However, a broader macro-policy issue—such as how tight can monetary policy be without choking off demand and precipitating a recession—still needs to be addressed. This is a challenging question as much of the key information—such as the extent of slack in the economy and the normal level of interest rates—is unobserved. In recent years the advent of new data sets has expanded the information set available to macroeconomic policy-makers to assess the state of the economy and its prospects. Whether these new data, or new methods, can be used to estimate these key unobserved quantities is an area where macroeconomic research potentially could be of value to policy-makers.

We continue to monitor and use our timely data to provide early signals of activity to support evidence-based macro policy. For example, the Westpac-Melbourne Institute Leading Indicator of economic activity is signalling below trend growth in the next six to nine months, but our analysis of turning points indicates that the probability of a recession is still very low. The tightening cycle is not over, but meanwhile, a lift in productivity growth, while a challenging policy problem, would go some way to improving wage and GDP growth and the living standards of all Australians.

Figure 8. Dampening demand—Household buying intentions and house price expectations.



Notes: GTTB denotes 'good time to buy' major household items. HPEI is the Westpac-Melbourne Institute House Price Expectations Index. ABS-RPPI is the Residential Property Price Index.

Sources: Melbourne Institute's CASiE Survey; ABS Australian National Accounts: National Income, Expenditure and Product (Cat 5026 - Table 1); Residential Property Price Indexes: Eight Capital Cities (Cat 6416 - Table 1).

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Part 2

Monetary Policy, Fiscal Policy
and Labour Markets

—

Chapter

3

Full employment,
participation
and productivity

—

Professor Peter Dawkins & Professor Ross Garnaut

A person wearing a yellow hard hat and a high-visibility vest, viewed from behind, in an industrial setting. The person is wearing a yellow and black checkered shirt under the vest. The background is a blurred industrial environment with yellow and grey tones.

Peter Dawkins and Ross Garnaut discuss the large equity and efficiency benefits of full employment. Evidence suggests that the full employment level of unemployment, or the non-accelerating inflation rate of unemployment, can now be below 3.4 percent—as it was for the quarter century to the early 1970s. They question whether the 2022 aggressive tightening of monetary policy places sufficient weight on full employment. They suggest a more balanced blend of fiscal and monetary policy to support sustainable growth in incomes. Alongside achieving full employment, reform of education and training and the tax and transfer system can increase skills, participation, hours of work and productivity, and lead to a more equitable distribution of income. Investment in child care and early childhood education would increase parents' labour supply, and enhance childhood development and therefore human capital in the long term. Achieving full employment along with such reform would increase real wages, before and after tax, and distribute income more equitably. There is a strong case for sophisticated simulation economic modelling using state-of-the-art tools to strengthen the evidence base for policy design.

INTRODUCTION

In December 2021, in a presentation to the Melbourne Economic Forum (Dawkins and Garnaut, 2021), we revisited the Five Economists' Plan of the late 1990s and drew lessons for the current Australian labour market. The Five Economists' Plan was directed at reducing unemployment and increasing labour force participation and had five elements (Dawkins et al., 1998).

We commended the Reserve Bank of Australia (RBA) and the then Treasurer on their recently renewed commitment to full employment and noted that expansionary fiscal and monetary policy was moving us closer to that goal. We also argued that, as we approach full employment, a policy agenda focused on raising labour force participation and productivity is critical to sustaining growth in total output and increasing real wages (Dawkins and Garnaut, 2021). We outlined promising avenues for achieving this.

This chapter expands that discussion. We note the primacy of full employment as an economic policy objective, and the importance of a balanced approach to monetary and fiscal policy in managing aggregate demand to promote full employment. We discuss possible reforms of the tax and transfer system to promote participation and productivity and the growth in after-tax real wages, whilst paying particular attention to distributional issues at the bottom end of the income distribution. We also comment on the importance of education and training to enhance workforce skills.

Our analysis is timely, given the Albanese Government's recent Jobs and Skills Summit, which is to be followed by a White Paper on Full Employment. The Summit had five themes:

- maintaining full employment and increasing productivity;
- boosting job security and wages;
- lifting participation and reducing barriers to employment;
- delivering a high-quality labour force through skills, training and migration;
- maximising opportunities in the industries of the future.

We hope the Summit and the White Paper herald a new era of evidence-based economic reform. This should have a central focus on achieving full employment, raising productivity and participation and increasing real wages, with a view to achieving sustainable growth in living standards and ensuring a fair distribution of income. That is the subject of this chapter, which draws on a range of evidence and highlights ways in which additional information and analysis can support the development and refinement of this policy agenda.



FULL EMPLOYMENT

The objective of full employment

Full employment was the first objective of Australian economic policy from the end of the Second World War in 1945 until the mid-1980s. Full employment was built into the legislated objectives of the RBA early in this period and retains prime place today. Unemployment was rarely above 2 percent and mostly well below until 1974, when a sharp contraction during the global recession precipitated by the first oil price shock took it above 4 percent. It rose above 5 percent through the years immediately following, and above 10 percent in the recession of 1982–1983. It stayed above 4 percent, and nearly always above 5 percent and often much higher, until the massive fiscal and monetary expansion and restriction on immigration during the COVID-19 pandemic took it down to 3.4 percent in mid-2022.

Full employment was largely overlooked in discussion of monetary policy after the 1980s, when holding down inflation became the dominant objective of monetary policy. Attention has focused on the non-accelerating-inflation rate of unemployment, the NAIRU, which was estimated or presumed to be 5 point something or higher. This remained the case even as actual unemployment in Australia as a whole briefly fell to 4 percent without accelerating inflation during the China resources boom, and below that in the large states of New South Wales and Victoria. It remained the case as fiscal and monetary expansion saw the unemployment rate in the United States fall from almost twice Australia's in the aftermath of the global financial crisis, to 3.5 percent on the eve of the pandemic.

The Australian Government's 1945 *White Paper on Full Employment* discussed the risks of inflation. Interestingly, the average unemployment rate fell to lower than the authors had in mind, to below 2 percent for two decades, without high or accelerating inflation. This begs the question—how low can unemployment go without accelerating inflation? The NAIRU is better thought about as an observable reality than an output from an econometric model.

These matters are discussed in *Reset: Restoring Australia After the Pandemic Recession* (Garnaut, 2021). Garnaut notes that it may be possible for the Australian unemployment rate to fall to 3.5 percent without generating accelerating inflation—the rate in the United States on the eve of the pandemic. The lowest rate without accelerating inflation may be lower—or higher. There is no need to guess. We will know when unemployment is so low that labour market pressures are causing inflation to accelerate.

Full employment disappeared from the RBA's discussion of monetary policy through the decade of persistent unemployment that preceded the pandemic recession. There were signs of change late in 2019 and in the first year of the pandemic. A senior officer of the RBA said in a public lecture at the University of Melbourne that the NAIRU may be 4 point something, rather than the 5 point something that had long been presumed (Ellis, 2019). The Governor mentioned full employment in monthly public statements after Board meetings from October 2019 through 2020. In 2022, full employment did not get a mention during the period in which there was a number of 0.5 percent interest rate increases, but pleasingly was mentioned in the October statement.

In the months in which full employment was regularly discussed by the RBA during the pandemic's first year or so, the Governor said that monetary policy would remain highly expansionary, with the cash rate steady at close to zero, until sustained wages growth above the inflation rate was accompanied by sustained general inflation above the range of 2 to 3 percent. That would be the signal that full employment has been reached.

As unemployment fell in 2022, there were no signs in the Australian Bureau of Statistics (ABS) data of sustained high rates of increase in wages placing upward pressure on inflation. By

June 2022, the data had established that the NAIRU was no higher than 3.4 percent, but not exactly how low. Faced with significant price but not wage inflation, the cash rate was raised quickly from 0.1 percent to 2.35 percent between May and September 2022 and markets and RBA commentary suggested that further tightening would follow. RBA and Treasury statements accept that the unemployment rate will rise to 4 percent during 2023.

There has been much discussion of why real wages have not risen in Australia in 2022, as unemployment fell below levels once presumed to be full employment. The simple explanation is that Australia does not have full employment. Faced with significant price inflation, the RBA abandoned its strategy of resisting tightening monetary policy until we reached full employment before it was known how low the rate of unemployment could go without becoming the source of accelerating inflation.

Will larger nominal wage increases follow if global energy and other prices continue to rise strongly? Probably. Would that mean that full employment has been achieved? Probably not. If nominal wages rise more rapidly, but more slowly than average prices, they are not the source of accelerating inflation. The spectre of a virulent wage-price spiral arose from memories of conditions in the 1970s and 1980s and not the conditions of the 2020s.

The advantages of full employment for equity, productivity and real wages

With full employment, workers can leave jobs that do not suit them and quickly find others—often moving from lower to higher productivity firms. Employers put significant effort into training and retaining workers. Labour income is secure and can support a loan to buy a house. Labour is scarce and valuable and not to be wasted on unproductive tasks. Businesses that cannot afford rising wages close and release their workers into more productive employment. Steadily rising real wages encourage economisation on labour, which lifts productivity.

In addition to large benefits for productivity, full employment has immense social benefits. It provides the best social security for people who are able to work. The Australian Jobseeker benefit in September 2022 may be adequate if its role is to provide sustenance briefly while recipients are looking for their first jobs or moving quickly from one to another. It is too low to support people for longer periods.

Full employment creates opportunities for people whose long unemployment make them unattractive as employees. Employment makes them employable. Full employment encourages and increases the value of high labour force participation. Employers seek out potential workers amongst people who had been unemployable. This encourages participation of women who have spent long periods out of the labour force; the infirm and old; the poorly educated; and those with little established engagement with the wage economy.

Full employment is hard work for employers. Many prefer unemployment, with easy recruitment at lower wages. Yet full employment has advantages for many employers. It brings larger and more stable demand for consumer goods and services for businesses selling into the Australian market. And for employers who identify as Australians, it brings enjoyment of a more cohesive and successful society.

THE DEFINITION OF FULL EMPLOYMENT

In 1945, both the United Kingdom and Australia, in that order, published White Papers on full employment. The United Kingdom paper, by William Beveridge, defined full employment as the level of unemployment where the number of vacancies equalled the number who were unemployed, but argued that we should try to keep unemployment below that level if possible. The Australian White paper produced by John Curtin's government was less precise in defining full employment but implied something similar. The Beveridge paper postulated that full employment would occur at about 3 percent unemployment with all that unemployment being 'frictional', that is, people moving between jobs.

On this definition the United Kingdom and Australia achieved full employment for most of the period from the 1940s to the mid-1970s, with unemployment in Australia averaging 1.9 percent over that period (Borland and Kennedy, 1998). The concept of the Phillips Curve emerged during this period, which suggests a trade-off between inflation and unemployment and that we can obtain a level of unemployment around 2 percent if we are willing to accept a rate of inflation of around 2 to 3 percent.

Then, in 1974, supply shocks led first to increases in food prices and then oil prices, resulting in substantial increases in the cost of living in Australia. In the institutional circumstances of that time, this led to a wages breakout and increased interest rates, and a period of stagflation in which both unemployment and inflation increased dramatically. The Phillips Curve was seen as having shifted and 2 percent unemployment combined with 2 to 3 percent inflation now looked unobtainable.

In the inflationary era that followed, internationally as well as in Australia, the term, full employment, went out of fashion. It was replaced by the NAIRU concept, which in the 1980s and 1990s was estimated to be in the order of 5 to 7 percent in Australia (Gruen et al., 1999), and increasing over this period. Understood here was that inflation expectations had increased and became built into wage setting. Less discussed, but of significance, was that institutional and regulatory pressures led to substantially higher real wages and real unit labour costs in the 1970s and early 1980s, which increased the NAIRU.

The combination of the Prices and Incomes Accord from 1983, followed by labour market reforms and reduced trade union power, and inflation targeting in monetary policy, lowered inflation. In the 2010s, earlier labour market deregulation, lax enforcement of law, more open immigration policy and reductions in inflation globally helped to bring inflation below the RBA's target range.

From the late 1970s high unemployment itself lowered the value of labour and increased the NAIRU. This began to be corrected by the experience of low unemployment in 2022 (Martin, 2022). Unemployment remained persistently high through the 2010s, when it was falling in the United States. Garnaut (2021) and Gross and Leigh (2022) suggest that excessively tight monetary policy caused inflation to remain below the target range and keep unemployment unnecessarily high, with large, unnecessary loss of output, incomes and public revenue.

By July 2022 much lower unemployment was accompanied by historically high labour force participation rates. The number of unemployed persons was approximately equal to the number of vacancies—Beveridge's definition of full employment. But remember Beveridge said we should aim to keep unemployment below that level. There was no sign of excessive wage inflation as measured by the ABS. The NAIRU, no higher than and possibly well below 3.4 percent in mid-2022, can be expected to continue to fall with experience of low unemployment. The underlying relationships determining the NAIRU change over time and with economic circumstances and we will not know what it is until unemployment has fallen to the point where we observe wages as a cause of accelerating inflation. Our experience teaches us to be wary about using estimates based on analysis of data for other times and circumstances.

THE FIVE ECONOMISTS' PLAN

In 1998, we were two of the five economists who proposed a five-point plan to then Prime Minister, John Howard, to reduce unemployment to 5 percent while also increasing labour force participation. Following the 1990-1991 recession, unemployment had gone over 10 percent. It was still just a little under 8 percent in 1998, which we regarded as Australia's major economic and social problem.

John Howard called a special cabinet meeting, and the RBA held a conference on the subject. We based the plan on the best available evidence and while it was not fully implemented, it did influence policy in the years that followed.

The five elements of the Five Economists' Plan were:

1. steady fiscal and monetary policy and continued microeconomic reform aimed at strong and stable growth;
2. replacing living wage adjustments for the time being with earned income tax credits for earners of low wages in low-income families;
3. a long-term commitment to reduce effective marginal tax rates, especially for low- and middle-income families;
4. a systematic approach to labour market programs;
5. upgrading of the education and training systems over the longer term.

The centrepiece of the plan was the wage-tax trade-off, which aimed to support real incomes of low-income workers while reducing labour costs to expand employment. The trade-off was focused especially on low-skilled workers, who had the highest unemployment rates. The tax credit would ensure that low wage earners in low-income families received an increase in their real incomes while real wages fell. We argued that the increased labour demand from the wage restraint, combined with an ongoing commitment to productivity and output growth, should lower unemployment to 5 percent and keep it there. Steady productivity and output growth would come through steady monetary and fiscal policy, productivity-increasing microeconomic reform, labour market programs to support the most disadvantaged members of the labour force, and upgrading the education and training system to increase labour force skills over the long term.

Various assessments of the employment impact of the plan (see Borland, 2002; Richardson, 1999; Dixon and Rimmer, 2000; Dawkins, 2002) came to a range of conclusions about the expected size of the employment effects, though they all concluded that they would be positive.

While the wage-tax trade-off was not formally adopted, what transpired over the next 20 years was a steady reduction in real-unit labour costs, alongside attention to the tax treatment of low-income families, through a family tax benefit and the low-income tax offset (LITO).

Monetary and fiscal policy did not prioritise full employment for more than two decades. Once it did, it contributed to moving us towards full employment with much higher rates of labour force participation.

MONETARY AND FISCAL POLICY

Expansionary monetary and fiscal policy were centrally important to bringing unemployment down to 3.4 percent in mid-2022. But this was accompanied by a sharp increase in inflation. This was driven by large increases in international prices. Supply chain shocks from COVID-19 dislocations were exacerbated by sudden withdrawal of large amounts of food and fossil energy from world markets with the Russian invasion of Ukraine. Several-fold increases in global gas and coal prices were transmitted fully into the Australian market despite Australia being the world's largest exporter of these commodities. Historically unprecedented increases in gas and electricity prices to domestic producers and consumers followed. The sharply increased consumer prices had not been reflected in ABS data on wages by August 2022, with the basic measure still showing average wage increases at 2.4 percent. The Treasurer's statement on the economy in July 2022 anticipated a fall in real wages of 7 percent in the two years to June 2022. If this were to occur, it would be by far the largest two-year fall in average wages ever recorded in Australia. The acceleration in Australian inflation was not caused by wage pressures.

The RBA raised cash interest rates from 0.1 percent to 2.35 percent between early May and early September. The RBA said that it needed to subdue demand to avoid large increases in inflationary expectations and a virulent wage-price cycle. The RBA and the Treasury are forecasting that unemployment will rise to 4 percent by 2024 but hope for a 'soft landing' and to avoid a recession.

Australia's tightening of monetary policy over these five months was the largest of developed countries over a comparable period. New Zealand started earlier and had gone further by mid-2022. Australian tightening was closest to other English-speaking countries with much higher inflation rates (the United States, the United Kingdom, New Zealand and Canada), all of which were thought by financial markets to face high probability of recession in response to the tightening cycle.

We do note, however, that as this chapter goes to print, the RBA has at least slowed the rate of increase in interest rates and its latest statement does mention 'full employment' and that future interest changes will include an assessment of the outlook for inflation and the labour market. We would encourage the RBA to continue to comment on the expected impact of its interest rate policy on the objective of full employment in the months and years ahead. The central banks of the two largest developed country monetary systems outside the United States, the European Union and Japan had policy rates of 0.5 percent and minus 0.10 percent in early September, though the European Central Bank has increased them since to 1.25 percent.

Is there a risk of a wage-price spiral?

The RBA has said that it is worried about a wage-price spiral of the kind that occurred in the 1970s. But the labour market is not producing increases in wages that are a source of accelerating inflation. After a submission from the incoming government calling for a 5.2 percent increase in regulated minimum wages, the Fair Pay Commission significantly increased regulated minimum wages. Corporate profits are at unprecedented highs, and many businesses find it expedient effectively to index wages of senior personnel. Public institutions are loathe to let salaries fall markedly in real terms—and are under trade union pressure to this effect. We will see higher average nominal wages in the ABS data. But for as long as wages lag average prices, they are a response to, and not a cause of, accelerating inflation. At some time in the future, the international pressures for price increases will ease and exercise downward pressure on Australian average prices. This will have its own moderating effect on Australian wage increases.

The possibility of a return to a virulent wage-price spiral of the kind established three and four decades ago cannot be ruled out. However, there are no signs of it now. The tightening of monetary policy would bring forward by a small amount and a small time the reduction in Australian inflation that will follow international developments.

The RBA published data from its own liaison survey of firms—less scientific but coming out more quickly than the ABS data—that 60 percent of surveyed firms

are expecting wages to grow by more than 3 percent over the next year. But with price inflation much higher, real wages will fall at an unprecedented rate. Pressures from the labour market do not seem to threaten a serious wage-price spiral. Nor do data on inflation expectations suggest this as a source of pressure for accelerating inflation. The greater risk is that the tightening of monetary policy will lead to rising unemployment before full employment has been achieved, and possibly to an unnecessary recession.

Balancing fiscal and monetary policy for full employment, low inflation and the right amount of debt

It matters how we get the jobs that take us to full employment. Increased employment comes from both domestic and trade-exposed industries. Employment in domestic industries is expanded by higher government expenditure, lower taxes and lower interest rates. Employment in trade-exposed industries is driven by competitiveness—by currency exchange rates and by Australian relative to international productivity and wages. Too much domestic demand and too little export growth can lead to full employment with undesirable levels of debt. There has to be a judicious balance between domestic and trade-exposed industries.

The level of domestic demand calibrated to achieve full employment without accelerating inflation can be achieved

by various combinations of fiscal and monetary policy. If reductions of demand are achieved with tighter money and looser budgets, the real exchange rate will be higher. More of the growth in employment will come in domestic and less in trade-exposed industries. Full employment will be achieved with larger amounts of public and international debt. That will reduce future relative to current living standards.

Full employment with low inflation and the right amount of debt requires judicious balancing of fiscal and monetary policy. At a time of peacetime record highs in public debt and facing immense fiscal challenges, we are relying too little on fiscal and too much on monetary tightening to reduce demand. With unemployment the lowest for 40 years, if not at full employment, and terms of trade the highest ever, one would expect budget surpluses. But the Treasury is projecting deficits forward as far as we can see.

Strong growth in export industries depends on access to international markets for goods and services, as well as on competitiveness. Here we face barriers from the breakdown of the multilateral trading system and our relationship with our biggest trading partner, China; and the coming climate-change-induced decline of coal and gas. Fortunately, Australia's potential as the energy superpower of the zero carbon world economy can allow us to bypass these blockages (Garnaut, 2022).

MINIMUM WAGE ADJUSTMENTS

What adjustment to the minimum wage should be made in 2023? In 2022, the Commonwealth supported a 5.2 percent increase to compensate for inflation. Subsequent comments by the RBA Governor have opposed maintenance of real minimum wages while inflation is well above the target range.

The annual rise in the CPI is likely to be well over 5 percent at the time of the 2023 national wage case decision. That could also be a time of weakening demand and rising unemployment following the tightening of monetary policy from May 2022.

In that situation the government would do well to consider the use of an earned income tax credit, or more fundamental change based on integration of taxation and social security arrangements around a minimum basic income payment, as an alternative to a substantial rise in nominal minimum wages to support low-income families. This was part of the Five Economists' Plan back in 1998 and has recently been put forward by Hamilton (2022) for the Jobs and Skills Summit.

There is mixed evidence about the impact of rising minimum wages on employment (Hamilton, 2022; Holden, 2022). The most famous studies of the effects of minimum wages on employment have been in the United States, including those by Card and Krueger (1994) and by Neumark and Wascher (2000). The former found positive and the latter negative impacts. Each study deals with particular situations, using particular methodologies. Generalisation of conclusions to other circumstances requires caution. One challenge of evidence-based policy is to exercise wise judgement about what evidence is relevant in each situation. There is no question that if minimum wages are raised beyond some limit, employment will be lower than it would be otherwise.

Australia's minimum wages have fallen as a percentage of the median wage since the Five Economists' Plan. They remain high by international standards. The Fair Pay Commission will no doubt consider the effect of a large increase in minimum wages on employment at a time of policy-induced rising unemployment and weakening demand.

An earned income tax credit could be designed to have a larger benefit for low wage earners in low-income families than a wage increase. It could be an alternative to complete implementation of the stage 3 income tax cuts. It could be designed to have a more positive effect on labour supply than the Low and Middle Income Tax Offset (LMITO), which is due to be removed and which benefits those on middle incomes rather than those on low incomes.

PRODUCTIVITY, REAL WAGES AND LABOUR'S SHARE OF NATIONAL INCOME

The contemporary world and Australia are experiencing an unprecedented abundance of capital as planned private savings exceed planned investment even at low or negative real interest rates. This is reflected in historically low real interest rates. Together with declining natural increase in the labour force, the standard neo-classical models would suggest rising real wages once we approach full employment. The opposite is happening in Australia.

Other factors can intervene. One is immigration. Immigration affects the link between productivity and real wages. Unlimited immigration would take us into a world in which economic output and productivity can rise strongly without lifting real wages (Lewis, 1954). Immigration is much more likely to raise rather than lower average real wages the more it is focused on permanent migration of people with genuinely scarce and valuable skills that are bottlenecks to valuable Australian production and that cannot be provided by training Australians. What is genuinely scarce and valuable? Garnaut (2021) suggests a market test: admitting skilled migrants when they are to earn wages higher than the Australian average.

A second factor is oligopoly. We have to think about the increasing role of economic rents in our economy. Productivity is reduced and the profit share of income increased by monopoly and oligopoly. Former Chairman of the ACCC Rod Sims has drawn attention to the increasing role of oligopoly in the Australian economy, and the competition policy reforms that would reduce it. In some parts of the economy, competition is not possible, or would not lead to efficient use of resources. Here we have to rely on taxation of economic rent or regulation of investment and prices to secure the public interest. A significant part of the increase in the profit share in recent years is in mining, where wages are high relative to other sectors. The appropriate public policy response is mineral rent taxation and not pressures for higher wages.

REFORMING TAXES AND TRANSFERS TO ENHANCE PARTICIPATION, PRODUCTIVITY AND THE DISTRIBUTION OF INCOME

Effective marginal tax rates and labour force participation

Since the Five Economists' Plan, labour force participation has risen significantly. In June 1998 the seasonably adjusted labour force participation of those aged 15 to 64 was 63.4 percent (ABS, 6202.0, July 1998). In June 2022 it was 66.4 percent. This is higher than the United States (61.6 percent in 2022, down from 63.7 percent in 2012), the United Kingdom (63.1 percent) and Japan (63.0 percent). However, international benchmarking indicates that it could be higher. The labour force participation rate in mid-2022 was 70.1 percent in New Zealand, 73.1 percent in Norway and 75.1 percent in Sweden.¹

A major focus of the Five Economists' Plan was the depressive effect of high effective marginal tax rates (EMTRs) on participation. High EMTRs from our tightly means-tested social security system create disincentives to work, especially for low- to middle-income families. The five economists' suggestion of an earned income tax credit (Keating and Lambert, 1998) was designed to boost the income of low wage earners in low-income families in compensation for pausing living wage adjustments, and also to raise labour force participation and hours of work. We also argued for a long-term commitment to reduce effective marginal tax rates, especially for low- and middle-income families.

With this in mind, the Melbourne Institute developed the Melbourne Institute Tax and Transfer Simulator (MITTS) to model the labour supply effects of changes in income taxes and social security payments, and the feedback effect on the government revenues (Creedy et al., 2002).

While there have been piecemeal attempts at reform, high effective marginal tax rates causing disincentives to work remain critically important. Increasing labour force participation is more important to economic growth as we approach full employment. High effective marginal tax rates are caused by the interaction of the tax on marginal employee wages with the withdrawal of:

- the LITO and the LMITO;
- means-tested family payments;
- JobSeeker; and
- child-care payments.

EMTRs of the order of 70 percent are common. Some are significantly higher. For example, a parent in a two-earner family with two children in 2016 faced EMTRs of well over 100 percent for working beyond three days a week, due to the combination of income tax, the withdrawal of family tax benefit and the net costs of child care (Stewart, 2018). There was no incentive to work beyond three days. Changes made to income taxes and child-care benefit by the Morrison Government in 2018 and then in 2021 reduced EMTRs (Stewart, 2018; Stewart and Plunkett, 2022). But they remain around 70 percent for such a family, higher for a sole parent, and much higher for some categories of workers.

Child care and early childhood education

This takes us naturally onto child care and early childhood education. The labour force participation and hours of work of parents (especially mothers who take a disproportionate burden of child-care responsibilities) is noticeably lower in Australia than in many other developed countries. The elasticities of labour supply of mothers with children are high. Mumford et al. (2020) use HILDA data to estimate elasticities.

Wood et al. (2020) and Dixon and Hodgson (2020) show that public investment in child care would substantially increase labour supply and GDP. It could potentially pay for itself in the government's budget. Wood et al. (2020) analyse the impact of cheaper child care, making reasonable assumptions about the elasticity of labour supply. Dixon and Hodgson (2020) analyse data on the hours unpaid carers say they would like to work, and estimate the cost of boosting care to enable that to happen.

The Centre for Policy Development (2021) has proposed a policy agenda: *Starting Better: A Guarantee for Children and Young Families*. Investment in child care raises economic output both through increasing the labour supply of parents and improving the health, wellbeing and educational achievement of children and later their lifetime careers and productivity.

The policy agenda proposes, amongst other things, a guarantee of three days free or low-cost early education from birth until school, with more days available at low cost. This would shift the emphasis from child care to early childhood education, while reducing the costs to parents of paying for child care to enable labour force participation.

The proposal includes more shared paid parental leave. Wood and Emslie (2021) show that this would also boost the labour supply of mothers and increase their lifetime earnings, while boosting GDP by \$900 million a year.

Later, we discuss research that would help to test the validity of the findings of the studies reported above.

A possible overhaul of the tax transfer system

Child care and early childhood education look like the single most promising avenue for boosting labour force participation. It would also be timely to undertake a comprehensive review of the tax transfer system and its impacts on labour supply and the distribution of income, with a view to increasing disposable incomes of low- and middle-income Australians while promoting participation in the labour force, and employment of low-skilled labour.

There was a moderate increase in inequality in the distribution of household income in Australia in the late twentieth and early twenty-first century (Wilkins, 2017; Productivity Commission, 2018; ABS, 2022). Increasing wage inequality had driven inequality upwards, while the progressive tax and transfer system and employment growth in low-income households tended to drive it down. Wage inequality and a large decline in the wage share of incomes and the absence of initiatives in the tax and transfer system may have exacerbated the tendency more recently—with the important temporary exception of the early period of the pandemic when the JobSeeker intervention was highly egalitarian.

In the several years from 2007 there was actually a slight reduction in inequality of household disposable income, but this was much less influential than increases in housing costs, disproportionately affecting low-income households (Coates and Chivers, 2019). One response would be policies to reduce the cost of housing. Another is to make the tax-transfer system more generous to low-income households. It was noticeable that in the period of the higher JobSeeker payments, financial stress of low-income families diminished significantly and this led to calls for ongoing significant increases in JobSeeker payments, which had been indexed to CPI, and not to average weekly earnings like many pensions and benefits. There was an increase of just below 10 percent in the Jobseeker rate in April 2021—the first real increase since the mid-1980s. Apart from budgetary and funding costs, increases in the unemployment benefit rate in the absence of other measures risks increasing EMTRs for part of the relevant income range and therefore negative effects on labour supply.

Equitable income distribution, as well as optimal economic growth, require steady full employment. They would be assisted by comprehensive reform of the tax-transfer system to increase the incomes of low-income families while increasing labour supply and reducing pressures for employment inhibiting increases in regulated minimum wages.

Guaranteed minimum income (GMI)

The idea of a guaranteed minimum income (GMI) has been explored from time to time since the early years of the Melbourne Institute in the 1960s. Dawkins et al. (1998) used NATSEM's microsimulation model STINMOD to model a universal basic income/flat tax system, which provides a guaranteed minimum or basic income, combined with a flat tax on all income earned, without any incomes or assets tests. This could be administered through the tax system, with the basic income provided as a tax credit. Payment would be made regularly into bank accounts, whether or not recipients are unemployed.

Dawkins et al. (1998) did not allow for any increase in labour force participation from reductions in EMTRs and required complete fiscal neutrality. The flat tax (which is also the EMTR in this system) was found to be 57 percent—much lower than some of the highest EMTRs in the pre-existing system, but unacceptably high. Other versions of negative income taxation systems were also modelled, incorporating varying tax rates, the tapering out of tax credits, and placing some restrictions on the granting of tax credits. This made negative income tax feasible with lower marginal tax rates.

Once the Melbourne Institute developed the MITTS, modelling the labour supply effects became possible. Scutella (2004) used MITTS to model the basic universal income flat tax system, concluding that for revenue neutrality and a single tax rate, a flat tax of over 50 percent would still be required to coincide with current benefit rates. While increasing equity, the system as modelled would reduce labour supply. Positive labour supply effects required a lower basic income.

The early estimates of the costs of a form of guaranteed minimum income were premised on 'revenue neutrality'—that is, comparing revenue receipts with what would have been received in the absence of the changes. Past episodes of taxation reform in practice have not been 'revenue neutral'. For example, the package accompanying the introduction of the GST in July 2000 had a net revenue cost of about 1 percent of GDP—corresponding to about \$25 billion per annum today. The stage 3 tax cuts legislated by the Morrison Government prior to the pandemic recession in 2019 and to come into effect in 2024 are estimated by the Parliamentary Budget Office to cost about a quarter of a billion dollars over a decade.

Conditional minimum income with an employment conditional supplement

Dawkins et al. (2003) modelled a variation on this approach using MITTS in 2003. Their model was built on the then current structure of payments in Australia's social security system, with significant differences. It included an employment conditional supplement (that has a similar effect to an earned income tax credit). Minimum payments would not be guaranteed—mutual obligation conditions on receipt of the payment would remain. It did not seek to incorporate the current disability support system or the age pension system. This model gained a significant positive labour supply response at a net cost of \$1.5 billion due to the fiscal dividend from the increased labour supply.

Australian income security

Garnaut (2021) revisits the idea in his paper on 'Investing in Full Employment' (Garnaut, 2002), in his proposal for Australian Income Security (AIS). The arithmetic in this proposal preceded the April 2021 increase in the JobSeeker rate. To contain the cost, Garnaut suggests excluding from basic payments resident non-Australians and people whose wealth and incomes remove any close connection between withdrawal of the basic payment and incentives to work (say income over \$250,000 and net assets above \$2 million). Assets could be shared among family members who have legal right to ownership of assets. Marginal taxation rates would remain at the current higher rates for people on high incomes. On the presumption that Australia would move to full employment, increases in labour force participation would be reflected directly in greater economic output and public revenue.

All eligible Australians would receive a basic payment equivalent to the JobSeeker allowance plus supplements that are reflected in the current social security system, for example, for children, disability (to the extent recognised in disability pensions), and age (as reflected in age pensions). He also proposes a supplement for being unemployed at times of high unemployment, which would not be necessary when there is full employment. Income would be taxed at the basic rate from the first dollar. This would have a much greater positive effect on revenue than at the time of Dawkins et al.'s (2003) modelling because of the large increase in the tax-free threshold in the intervening years.

Garnaut (2021) suggests that the budgetary cost of this proposal could be modelled using MITTS. Pending that detailed modelling, the net revenue cost of the scheme at the time of its introduction, when there was still unemployment, would be about 2 percent of GDP, falling to about 1 percent of GDP as labour force participation increases.

We note that the large increases in the tax-free threshold in 2011, at the time of the introduction of carbon pricing through the Gillard government's Clean Energy Future legislative package, were not withdrawn when the Abbot government repealed the carbon pricing laws in 2013–2014.

An alternative to the stage 3 tax cuts

Since the pandemic recession, the need to reduce historically high public debt, competing budgetary demands and their regressive nature, have led to widespread calls for removal or modification of the stage 3 tax cuts. They are a tax cut focused on higher incomes rather than efficiency-raising reform. Rather than simply being withdrawn, the stage 3 tax cuts could be replaced by tax reform built around introduction of something like the AIS.

A well-designed reform of taxation and social security would substantially increase labour force participation at a time of full employment, thus increasing domestic and national output and income. It would be progressive at a time when market outcomes were placing downward pressure on real wages and increasing the profit share of domestic income to unprecedented levels. The increased participation would be largest for workers subject to the highest EMTRs, who include mothers preferring to work more hours but facing powerful disincentives to doing so. The replacement would supplement wages of low-income workers. This would reduce pressures on equity grounds to raise regulated wages and so reduce growth in employment at the lower end of the labour value spectrum.

Detailed modelling using the Melbourne Institute's revised MITTS, supplemented by general equilibrium modelling from the Centre for Policy Studies, could calculate the ultimate budgetary implications of replacing the stage 3 tax cuts with AIS. We suggest a serious modelling effort.

Rent and externality taxes, as an alternative to wage regulation for equity

The Australian Council of Trade Unions (ACTU) and major unions participating in the Jobs and Skills Summit drew attention to the unprecedentedly high profit and low wage share of income and the unprecedentedly low real unit labour costs in Australia in the first half of 2022. This was seen as supporting higher regulated wages and changes in institutional arrangements for wage negotiations that would lead to higher rates of increase in wages.

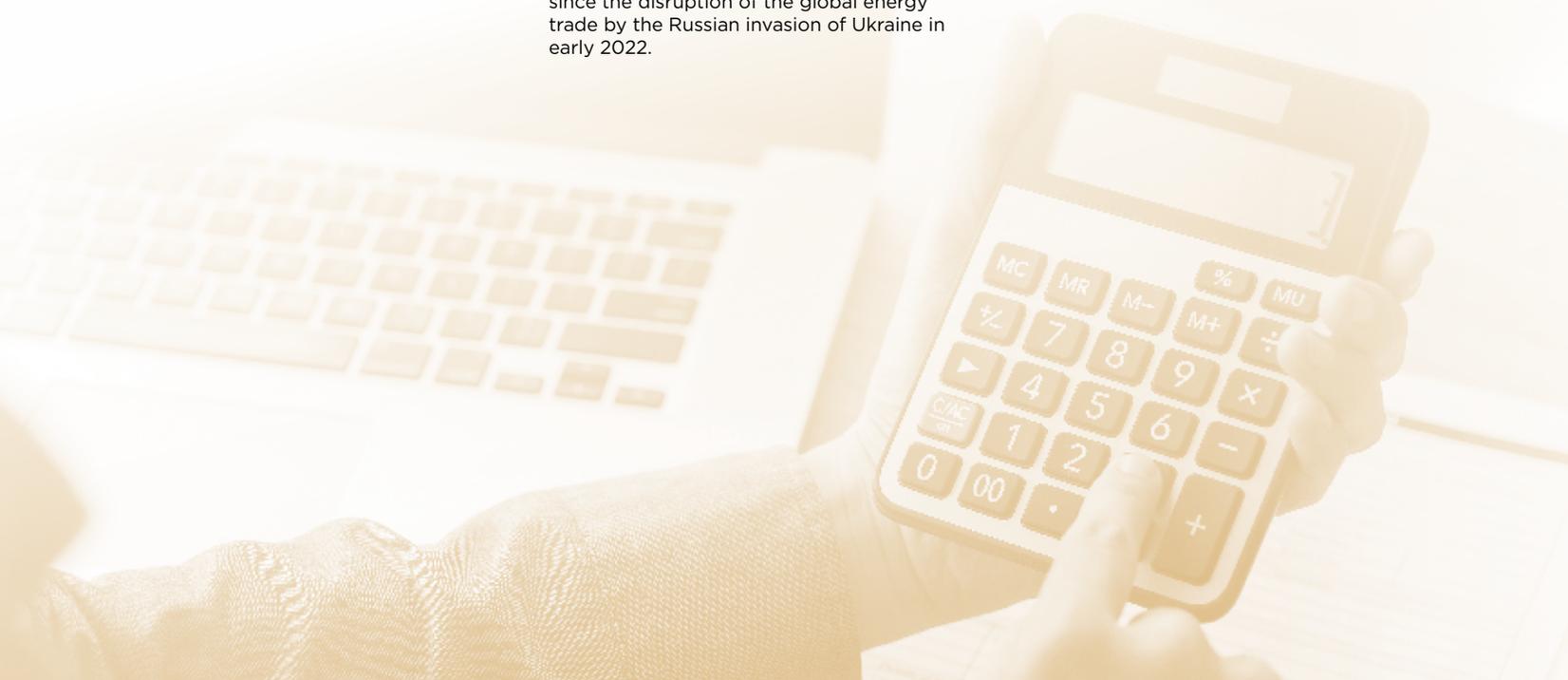
The steady reduction in the wage share and real-unit labour costs over the past decade, and its acceleration in the aftermath of the pandemic recession, are undoubtedly of significance for income distribution and long-term economic performance. Increased wage regulation and changes in institutional arrangements for setting wages as discussed in the Jobs and Skills Summit should be considered on their merits, for their contributions to equitable income distribution and the rate of increase in productivity, outputs and incomes. Those contributions depend on the origins of the low and declining wage share and on the impact of various corrections on the unemployment rate that can be achieved at full employment, on growth in labour productivity, and more generally on growth and distribution of income.

Garnaut (2022) observed at the Jobs and Skills Summit that failure to achieve full employment, the level and composition of immigration, and the rising share of rents and declining share of competitive profits in domestic incomes all contribute to the falling wage share. Conscientious pursuit of full employment, refocusing immigration on high skills and permanent residence, and reform of competition policy to reduce the power and influence of oligopolistic arrangements would contribute to reversal of the declining wage share without raising the NAIRU. They would contribute to increased average incomes of Australians. However, some of the increase in profit share resulting from increasing oligopolistic income is likely to remain, as it is associated with changes in the structure of the Australian economy that are impervious to changes in competition policy. These include the increased share of mining income following the increase in the relative prices of mineral products in the twenty-first century—taken much further since the disruption of the global energy trade by the Russian invasion of Ukraine in early 2022.

Much of the adverse distributional impact of the increase in the share of oligopolistic, mineral and other rents in profits is more efficiently corrected with changes in taxation than by increases in wages resulting from changes in regulation and institutional arrangements for setting wages. Shifting the base for corporate income taxation from conventional accounting income to cash flow would allow an increase in taxation of rents while increasing incentives for corporate investment and productive innovation (see Garnaut et al., 2020). A higher rate of taxation on cash flows could be applied to mineral rents—some variation on the proposals suggested by the Henry Tax Review.

More generally, in contemporary Australian economic circumstances, there is a strong case for seeking more equitable income distribution through fiscal rather than labour market interventions. This is likely to generate lower unemployment and higher growth in household living standards. Fiscal interventions with a net cost to the revenue but advantages for economic efficiency would include increased public expenditure on child care and early childhood education and the shift to AIS.

In this context, a second theme from the Henry Review warrants new consideration in this context: the potential for taxation of external environmental costs, including carbon externalities, to contribute to public revenues while enhancing economic efficiency.



SKILLS, EDUCATION AND TRAINING

Meeting the future skills needs of the Australian economy was a central issue at the Jobs and Skills Summit hosted by the Commonwealth government at Parliament House, Canberra on 1 and 2 September 2022. Mike Keating, one of the five economists, suggested in the lead-up to the Summit, that 'low wage growth can contribute to low productivity growth' because low wage growth depresses consumer demand and in turn investment in new plant and machinery (Keating, 2022). If we could address the structural causes of low wage growth, he argued, it is entirely possible that we could 'accelerate wage growth and consequently consumer demand, which would accelerate productivity growth, giving us wage growth without a wage-price spiral'. He argued that 'technological change and globalisation have hollowed out routine middle level jobs, depressing pay in these occupations relative to higher-paid occupations'. He quoted Thomas Picketty: 'the best way to increase wages and reduce wage inequalities in the long run is to invest in education and skills' (Picketty, 2016)

Skills shortages were much discussed at the Jobs and Skills Summit. The reductions in unemployment between mid-2020 and mid-2022 were accompanied by strong increases in the number of vacancies. Employers expressed extreme difficulties in filling vacancies. Areas of skill shortage that have been widely publicised include teaching, nursing, aged care and IT workers to name a few. Employers' difficulties in recruiting unskilled workers at wages that they are prepared to pay are receiving similar attention, for example, farm labourers and general workers in the hospitality and care sectors. Employers have become accustomed to recruiting unskilled and skilled workers alike from developing countries with low wages and poor conditions in the twenty-first century and especially in the years immediately preceding the pandemic. Many businesses depended on continuing inflow of immigrants on conditions inferior to established Australian levels. These businesses are in difficulty as immigration policy again focuses on people with reasonable prospects of contributing to increased economic welfare of Australians, and to enforcement of established Australian laws and practices. Many will not survive scrutiny of immigration from an Australian national perspective and will release demand for labour to more productive enterprises able to offer higher wages and conditions.

A genuine shortage of skills would survive a disciplined adjustment of immigration to the needs of the Australian economy. The National Skills Commission, to be superseded by Jobs and Skills Australia, produces a skills priority list, based on its assessment of skills shortages and ongoing analysis of trends in the labour market to support education and training policy.

There is also a very strong case for strengthening the education and training system to meet skill needs, enhance workforce productivity and real wages. It is necessary for growth in productivity and output. The case for investment in skills is stronger with full employment. Employment forecasts indicate that most jobs of the future will require a tertiary education qualification of some type, that is, a vocational education and training (VET) qualification and/or a higher education qualification. We will need a high-quality tertiary education system, available to all, offering both initial tertiary qualifications for school leavers and qualifications and micro-credentials to re-skill or upskill mature aged workers.

While on most measures the higher education system is of high quality by international standards, it is only average when it comes to collaborating with industry (Bean and Dawkins, 2021). This provides considerable scope for investment in the system that will enhance the value of higher education qualifications.

The VET system, which has had a tradition of working closely with industry, has been in decline, suffering from inadequate funding and excessive numbers of low-quality providers not adding much to the skills of its students. This has resulted from inadequate regulation and poor market design. The VET system needs more investment and a greater focus on quality assurance and improvement (Hurley and Picher, 2020).

A review by Noonan et al. (2019) of the Australian Qualifications Framework (AQF), which applies to both the VET and higher education systems, finds that the AQF is not fit for purpose for the workforce of the future. Alongside a reformed AQF, Bean and Dawkins (2021) propose the development of a national skills taxonomy with rich skill descriptors, which can blend with the AQF. They have proposed an associated national credentials platform that enables students, employers and employees to define more clearly the skills they need and the credentials that will foster them.

These proposed reforms to the architecture of tertiary education, would help ensure that education and training providers more effectively meet the needs of students, employers and employees, and enhance the market for skills and qualifications.

Differences in funding models for higher education and VET, and differences between different jurisdiction in the funding of VET, as well as the lack of income contingent loans for VET courses, also create distortions in choices between VET and higher education. Noonan and Pilcher (2015) and Higgins and Chapman (2015) have explored funding reforms to remove these distortions and create greater harmony between VET and higher education.

The Mitchell Institute and others (see, for example, Dawkins et al., 2019), have been undertaking a major program of research to help design such a new tertiary system, much of it led by the late Peter Noonan. A joint project of the Mitchell Institute and the Centre for Education and Training at the Australian Industry Group draws this together into a flexible plan for the future. This should provide an evidence-based policy agenda to enhance skills and productivity in Australia.

CONCLUSIONS AND THE NEED TO FURTHER DEVELOP THE EVIDENCE BASE

This chapter puts forward a broad policy agenda for the new Albanese Government in its pursuit of full employment, increased labour force participation and enhanced skills and productivity, while seeking a fair distribution of income. It draws on previous policy analysis by the authors and the findings of many empirical studies.

Australia needs a major economic reform agenda to get to full employment and to raise productivity and participation, to enable sustained economic growth and enhanced real wages. This must be undertaken while restoring the strength of Australian public finances in the face of challenging international economic and geopolitical circumstances and domestic demographic tendencies. This will inevitably require a substantial increase in the share of taxation revenue in GDP, alongside public expenditure reductions in areas that have low or negative benefits for equity and economic efficiency. We need tax reform to raise productivity and participation and to increase public revenue.

In crafting this chapter, we have been mindful that economic policy needs to have clearly defined objectives, a theory of how policy works and evidence against which to test and refine that theory and the policies that flow from it. Policy needs to be constantly evaluated. That is how we see evidence-based, or evidence-informed policy.

Evidence-informed policy is multi-dimensional. It requires well-defined objectives. It takes advantage of empirical evidence about how previous policies have worked, natural and deliberate policy experiments, and simulation modelling.

In suggesting reforms to deal with contemporary economic and social challenges, we have drawn on earlier studies of the likely effect of similar policies. More detailed estimates of the likely effects of such policies can be obtained through simulation modelling. The Melbourne Institute and the Centre for Policy Studies have put together a proposal to join the Melbourne Institute's MITTS and CoPS dynamic CGE modelling to simulate the economy-wide effects of such policies. MITTS would need to be integrated with the HILDA Survey. HILDA provides data on child-care costs and labour supply, which will enable MITTS to estimate labour supply responses to changes in child-care costs.

Such analysis would also take into account the constraint that would be imposed by a limited supply of child-care workers and early childhood educators. This should guide the speed of introduction of such policies and suggest the wage increases that may be required to secure the early childhood workforce to make this policy work. The same modelling technology can also be used to examine the likely effect of an overhaul of the tax-transfer system to reduce effective marginal tax rates.

We have covered many other issues in this chapter and drawn on a range of evidence in proposing policy directions. In considering these suggestions, policy-makers would be wise to draw on modelling and sometimes policy experiments.



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Part 2

Monetary Policy, Fiscal Policy
and Labour Markets

Chapter

4

Insecure
employment:
Do we really
have a crisis?¹

Professor Mark Wooden



A claim pushed by the union movement and re-affirmed in a recent report by the Senate Select Committee on Job Security is that job insecurity in Australia has been rising steeply and has now reached crisis levels. This chapter examines data on an array of different indicators and can find very little evidence to support these propositions. Indeed, on many indicators, jobs in Australia have never been more secure. It is also argued that the introduction of measures designed to restrict and discourage non-standard forms of employment types may have unintended consequences and only serve to undermine employment prospects of some groups and reduce the job quality of others.

¹ This chapter uses data from a variety of sources, including Release 20 of the Household, Income and Labour Dynamics in Australia (HILDA) Survey (doi:10.26193/YP7MNU), which is conducted and managed by the Melbourne Institute on behalf of the Australian Government of Social Services. The findings and views reported here, however, are those of the author and should not be attributed to the Australian government, the Department of Social Services or the Melbourne Institute. The author also thanks Jeff Borland for helpful comments on an earlier draft.

INTRODUCTION

The labour movement has long been warning of the perils of insecure work. The claim is that many Australian workers are subject to unpredictable and fluctuating pay, irregular and unpredictable working hours, inferior rights and entitlements, lack of certainty over job continuity, and a general lack of control over their working situation. This, in turn, will feed into adverse consequences for the health and wellbeing of these workers and their families. Further, it is often claimed that the problem of insecure work in Australia has been worsening over time. Impetus to such claims was provided by the Senate Select Committee on Job Security (2022), with the Chair of that Committee referring to a 'steep rise in job security' and describing job insecurity in Australia as 'reaching a crisis point' (p. xiii).

This chapter will re-examine these claims. It will determine how insecure work has been defined and measured, and present data on a range of indicators that have been used in previous research as either direct measures of job insecurity or as indicators of the prevalence of insecure forms of work. It will demonstrate that almost all indicators reveal no signs of a trend rise in job insecurity over time, with some indicators suggesting the level of job insecurity in 2022 is at a low not seen since the early 1970s. The chapter then concludes with a brief assessment of policy options intended to curtail the incidence of insecure employment, and especially those the new Labor government took to the 2022 election.

WHAT IS MEANT BY JOB INSECURITY AND HOW IS IT MEASURED?

In the broadest sense, job insecurity is any form of uncertainty surrounding employment that reduces wellbeing. Most research, however, focuses on concerns and fears about employment continuity, and more specifically on the likelihood and consequences of involuntary job loss (Sverke et al., 2002b).

Given this focus on employment continuity, it follows that one type of indicator of trends in job security is the readily available labour force statistics that measure rates of employment, unemployment and labour underutilisation. If rates of employment are falling and rates of unemployment are rising it is to be expected that a growing proportion of workers would be concerned about employment continuity. Slightly differently, some researchers (for example, Neumark et al., 1999; Farber, 2010; Bachmann and Felder, 2018), including in Australia (for example, Wooden, 1998; Borland, 2001), have used changes in measures of job separation rates and the distribution in job tenure as a guide to underlying trends in job stability and, by implication, job security.

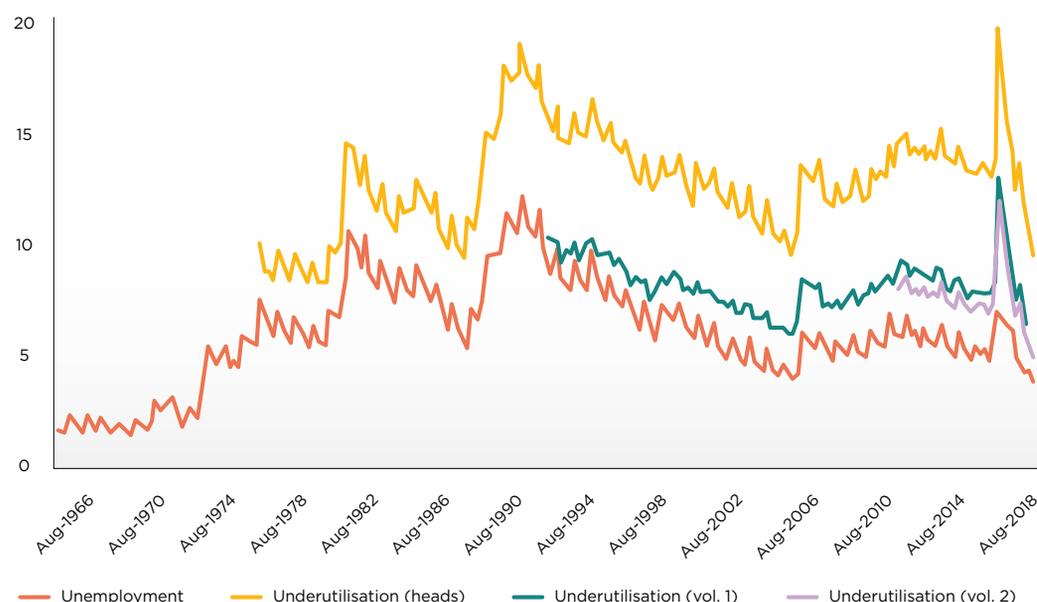
A very different approach involves the identification and measurement of various forms of so-called non-standard, and often temporary, forms of employment.² Given job insecurity is an inherent feature of many of these forms of employment, it follows that growth in their prevalence would imply a decline in overall job security, and arguably in job quality more generally (for example, Kalleberg, 2011, 2018; Standing, 2011). This theme that non-standard employment is synonymous with insecure, low-quality jobs permeates much of what is written in Australia on non-standard employment (for example, Campbell and Burgess, 2018; Carney and Stanford, 2018; Markey and Mclvor, 2018), and was at the centre of the Senate Select Committee on Job Security's (2022) report. In this literature, it is the nature of the employment contract that is of primary concern, with debate focused on what types of employment contracts should be described as insecure. At one extreme, insecure jobs are defined as all those that do not fall within the traditional definition of a 'standard' job, which, following Polivka and Nardone (1989, p. 10), is any job that does not involve full-time permanent wage and salary employment. This thus includes all forms of self-employment as well as all forms of part-time employment. Towards the other end of the spectrum, there is a long tradition, especially in Europe, of focusing attention on jobs that can be objectively described as temporary. Fixed-term contract employment is the most obvious example here.

Finally, there is a much larger literature, rooted mainly in the behavioural sciences, which begins from the premise that job security is inherently a subjective phenomenon. In this literature, objective employment status is just one among many influences on job insecurity, and possibly one that is not all that important. There is, for example, a long line of research in Europe which finds that, while the probability of job loss is much higher for workers on temporary employment contracts than for their more permanent counterparts, the psychological consequences of job insecurity for temporary workers are less severe (for example, Sverke et al., 2002a; De Witte and Näswall, 2003; De Cuyper and De Witte, 2005, 2007; Klandermans et al., 2010).

The most common measures of job insecurity employed in this type of research are concerned with the perceived threat of job loss and its consequences, with perhaps the main issue of debate being how to measure these constructs in surveys. There is widespread acceptance that job security/insecurity is a multi-faceted construct, implying the need for multiple indicators. A good example here is Hipp (2016), who distinguishes between three different dimensions of job security: (1) the perceived probability of job loss, or 'cognitive job security'; (2) the perceived availability of alternative job opportunities, or 'labour market security'; and (3) the absence of anxiety related to potential job loss, or 'affective job security'. It is also usually agreed that multiple-item measures will be superior to single-item measures. The latter, however, possess one practical advantage: they are much easier and less costly to administer. As a result, they tend to be more common.

² For an overview of the incidence of, and trends in, nonstandard employment around the world, see ILO (2016).

Figure 1.
Unemployment and labour underutilisation trends, Australia, 1966–2022 (quarterly).



Notes: Measures I and II of volume-based underutilisation are derived from the Labour Force Survey (LFS) and Labour Accounts respectively. The LFS figures relate to a specific reference week in the mid-quarter month, while the estimates from the Labour Accounts cover the entire quarter.

Sources: ABS, Labour Force Australia (6202.0), Table 1: Labour force status by sex, Australia—Trend, seasonally adjusted and original. ABS, Labour Force Australia (6202.0), Table 2: Underutilised persons by age and sex, Australia—Trend, seasonally adjusted and original. ABS, Labour Force Historical Timeseries, Australia—Labour force status by sex and marital status (6204055001TS0001), Table 4: Labour force status of the civilian population aged 15 years and over—1966–1977. ABS, Labour Force, Australia, Detailed (6291.0.55.001), Table 23a: Volume measures of underutilisation by state, territory and sex. ABS, Labour Account Australia (6150.0.55.003), Table 1: Total all industries—Trend, seasonally adjusted and original.

AGGREGATE LABOUR MARKET STATISTICS

Unemployment and underemployment

The first challenge to the notion that job insecurity has reached crisis levels in Australia lies in the official labour force statistics produced by the Australian Bureau of Statistics (ABS). As shown in Figure 1, the official unemployment rate (the orange line) in early 2022—3.8 percent in May (but 3.9 percent after seasonal adjustment)—was as low as it has ever been in almost half a century; the last time it was lower than 3.8 percent was 1974.³ Furthermore, the trend towards higher unemployment that was evident during the two decades commencing 1973 has been completely reversed over the last three decades.

An often-cited weakness of the standard dichotomy between employment and non-employment that underpins the construction of the unemployment rate is that a person only has to work one hour during the survey reference week to be counted as employed. It is thus now common to augment the unemployed with the number of underemployed persons (mostly persons working part-time who prefer to work more hours) to arrive at a total rate of labour underutilisation. The yellow line in Figure 1 depicts trends in this series. The levels are, by definition, higher and are still at rates higher than in the late 1970s. Nevertheless, there is no obvious upward trend over the period since 1980. The underutilisation rate rose dramatically in the recessions of the early 1980s and early 1990s and again during the COVID-19-pandemic-induced recession of 2020. The surge in the second quarter of 2020 was especially spectacular, but just as spectacular was the rapid decline that followed. The rate of labour underutilisation on this measure was, in mid-2022, about as low as it has ever been at any point in the last three decades.

A count of the number of underemployed persons, however, suffers from a similar weakness as counts of the number of employed and unemployed persons: to be counted as underemployed, a worker only has to express a preference for one additional hour of work each week. A superior measure of labour underutilisation that deals with this weakness is derived from the difference between the number of preferred hours per week and the actual number of hours worked per week by both the unemployed and the underemployed.⁴ Such volume-based indicators are also produced by the ABS, both in the Labour Force Survey (since 2014) and in its Labour Accounts (since mid-1994). The rate of underutilisation using these volume-based measures is shown by the turquoise and mauve lines in Figure 1. Again, there was a marked spike in the May 2020 survey. Nevertheless, the underlying trends in these series are not upwards, and in recent years are clearly downwards. Furthermore, the gap between the official unemployment rate and volume-based measures of labour underutilisation is relatively small (just over one percentage point in May 2022).

³ And in the figures for July 2022, it fell even further, reaching just 3.4 percent.

⁴ The volume-based underutilisation rate is the sum of the total number hours of labour sought by unemployed persons and the total number of additional hours of labour preferred by underemployed workers divided by the total number of potential hours in the labour force, where potential hours is comprised of the number of hours sought by the unemployed, the number of additional hours sought by the underemployed, and the number of hours usually worked by all employed persons. For more detail see ABS (2022).

Involuntary job separation rates

Another relevant indicator, and one that is more closely related to the threat of job loss faced by workers, is the rate of involuntary job separations. Such data are collected by the ABS in its Participation, Job Search and Mobility Survey, a supplement to the monthly Labour Force Survey that is now conducted annually.⁵ Trends in the rates of job losers and retrenchments are reported in Figure 2. A job loser is anyone who involuntarily ceased their last job in the previous 12 months, and includes retrenchments, redundancies, dismissals, and losing a job due to ill health or injury.

Both of these measures were in steady decline throughout most of the 1990s and 2000s. The rate of involuntary job separation reached a low of 5.9 percent prior to the GFC of 2008/09. After rising for a few years, it then resumed its downward path. This was briefly interrupted by the 2020 pandemic, but in the latest figures (for the 12 months ended February 2022) was standing at 3.9 percent, the lowest since 1981. The rate of retrenchment (that is dismissals because of economic reasons) has followed a similar but lower trajectory, and in the latest data was the lowest on record (just 1.5 percent).

In short, the likelihood of an Australian worker being involuntarily removed from their job was, at the start of 2022, both very low and less than it has been at any other time during the past 40 years.

Non-standard and insecure forms of employment

Even though rates of involuntary job loss have been declining, the proportion of workers employed in jobs that provide little or no guarantee of employment continuity might still be rising. Such claims have long been advanced by the Australian Council of Trade Unions (for example, ACTU, 2011) and are central to the Senate Select Committee on Job Security's (2022) report (the Senate Report). The main evidence provided by the Senate Committee in support of this view is ABS data on the proportion of employees in full-time permanent jobs (where permanency is proxied by the presence of paid leave entitlements). Between the early 1990s and the 2020 pandemic this proportion fell more or less continuously—from just over 70 percent in 1992 to just under 60 percent by 2018 (Senate Select Committee on Job Security, 2022, Figure 2.1, p. 18).

There are, however, at least two reasons why this use of ABS data is misleading. First, despite the Senate Committee placing much emphasis on the insecurity associated with self-employment, and especially independent contractors and gig workers, the self-employed are excluded from this particular set of numbers. This is significant given, as shown in Figure 3, the share of workers who are self-employed has been in long-term decline.

Second, the argument presented in the Senate Report rests heavily on the idea that permanent part-time jobs are inherently more insecure than permanent full-time jobs. As detailed in the secondary source relied upon by the Senate Committee (Gilfillan, 2021), the proportion of employees in permanent part-time jobs almost doubled between 1992 and 2021. The Senate Report seems to adopt the argument proposed by the Centre for Future Work that much permanent part-time work involves fluctuating and unpredictable hours, though seemingly without any real supportive evidence. Possible supporting evidence comes from the ABS Characteristics of Employment (CoE) Survey, yet another supplement to the ABS monthly population survey. In particular, responses to a question about whether income varies from one pay period to the next (reported in Table 1) shows around 22 to 23 percent of permanent part-time workers reporting that earnings vary, which compares with only 13 to 14 percent of permanent full-time job holders.⁶ However, the presence of this difference between full-time and part-time job holders should not be surprising. Variable earnings may be a consequence of paid overtime or extra hours being worked on an occasional basis, and both the scope and desire for additional hours is greater among part-time job holders. On the latter point, the CoE Survey data suggest that in the years preceding the pandemic (that is, 2018 and 2019) around 18 percent of permanent part-time job holders preferred more hours.⁷

A different depiction of the changing distribution of jobs by employment type from that presented in the Senate Report, but based on the same data sources, is provided in Figure 3. This figure separately identifies and enumerates both owner-managers (that is, the self-employed) and permanent part-time workers.

The proportion of jobs that are both full-time and permanent (again as proxied by the presence of paid leave entitlements, and represented by the orange bars in Figure 3) has indeed declined, though that decline came to an end in the early 2000s. Permanent full-time jobs accounted for just over 50 percent of all jobs in 2002, hovering around the 50 to 51 percent range ever since—in August 2021 it stood at 51.2 percent. The proportion of all jobs that are permanent (that is, including both full-time and part-time permanent job holders), however, is obviously higher, and more importantly, higher in 2021 than in 1992. In part, the recent high share may reflect both the loss of casual jobs during the pandemic and the low levels of temporary immigration. Nevertheless, prior to the pandemic the proportion of permanent jobs (63 percent in 2019) was little different from that in the early 1990s.

Fixed-term contracts

One problem with inferring the number of permanent employees from the number of employees in receipt of paid leave entitlements is that the latter includes many workers employed on a fixed-term contract basis, and by definition a fixed-term contract implies temporary, and thus presumably more insecure, employment. Questions identifying workers on fixed-term contracts are included in the CoE Survey and, as shown in Table 2, these data indicate that fixed-term contract workers represented 3.1 percent of all employed persons in August 2021. Furthermore, this proportion has been relatively stable over time. Some of this group, however, report not receiving paid leave entitlements and thus would be classified as 'casual'. Table 2 thus also shows the proportion of employed persons who report both having paid leave entitlements and being on a fixed-term contract. Removing this group from those workers reporting having paid leave entitlements provides us with the best estimate of the proportion of workers in secure, ongoing wage and salary employment—about 62 percent of all employed persons in 2021 (that is, the 51.2 percent in full-time employment with leave entitlements plus the 13.1 percent in part-time employment with leave entitlements minus the 2.4 percent in fixed-term contract jobs with leave entitlements). And again, rather than declining over time, this level is higher than two decades earlier—57.5 percent in 2001.

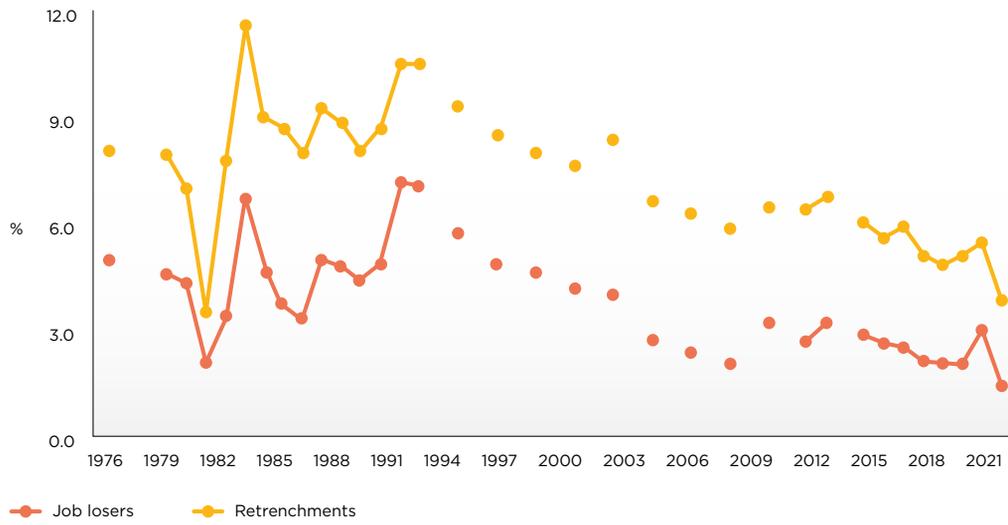
⁵ For earlier periods, collection was on an every-other-year basis.

⁶ Such a question was regularly included in the earlier Forms of Employment survey, but unfortunately the data needed to produce comparable proportions for earlier years are not reported on the ABS website.

⁷ Consistent with the trends on underutilisation reported earlier, this rate was noticeably higher in 2001 (21%) and noticeably lower in the most recent figure for 2021 (14%).

Figure 2.

Involuntary job separation rates, Australia, 1976–2022 (year ended February).



Note: All figures are calculated as a percentage of persons employed at time of survey.

Sources: ABS, Participation, Job Search and Mobility, Australia (6226.0), Table 1: Labour mobility, retrenchments and duration of employment. ABS, Participation, Job Search and Mobility, Australia, 2018 (6226.0), Table 17: Labour mobility: Time series, 1972 to 2018.

Table 1.

Employees reporting income varied from one period to the next (%).

Year (August)	With leave entitlements		Without leave entitlements	
	Full-time in main job	Part-time in main job	Full-time in main job	Part-time in main job
2014	14.2	23.1	45.8	55.4
2016	13.5	22.2	49.2	54.8
2018	12.8	21.5	44.3	54.5
2020	13.0	23.5	45.8	58.9

Source: ABS, Characteristics of Employment Survey (data extracted via Table Builder).

Table 2.

The prevalence of fixed-term contract workers (% of all employed persons).

	1998	2001	2006	2011	2016	2020	2021
All employees	3.2	3.2	3.7	3.4	3.2	3.3	3.1
Employees with paid leave entitlements	2.2	2.1	2.8	2.6	2.6	2.7	2.4

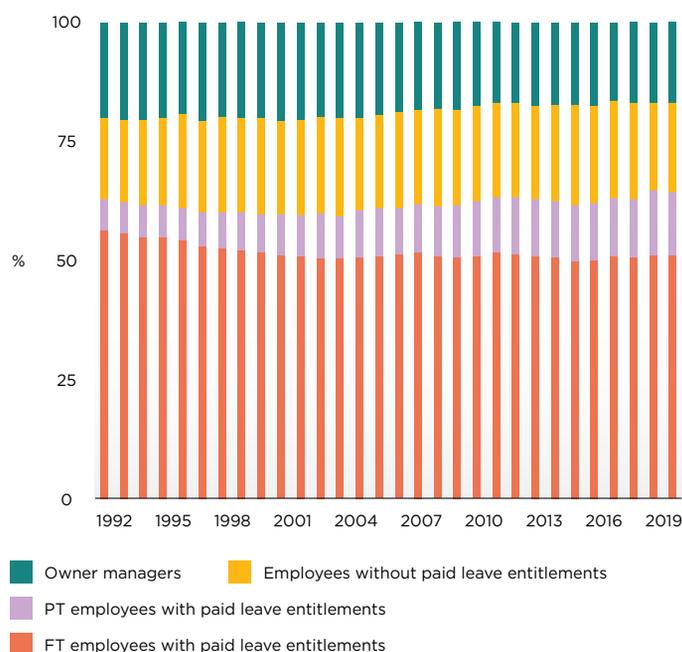
Sources: ABS, Forms of Employment Survey (6359.0) and ABS, Characteristics of Employment Survey (data extracted via Table Builder).

But what about the casualisation of the workforce?

The trends depicted in Figure 3 provide very little support for the widely espoused view that the Australian workforce has become increasingly casualised over time. According to the figures that underly Figure 3, the proportion of employed persons who are employees without paid leave entitlements, and thus can reasonably be assumed to be casual employees (represented by the yellow bars in Figure 3), has changed very little over the last two decades. Workers in such jobs represented 20 percent of all employed workers in 1998 and it was still 20 percent in 2018. As explained in Laß and Wooden (2020), there has been a marked rise in the casual employment share in Australia, but that rise occurred long ago, and especially during the 1980s and the first half of the 1990s. If high rates of casual employment are symptomatic of a job insecurity crisis, then that crisis has been with us for a very long time.

It is also worth noting that movements over time in the casual employment share are not necessarily a good indicator of underlying changes in job insecurity. Most obviously, the casual employment share experienced a very large drop in the second quarter of 2020, but this does not imply a decline in job insecurity. Instead, this fall was a direct function of the recession that resulted from government responses to the pandemic, which in turn caused many businesses to temporarily cease or curtail operations (and which also excluded many casual employees from the protections offered by the JobKeeper program). This sharp drop was thus a reflection of an economic environment in which job insecurity was rising. Thankfully, the pandemic-induced recession was relatively short-lived and thus casual employment levels quickly recovered. Nevertheless, by May 2022 the casual employment share was still well below its pre-pandemic level. Whether this signals some structural shift towards a lower level of casual employment, however, is debatable. More likely it is a consequence of the impact of international border restrictions on the level of temporary migration.

Figure 3. Distribution of employment by type of employment, Australia, 1992–2021.



Note: Estimates are for the month of August each year, except over the period 2008 to 2013 where they are for November.

Sources: ABS, Australian Labour Market Statistics, July 2014 (6105.0), Table 1: Employment type: Employed persons by sex, full-time/part-time and age, August 1992–August 2007 and November 2008–November 2013. ABS, Labour Force, Australia, Detailed (6291.0.55.001), Table 13: Employed persons by status in employment of main job and hours actually worked in all jobs.

⁹ Similarly, the idea that many contractors may not be truly independent of the organisations using their services is also not new. The Australian Tax Office, for example, has a long history of challenging the legal status of contractors in the courts. There is also research dating back to the early 1990s that seeks to enumerate how many self-employed contractors are truly independent and how many are in a dependent relationship with the organisations to whom they are providing services (Vandenheuvel and Wooden, 1995).

¹⁰ The larger sample sizes in later years are a function of a refreshment sample added in Wave 11 (2011).

¹¹ This estimate rises to 0.8% when calculated as a percentage of employed persons aged 15 to 69 years.

Self-employment, contractors and gig workers

As noted earlier, another important trend depicted in Figure 3 is a slow and gradual decline in the proportion of workers who are self-employed—from just over 20 percent in 1992 to less than 17 percent in more recent years. This trend is particularly striking given the concern expressed by many regarding the growth in gig work and its potential to erode the working conditions of employees. So how do we reconcile this apparent contradiction between perception and evidence?

First, in the most recent discussion, gig work is equated with work obtained via digital platforms—new forms of work where workers and customers are connected directly via apps and other forms of digital technology, but where the provider of the digital platform can potentially exert significant control over working arrangements. But this is only a small subset of what might be described as gig work. The concept of independent workers being engaged to undertake work on a task-by-task basis has long underpinned the work of many self-employed, also termed ‘independent’, contractors.⁹ It may thus be that growth in digital platform work is just substituting for other forms of contracting. This certainly seems likely in the case of ridesharing services, which compete with the taxi industry where drivers (regardless of ownership) have historically always been deemed to be self-employed.

Second, most credible estimates still suggest digital platform workers represents a tiny fraction of the workforce. Until recently, the best survey evidence for Australia came from a study undertaken as part of the Victorian government’s Inquiry into the Victorian On-Demand Workforce. The results from this survey appear to

suggest quite high levels; 7.1 percent of respondents reported working through a digital platform at some time during the preceding 12 months (McDonald et al., 2019). However, this same survey revealed that when undertaking digital platform work, most devoted only a few hours a week to it; it was a full-time activity for just 2.6 percent of this group.

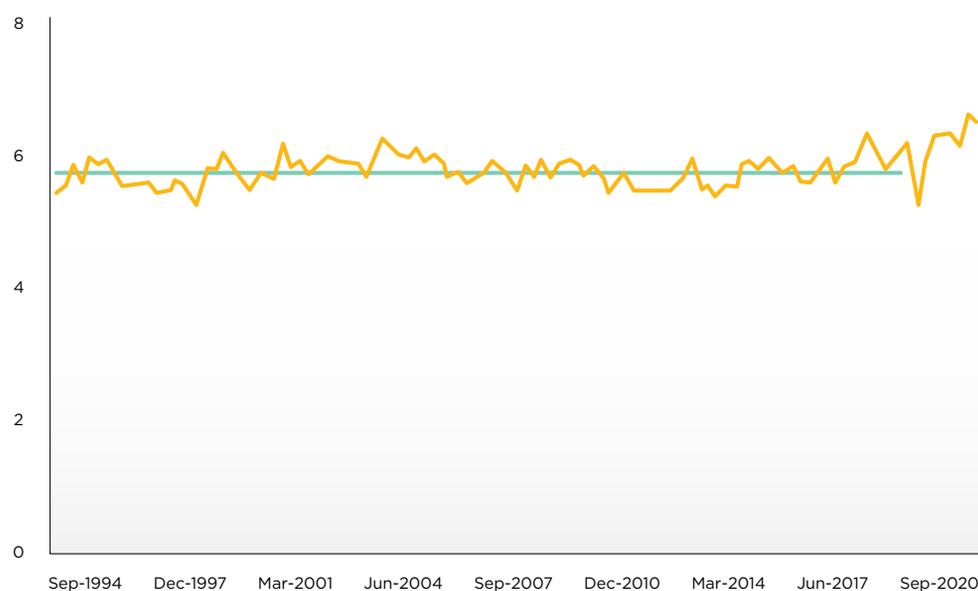
A weakness of this survey is that responses are very unlikely to be random. For a start, there was no obvious sampling frame—respondents were recruited online and quotas were used to ensure the sample replicated population characteristics with respect to age, gender and state. Further, a survey about digital platforms is more likely to attract responses from persons interested in digital platform work and thus we can expect the incidence of such work to be over-estimated. One study that is not beset by these problems is the longitudinal HILDA Survey. Data are collected via both interviewer- and self-administered methods from adult members of a randomly selected population of households in 2001 on an annual basis. Other adults who are co-residing with original sample members are added to the sample each year. Responding sample sizes vary from around 12,400 (in Wave 4) to almost 17,700 (in Wave 16).¹⁰ In 2020 it included, for the first time, a question identifying the undertaking of digital platform work over a four-week period. According to this source, just 0.6 percent of the adult population is estimated to undertake any form of digital platform work.¹¹ This estimate is, however, likely to be on the low side, possibly because it was conducted during a period when one Australian state was in lockdown, and almost certainly because recent immigrants are under-represented in the HILDA Survey.

Multiple job holders

The Senate Select Committee on Job Security (2002) also claims that multiple job-holding is an indicator of job insecurity, and points to evidence which the Committee suggests shows its incidence has been rising. But the evidence it cites and reports on, which comes from the ABS Labour Accounts, does not provide any support for the notion that the incidence of multiple holding has been trending upwards. According to this source, prior to the pandemic the proportion of jobs that are ‘secondary’ varied between 5.2 percent and 6.1 percent with, as shown in Figure 4, little obvious sign of any long-run upward trend (a line of best fit results in a slope coefficient that is almost zero).

There has, however, been a rise in the incidence of secondary jobs during the post-pandemic recovery, reaching 6.5 percent by the end of 2021. It is this which the Senate Committee (and a number of submissions to their Inquiry) leap on as evidence of a rise in job insecurity. But it is very unlikely that this recent and modest rise in multiple job-holding has anything to do with more workers feeling more insecure in their jobs. Rather it reflects almost the exact opposite: it is a function of a very tight labour market where job vacancies are at a record high and where employers are struggling to recruit sufficient labour. Indeed, for some part-time job holders, work in a second job has helped them come closer to achieving their desired work hours (as reflected in the marked decline in underemployment noted earlier).

Figure 4. Secondary jobs as a proportion of all jobs, Australia, 1994:Q3–2022:Q1.



Source: ABS, Labour Account Australia (6150.0.55.003), Table 1: Total all industries—Trend, seasonally adjusted and original.

¹² A notable exception here is Borland (2001), who uses cross-section survey data on a measure of satisfaction with job security for Australia collected as part of the International Social Science Survey program over the period 1984 to 1996. He reports evidence of a marked decline in this measure during the period 1990 to 1993 when Australia was in the midst of a severe recession, but finds no evidence of a significant downward long-term trend.

¹³ The question format was slightly different in Wave 1 in that there was no use of optional text. This is denoted by the use of parentheses, which signals to the interviewer that it need not be read out if they think it unnecessary.

SUBJECTIVE JOB INSECURITY

Even if there has not been a marked change in the distribution of jobs by contract type, the proportion of workers, including those in permanent jobs, who feel more insecure in their jobs may have been rising.

Data and measurement

While there is a very large literature on subjective job insecurity and its consequences (for reviews, see Sverke et al., 2002b; De Witte, 2005; Greenhalgh and Rosenblatt, 2010; Jiang and Lavaysse, 2018), there is relatively little evidence on longer-run trends. This seems to be entirely due to a paucity of data. In Australia, however, the commencement of the HILDA Survey (Watson and Wooden, 2021) has gone a long way to filling this gap.¹²

Designed with a focus on work, family and income, the HILDA Survey provides multiple subjective indicators of job insecurity. First, and following Manski and Straub (2000), in every wave a probabilistic assessment of the likelihood of losing a job is included. Only posed to employees, the relevant question is: What do you think is the percent chance that you will lose your job during the next 12 months? (That is, get retrenched or fired or not have your contract renewed.)¹³

Respondents are required to give an answer between zero and 100. This provides a measure of what Hipp (2016) describes as cognitive job security/insecurity.

Second, and also based on the work of Manski and Straub (2000), this is immediately followed by a question about the likelihood of re-employment: If you were to lose your job during the next 12 months, what is the percent chance that the job you eventually find and accept would be at least as good as your current job, in terms of wages and benefits? This provides a measure of labour market security/insecurity.

Third, are measures of affective job security/insecurity. Unlike the previous two measures, which are administered by an interviewer, these are included in a separate self-administered questionnaire, and are part of a longer list of items about job characteristics. They are expected to be answered by anyone currently in paid employment, including both employees and owner-managers (the self-employed). For this analysis, however, owner-managers have been excluded.

There are three job security items, which are worded as follows:

1. I have a secure future in my job.
2. The company I work for will still be in business five years from now.
3. I worry about the future of my job.

Respondents choose a number on a seven-point Likert scale where the end-points are labelled 'strongly disagree' and 'strongly agree'.

¹² A notable exception here is Borland (2001), who uses cross-section survey data on a measure of satisfaction with job security for Australia collected as part of the International Social Science Survey program over the period 1984 to 1996. He reports evidence of a marked decline in this measure during the period 1990 to 1993 when Australia was in the midst of a severe recession, but finds no evidence of a significant downward long-term trend.

¹³ The question format was slightly different in Wave 1 in that there was no use of optional text. This is denoted by the use of parentheses, which signals to the interviewer that it need not be read out if they think it unnecessary.

¹⁴ Almost all interviews in 2020 were conducted by telephone rather than face-to-face, which was the norm in previous years.

¹⁵ For a more sophisticated treatment of these data, see Ribar and Wooden (2020).

Figure 5.
Trends in cognitive job insecurity and labour market insecurity—Employees.



Note: All estimates are weighted to account for survey design and non-random non-response and sample attrition.
Source: Unit record data from the HILDA Survey, release 20.

Trends

Figure 5 reports the mean values of our indicators of both cognitive job insecurity and labour market insecurity. Given the difference in the wording of the probability of job loss question in Wave 1, we commence the series in 2002. Furthermore, the labour market insecurity variable has been constructed as 100 minus the percentage probability of re-employment. This ensures that rises in both measures indicate a rise in insecurity.

As shown, the mean probability of job loss (cognitive job insecurity) varies between 9 percent and 12 percent for most of this period, before rising to 13.4 percent in 2020 during the first year of the pandemic (with most interviews conducted during the middle of the Victorian lockdown).¹⁴ The measure of labour market insecurity exhibits slightly more volatility, falling during the early 2000s before rising in 2009 in the wake of the GFC. It fell again in the late 2010s, though had not reached the pre-GFC low, before jumping up noticeably in 2020.

The mean level of labour market insecurity is also much higher than the level of cognitive job insecurity, signalling the potential importance of the cost of job loss as a key influence on job security.

Overall, it is difficult to identify any marked long-run trends here. Prior to the COVID-19 pandemic, levels of labour market insecurity were little different (and indeed slightly lower) than the levels recorded at the start of the century. Cognitive job insecurity on the other hand was higher, but the difference was relatively small (less than half a percentage point higher compared with the levels in 2002). In general, both series, but especially cognitive job insecurity, exhibit remarkable stability, and the variation that does exist seems to reflect variations in the state of the wider labour market.

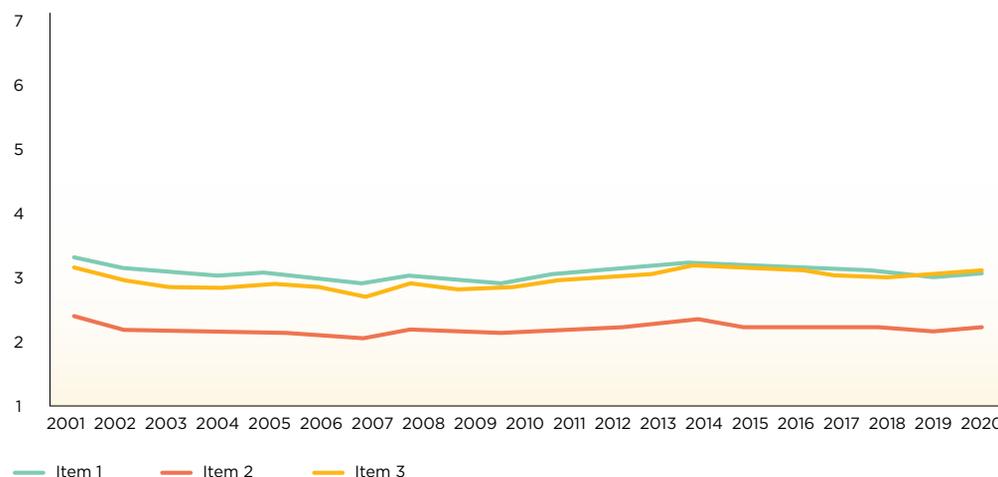
Turning now to affective job insecurity, Figure 6 reports mean values on each of our three questions. Responses to the two positively worded items have been

reversed, again ensuring that upward movement in all three signal a rise in insecurity (and conversely downward movements indicate declining insecurity).

Again, it is difficult to discern any noticeable long-term trend. There is a slight procyclical tendency, but the main feature of these data is how stable over time the mean scores on each indicator are.¹⁵ Interestingly, there is not the same marked rise in 2020 in these affective measures that there was for the cognitive measure.

These findings are also entirely consistent with recent evidence reported for Germany, the United Kingdom and the United States (Manning and Mazzeine, forthcoming). They too could find no supporting evidence in subjective data for the narrative that jobs today are more insecure than in the past.

Figure 6.
Trends in affective job insecurity—Employees.



Notes: All estimates are weighted to account for survey design and non-random non-response and sample attrition.

Item 1: I have a secure future in my job (reflected).

Item 2: The company I work for will still be in business five years from now (reflected).

Item 3: I worry about the future of my job.

Source: Unit record data from the HILDA Survey, release 20.

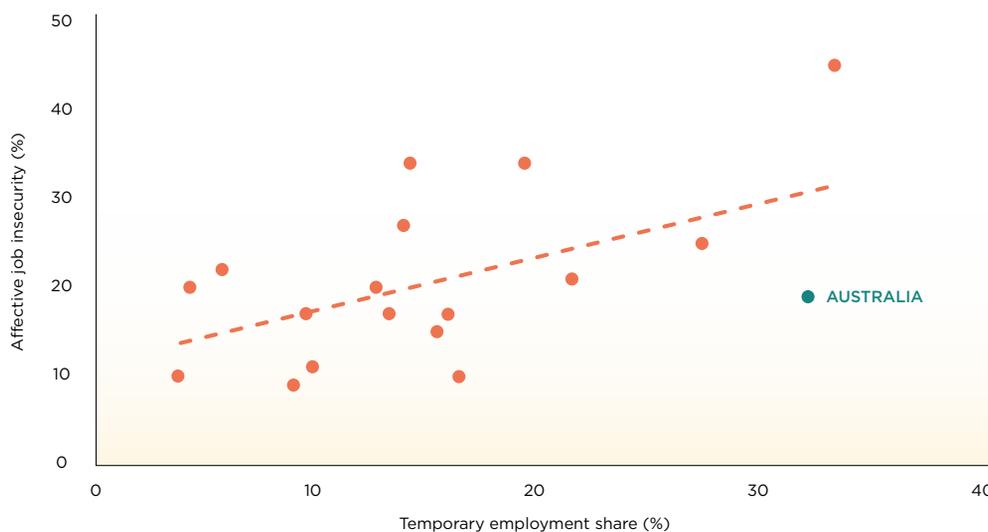
AN INTERNATIONAL PERSPECTIVE

A point often made is that Australia's levels of casual employment are very high when compared with other rich nations. This is true. Indeed, in many Western European countries, casual forms of employment are highly constrained, if not illegal.¹⁶ Despite this, the limited cross-national evidence that is available does not suggest that subjective levels of job insecurity are especially high in Australia.

Hipp (2016), for example, reports on the levels of subjective job security in a large number of OECD countries using data collected during the 2005 round of the International Social Survey Program. On each of these measures, Australia scored above (that is, better than) the multi-country average despite its high levels of fixed-term contract and casual employment. When we cross-tabulate these data with ILO data on the temporary employment share we find the expected positive cross-country correlation between subjective job insecurity and the temporary employment share. This can be seen in Figure 7 where the proportion of employees classified as not having high levels of affective job security is charted in a scatterplot alongside the temporary employment share.¹⁷ Note, however, that differences in the way temporary employment is measured and defined mean international comparisons can be misleading. Further, institutional contexts also vary widely: the low rate of temporary employment in the United States, for example, reflects a system where dismissal is relatively unregulated and thus the need for distinctions between permanent and temporary are far less necessary. In addition, the strength of this cross-country relationship can be greatly reduced by the omission or inclusion of particular countries (notably Spain, which is included in Figure 7, and Bulgaria, which is not).¹⁸

These concerns notwithstanding, Figure 7 suggests that in some countries, but especially in Australia, the relationship between levels of casual and temporary forms of employment on the one hand and subjective measures of job insecurity on the other, is weak. Despite Australia's relatively high level of casual employment, Australian employees on average have not (at least not in 2005) reported feeling noticeably more insecure in their jobs than employees in many other countries where rates of temporary employment are much lower.

Figure 7. Affective job insecurity vs % of employees in temporary jobs, 2005—Cross-national comparisons (selected OECD countries).



Notes: Affective insecurity is the weighted percentage of employees classified as not having high levels of insecurity, as constructed by Hipp (2016) and based on answers to a question about whether respondents 'worried about the possibility of losing [their] job'.

Temporary % is the number of temporary employees as a percentage of all employees, where temporary employees are workers engaged only for a specific period of time or on project- or task-based contracts, as well as seasonal or casual work, including day labour. There are, however, marked differences across countries in how this definition is interpreted and applied.

Sources: Affective job insecurity: Hipp (2016) based on data from the 2005 wave of the International Social Survey Program. Temporary %: ILOSTAT Explorer (accessible from <https://ilostat.ilo.org>).

¹⁶ For a summary of the different frameworks for regulating employment that exist in EU nations, but with a focus on 'on-demand' work, see Biletta and Cerf (2018).

¹⁷ This positive cross-country relationship is slightly weaker with Hipp's other two measures of subjective job insecurity.

¹⁸ Hipp (2016) provides data for 23 countries. The ILO, however, does not provide any data on temporary employment in New Zealand. Furthermore, to reduce clutter, the four Eastern European countries (Bulgaria, the Czech Republic, Hungary and Slovenia) were omitted.

POLICY OPTIONS

As I hope I have demonstrated, the weight of evidence provides no support for the narrative that levels of job insecurity in Australia have been rising in recent decades. Despite this, the Australian Labor Party went to the recent federal election with a policy platform—its Secure Australian Jobs Plan¹⁹—which is designed to provide Australian workers with more secure jobs.

Key elements of this policy include:

- extending the powers of the Fair Work Commission to cover ‘employee-like’ forms of work;
- amending legislation to provide for an objective test to determine when a worker can be classified as casual that better aligns with traditional common law definitions;
- ensuring that workers employed through labour hire or other employment arrangements such as outsourcing will not receive less pay than workers employed directly; and
- limiting the use of fixed-term contracts.

These proposals are all targeted at reducing the incidence of various forms of non-standard employment, but whether they will have any substantive effect on job security is far less obvious.

Space limitations prevent a detailed examination of these proposals, but a few observations follow.

Regulating gig work

The central issue here is how to determine whether a worker is an employee of a digital platform provider or a self-employed contractor who is simply accessing the functionality provided by that digital platform. This difficulty distinguishing between self-employed contractors and employees is a long-standing issue and one that to date has never been adequately resolved; disputes about this are typically settled on a case-by-case basis in the courts. The Fair Work Commission will thus face a similar dilemma and would likely also have to deal with these matters on a case-by-case basis. Obtaining consistent and fair outcomes across industry sectors, however, will likely prove elusive. For example, if ridesharing services operators are deemed employers

why would that not also apply to the tax industry more broadly given most (if not all) taxi companies have adopted the same type of app-based digital technology for connecting customers with drivers? Needless to say, taxi companies will argue that they provide a different type of service where drivers are less constrained, but from the customer perspective at least, these differences seem very small. More broadly, there is the risk that any new legislation will not just cover those working for the new digital platform providers who, as noted earlier, currently represent a tiny fraction of the Australian workforce, but extend to cover many other independent contractors.

A better definition of casual employment

In 2021, amendments were made to the *Fair Work Act* that, for the first time, provided a definition of casual employment in industrial law. Under this definition, a worker is defined as a casual employee if they accept a job offer with the understanding that ‘the employer makes no advance commitment to continuing and indefinite work according to an agreed pattern of work’. The current government’s position, however, is that this does not prevent the ongoing employment of casuals on a regular basis.

What alternative definition is to be proposed is not yet known, but any alternative faces the obstacle that the High Court (in *Workpac vs Rossato*) has made clear that, in their view, the existing definition aligns well with the common law definition.

Note further that the Act, as amended in 2021, already requires employers to offer to convert a casual employee to permanent status if they have been employed for at least 12 months and during the preceding six months had worked a regular pattern of hours. It is thus unclear how simply changing the definition will accomplish much. A change that might have more effect would be to strengthen the conversion provisions; for example, by shortening the qualifying period of employment and/or by further restricting or eliminating the grounds under which employers can seek exemption. That said, it is not obvious that the introduction of casual conversion provisions in either awards or the Act has had much effect yet on the level of casual employment.²⁰ Further, it is entirely possible that the only consequence of these provisions has been to reduce worker wellbeing; for example, by leading employers, in an effort to avoid these conversion requirements, to roster casual employees in ways that provide more variable and less predictable working hours that are less well aligned with worker preferences.

Same job, same pay

This initiative is targeted at the use of outsourced labour, and especially those hired through labour-hire companies. A concern here is that labour hire is too often used to undercut wages and conditions negotiated through enterprise bargaining.

While the principle of ‘same job, same pay’ might seem straightforward, implementing it in practice is likely to prove difficult. In many situations, simply identifying what the relevant job is that is being compared to, and then the relevant pay rate, is not straightforward. This might be relatively easy for jobs involving few skills or very routinised skills, but where the skills requirements are more complex, jobs are rarely the same.

And then there is the question of what is meant by pay. Is it just the base wage rate or does access to overtime and penalty rates need to be factored in? And what about non-wage benefits?

There is also the complication that employees of the same labour-hire firm could be working for multiple clients. Matching the rate of pay of a labour-hire worker to that of a comparable employee of the client firm will thus inevitably mean that comparable employees within the labour-hire firm will be earning different rates of pay.

The Labor Party policy also refers to this principle being applied not just to employees of labour-hire firms, but to other outsourced employment arrangements. This implies that it could be applied to self-employed contractors, but how will this work when they are not employees and thus face completely different tax arrangements from a PAYE employee? Requiring they be paid the same gross earnings as an in-house employee could, for example, result in the contractor earning much more after tax given their greater ability to claim expenses as business deductions. On the other hand, there are many additional costs (both financial and time-related) associated with managing a business. And would they extend such arrangements to labour located in other countries where living standards are so different?

Finally, and most significantly, this plan could undermine the ability of Australian employers to compete for skilled labour. While the stated objective is to ensure labour-hire workers are not paid less than other workers, it could also operate to ensure they are not paid more and thus undermine the ability of labour-hire firms to compete with unionised labour through offering higher wages. Indeed, taken to its logical extension, the notion of ‘same job, same pay’ would preclude workers with different levels of experience and skills, but working in the same job, being paid at different rates. More generally, this idea is at odds with the principle that individual workers should have the freedom to bargain their own wages and conditions.

¹⁹ <https://www.alp.org.au/policies/secure-australian-jobs-plan>

²⁰ It could be argued that the slightly lower rate of casual employment in 2022 when compared with the pre-pandemic level might be the result of conversions. However, it is difficult to disentangle any such effect from other changes, such as the decline in immigrant inflows, and especially of international students and other forms of temporary migrants, that resulted from the pandemic-induced border closures.

Caps on fixed-term contracts

Unlike other proposals, what is proposed here is very clear—to both limit the number of consecutive fixed-term contracts an employer can offer for the same role, and to place an overall cap on fixed-term contract employment of 24 months. Such restrictions are presumably intended to cause a substitution away from fixed-term contract employment to permanent employment. The danger, however, is that such measures, while achieving their objective of reducing the level of fixed-term contract employment, will be accompanied by either a substitution towards other forms of non-standard employment (for example, self-employed contractors) or a reduction in overall employment.

Similar measures have been introduced in some European countries, with one recent study conducted in The Netherlands finding that limiting fixed-term contracts to a cumulative maximum of two years resulted in higher rates of progression to permanent employment without any increase in unemployment levels (Kabatek et al., 2022). In contrast, a study of a reform in Spain that worked in the opposite direction, that is, restrictions on the use of fixed-term employment were lifted, found that the expected substitution away from permanent to temporary employment was accompanied by a sizeable increase in total employment (Aguirregabiria and Alonso-Borrego, 2014). Slightly differently, Cahuc et al. (2022) examine the impact of reforms introduced in Portugal that made it harder for larger firms launching new establishments to staff them with employees on fixed-term contracts. They find that the reforms had the unintended effect of reducing the number of new establishments and contributed to a decline in overall employment. The evidence is thus mixed with results perhaps specific to the institutional setting. This makes drawing lessons for Australia difficult, but they do suggest that serious consideration must be given to the possibility of unintended consequences.

Paid sick leave for casual employees

One proposal that is not part of the federal government's plan, but is being trialled in Victoria, is providing casual employees with access to sick leave entitlements.²¹ Under this scheme casual employees in specific occupations (where casual employment is widespread) are entitled to up to 38 hours of paid leave if sick or to care for someone each year. During the trial phase this is being funded by the Victorian government, but the intent is that in the future it be funded by an industry levy. Perversely, this type of scheme only serves to make casual employment more attractive and thus should work to increase casual employee numbers. Casual employees obtain an extra benefit without any offsetting reduction in pay (bearing in mind they are required to be paid a 25 percent pay premium), while employers have no incentive to reduce their use of casuals given the cost of the paid leave is either borne by taxpayers (in the first instance) or shared by all employers through an industry levy.

CONCLUSIONS

Based on an examination of a broad range of indicators, there is no evidence that there has been any trend rise in average levels of job insecurity in Australia over the last two decades. Similar conclusions have been drawn with respect to other advanced countries (Gallie, 2017; Manning and Mazeine forthcoming). Indeed, on some indicators—notably unemployment/underemployment and job separation rates—levels of job insecurity in Australia during the first half of 2022 were at record lows. That said, many Australians work in jobs that provide little or no guarantee of ongoing employment. Indeed, according to ILO data, among developed nations only one country—Japan—had levels of temporary and casual employment in 2019 that exceeded that in Australia. Nevertheless, these high levels have been with us for a very long time. Further, it is not obvious that the high level of casual employment in Australia has contributed to average levels of subjective job insecurity that are higher than that experienced in many other countries.

Despite this evidence, it is clear that many governments in Australia, but especially the new federal Labor government, are opposed to many non-traditional forms of employment, and thus are considering the introduction of measures that it is hoped will reduce the incidence of such forms of employment. However, there is the distinct risk that the introduction of measures designed to restrict and discourage such employment types may have unintended consequences and only serve to undermine employment prospects of some groups and reduce the job quality of others.

Finally, it needs to be recognised, as others have emphasised, that 'job insecurity is linked to job loss or unemployment' (LaMontagne et al., 2022). Job insecurity is, therefore, best enhanced by measures that either reduce overall levels of unemployment (and underemployment) or reduce the cost of unemployment. The latter is often overlooked but is of particular importance in Australia given one of the many features that sets Australia apart from most other rich nations is the high cost of unemployment. Our reliance on a very modest flat-rate unemployment benefit means that out-of-work income replacement rates are, with the exception of the long-term unemployed, comparatively low.²² Yet despite the concern with job insecurity, the current government has exhibited very little interest in raising unemployment benefit levels (let alone introducing some form of unemployment insurance system where out-of-work income would be more closely tied to previous earnings).²³

²¹ Since August 2020, the federal government has provided workers without paid leave entitlements access to lump sum payments of up to \$750 to help compensate for the loss of income caused by having to self-isolate or quarantine as a result of the COVID-19 pandemic, or to care for someone who has COVID-19. This scheme, however, ceased on 30 September 2022.

²² Data available from OECD.stat, for example, show that in Australia in 2020, for the case of an average earner with two children and no working spouse, the net income replacement after two months in unemployment was 56 percent of previous earnings. This level was the equal fourth lowest in the OECD, with the only countries with a lower rate being the United States (43 percent), Greece (51 percent) and Hungary (54 percent).

²³ JobSeeker payments are automatically adjusted in March and September each year in line with Consumer Price Index movements over the preceding six months. However, in April 2021 the base rate of the JobSeeker payment was lifted by \$50 per fortnight, the first non-indexed increase since 1998.

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Part 2

Monetary Policy, Fiscal Policy
and Labour Markets

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Chapter

5

Equal tax for
equal alcohol?
Beverage types
and antisocial and
unlawful behaviours

—

Dr Ou Yang



This chapter explores the links between alcohol beverage types and antisocial and unlawful behaviours and provides valuable empirical evidence to support the case for taxing alcohol with differentiated volumetric rates by beverage types. The results show that regular-strength beer and pre-mixed spirits in a can rank the highest in their links to negative behaviours, followed by mid-strength beer, cask wine, and bottled spirits. Conversely, drinking low strength beer or fortified wine reduces the probability of these risky and unlawful behaviours. Bottled wine is shown to be associated with an elevated chance of drink driving but a reduced chance of other negative behaviours. In contrast to the existing volumetric tax rates for per litre of alcohol, of all harmful beverage types, cask wine appears to be significantly under-taxed relative to its external costs to society.

INTRODUCTION

Why do we care?

Binge drinking and its related adverse effects have long been a major policy concern in many countries (Yang et al., 2016). Although there is evidence showing that moderate alcohol consumption benefits health among middle-aged and older people (for instance, Gaziano et al., 1993; Rimm, 1996; Fagrell et al., 1999; Malinski et al., 2004), the toll of excessive alcohol consumption or binge drinking on many societies significantly exceeds these benefits.

As in many other developed countries, alcohol consumption is an intrinsic part of Australian culture, and it plays a central role in most people's social lives. However, excessive alcohol consumption results in significant costs to the health sector, justice system, transport sector, workplaces and several other areas, including the welfare system due to costs arising from family violence and child abuse (Leonard and Jacob, 1988). The associated costs are diverse and immense in Australia and globally. For example, the social cost of alcohol use in 2017-2018 was estimated to be nearly \$67 billion in Australia (Whetton et al., 2021).

Recent statistics show that consumption of alcohol at harmful levels in Australia is considerable. For instance, according to data from the Australian National Drug Strategy Household Survey (NDSHS) (AIHW, 2020), one in four Australians reported drinking at a risky level on a single occasion at least monthly in 2019. Since the onset of the COVID-19 pandemic, there have been growing concerns that alcohol consumption and harmful behaviour resulting from such consumption have increased (OECD, 2021). Findings from prior major social and economic upheavals support that the increased stress, financial uncertainty and unemployment experienced during COVID-19 could result in long-term changes in alcohol use patterns and related health and social consequences (Acuff et al., 2020; de Goeij et al., 2015; North et al., 2011).

Excessive drinking is commonly linked to behaviours that are antisocial, harmful or even criminal, such as risky sexual activities and violent behaviours (Rossow et al., 1999; Champion et al., 2004; Carpenter, 2005; Morojele et al., 2006). On the other hand, alcohol consumption in conjunction with normal activities, such as driving or swimming, can increase the probability that such activities result in harm to self or others (Kenkel, 1993; Ruhm, 1996; Cook and Moore, 2002; Hamilton and Schmidt, 2014). Some of the negative costs from these behaviours are external to the drinkers and borne by society, such as health-care costs of alcohol abuse in public-funded health systems, road accidents from drink driving, and physical and verbal abuse to family members and the wider community. Existing empirical evidence on the association between alcohol consumption and alcohol-related risky and abusive behaviours mostly focuses on alcohol as an aggregated product (for example, Adlaf and Smart, 1983; Jonah, 1986; Yu and Williford, 1993; Greenfield and Weisner, 1995; Weiser et al., 2006). Empirical studies for differentiated alcohol products are few and only link a small spectrum of adverse behaviours—such as drink driving, road accidents, assaults and homicides—to beer and spirits rather than wine consumption (see Berger and Snortum, 1985; Smart, 1996; Norstrom, 1998; Stockwell et al., 1998; Naimi et al., 2007; Siegel et al., 2011; Dey et al., 2014). To some extent, the findings vary by population group and country, with adverse behaviours having a greater association with beer in older adults and in European countries, and a greater association with spirits in younger adults and in the United States where liquor is more popular.

The current alcohol tax policy in Australia and how we got there

A critical policy lever governments around the world use to curb alcohol abuse is alcohol taxation. Increasing taxes is considered the most effective intervention among alcohol policies aimed at reducing excessive drinking (Wagenaar et al., 2010; Xu and Chaloupka, 2011). Previous studies show that high-income countries with higher alcohol excise taxes tend to experience lower alcohol consumption, lower incidence of binge drinking, fewer alcohol-related traffic accidents, and lower mortality/sudden deaths from alcohol-related disease (Chaloupka et al., 1993; Koski et al., 2007; Wagenaar et al., 2009; Delcher et al., 2012; Xuan et al., 2015).

Australia currently has in place a complex alcohol tax system where different beverages are taxed differently (PBO, 2015). Beer and spirits are taxed on a volumetric basis (for example, by alcohol concentration), but wine is taxed on the wholesale value (an ad valorem tax) (Freebairn, 2010, Table 1). When converted to an effective rate of per litre of alcohol (LAL), based on the 2007-2008 data, the volumetric tax rates vary greatly by beverage (Srivastava et al., 2015), with cask wine paying effectively \$3/LAL, bottled wines \$14-\$33/LAL by price, beer \$19-\$31/LAL by alcohol strength, ready-to-drink pre-mixed spirits \$41-\$43/LAL, and straight spirits \$66/LAL.

Alcohol taxation in Australia has been the subject of ongoing debate among health professionals, industry lobby groups, academics and policy-makers, with parliamentary reviews (Henry et al., 2009; Treasury, 2011). Many argue that the current anomalous system is the result of historic ad hoc responses to industry lobby groups rather than a careful design informed by the external costs associated with different alcoholic beverages, and that it needs to be reviewed and reformed (see, for example, submissions to the Tax Forum by Treasury, 2011). The spirit industry has long pushed for a flat volumetric tax, while the wine industry argues for the positive contribution of wine production and consumption to areas such as tourism. From a policy perspective it would be instrumental to examine whether these rates relate to the negative external costs per LAL for these drink types.



Key mechanisms for alcohol taxation

The economic argument for alcohol tax is the need for correction of market failures and negative external costs that are associated with alcohol consumption. Challenging the paternalistic view, economists (see Pogue and Sgontz, 1989; Clarke, 2008; Freebairn, 2010) consider alcohol consumption as having both benefits and costs. If all consumers are rational decision makers and are fully aware of all the benefits and costs associated with alcohol consumption, they will choose consumption levels accordingly, and the market equilibrium price for alcohol will be optimal and high enough to reflect both the costs and the benefits.

However, there are many reasons to believe that serious market failure exists in alcohol consumption, and the scale of alcohol abuse we observe in many societies is a testament. For example, incomplete information regarding the long-term health impact and addictive nature of alcohol consumption in binge drinkers' private decision making for consumption is an example of market failure. Another example is the underestimation of future harms due to lack of willpower. More importantly, significant external costs of excessive drinking are borne by society. These include the health-care costs of alcohol abuse in public-funded health systems (such as in Australia), road accidents from drink driving, and antisocial behaviours when intoxicated, including public nuisance, damage and theft of property, and physical and verbal abuse to family members and the wider community. Therefore, a more favourable economic approach to alcohol policy is to correct such market failure by imposing an appropriate amount of tax to any such consumption based on the negative external costs it generates, in order to achieve the highest efficiency at the societal level.

The current tax structures in Australia have been subject to very little change in recent years, except for excise on pre-mixed beverages which, following the Henry Tax Review (Henry et al., 2009), are now taxed at the same rate as straight spirits. Motivated by the need to reduce cheap cask wine abuse and encourage the production and consumption of low-alcohol products, both the Henry Tax Review and Freebairn (2010) propose a simple 'equal tax for equal alcohol' approach by applying a flat volumetric tax with an equal tax rate per LAL to all beverage types. This approach is also supported by the Australian National Preventative Health Task Force (2009).

Nonetheless, such a simple but blunt measure that implicitly associates the degree of negative external costs only with the volume of alcohol regardless of product types will reduce consumption—not only for excessive drinkers but also for responsible consumers with low to moderate levels of consumption who have already accounted for all negative impacts as private costs in their consumption decision making, thus leading to efficiency loss. Alternatively, as opposed to taxing heterogeneous consumers, taxing the products that are more likely to be associated with negative external costs or consumed by individuals who are more likely to be involved in risky and abusive behaviours, would seem to be a more feasible approach.

No major change has eventuated in the alcohol tax structure from the Henry Tax Review and discussions on proposed reforms are ongoing. As pointed out by Freebairn (2010), the choice between a simpler flat rate and a differentiated rate for beverage types would depend on compelling evidence that the marginal external costs vary by type of alcohol product. Indeed, recent debates and recommendations in Australia seem to agree on the need for greater empirical evidence. Although a precise calculation of external costs per LAL for different beverages would be a difficult task, any investigation based on available data that quantify the negative external costs of excessive consumption by specific alcohol beverage types would be very informative.

This study provides empirical evidence to support the case for taxing alcohol with differentiated volumetric rates by beverage type. The empirical analysis suggests that equal alcohol in different product forms is most likely to be associated with different harms, thus rendering no support for the 'equal tax for equal alcohol' proposal or a common volumetric tax.

DATA

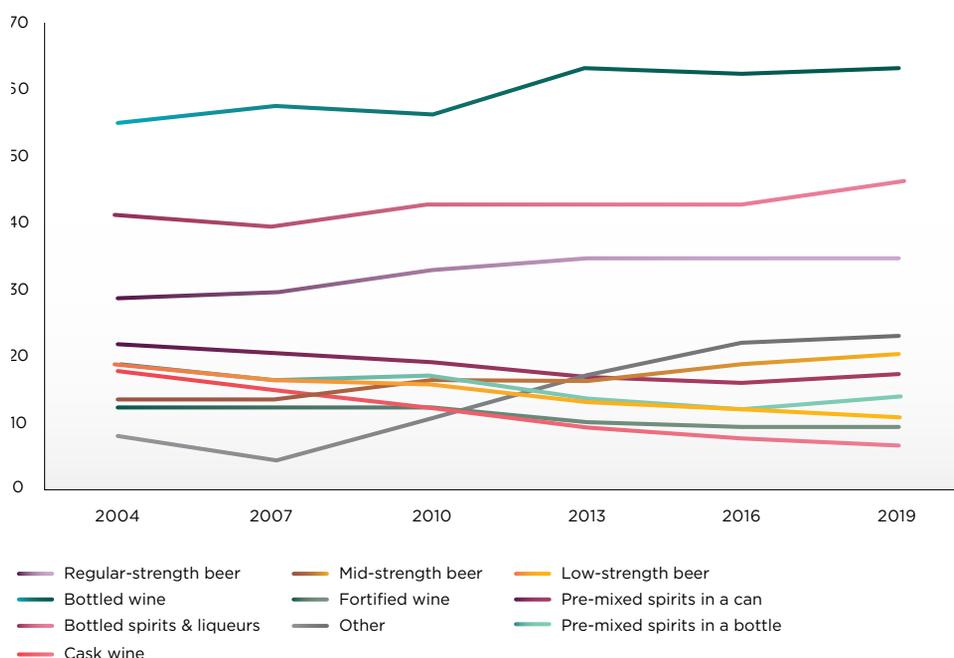
I explore the link between different alcohol beverage types and antisocial behaviour using data from the most recent six waves of the NDSHS¹ from 2004 to 2019. This time span allows study of a large sample of 149,091 survey respondents with diverse demographic and socio-economic backgrounds, to produce results that are most representative and robust.

Regular-strength beer, bottled wine and bottled spirits are the preferred drinks among Australians

The study focuses on those who report having consumed alcohol in the past year; the rest are defined as abstainers. More than 74 percent of the sample reported themselves as drinkers in each wave of the survey. This results in a sample of 113,457 drinkers. From the survey data, we can identify these drinkers' drinking preferences for 10 detailed beverage types,² including regular-strength beer, mid-strength beer, low-strength beer, cask wine, bottled wine, fortified wine, pre-mixed spirits in a can, pre-mixed spirits in a bottle, bottled spirits and liqueurs, and other alcohol. Figure 1 displays participation rates by 10 types of alcoholic drinks. Regular-strength beer, bottled wine, and bottled spirits and liqueurs are the three most preferred drinks. Pre-mixed spirits, which have gained popularity among young people in the last decade, also (collectively) demonstrate significant participation rates.

When we break down the participation rates by age and gender, as shown in Figure 2, we find that canned and bottled pre-mixed spirits are more popular among youth and young adults aged 12 to 29, with participation rates declining remarkably with age. In contrast, bottled wine is more popular among middle-aged and elderly people (those aged 40+). In terms of gender difference, regular-strength beer is more popular with men than women, irrespective of age. In contrast, women have a higher preference for bottled wine than men across all age groups.

Figure 1.
Drinker participation rates by detailed beverage types (%).



¹ The NDSHS is a nationally representative cross-sectional survey of the non-institutionalised Australian civilian population and is administered by the Australian Institute of Health and Welfare. A multi-stage, stratified area sample design ensures a random sample of households in each geographical stratum. The survey provides information on drug use patterns, attitudes and behaviour. It also provides a wide range of information on respondents' demographic and socio-economic backgrounds.

² The survey has several questions on individuals' consumption of various drink types. One of the questions relates to their drinking preference where respondents are required to answer the question, 'What types of alcohol do you usually drink?' (Mark all the types of drinks that apply). I use this information to construct 10 dichotomous variables to indicate respondents' usual drinking preferences.

Antisocial behaviour

This study's main interest is the antisocial behaviour of individuals that is undertaken under the influence of alcohol. In the survey data, we can identify and focus on eight antisocial and unlawful behaviours drinkers reported to have undertaken while under the influence of alcohol:³ drove a motor vehicle; operated a boat; operated hazardous machinery; created a public disturbance or nuisance; caused damage to property; stole money, goods or property; verbally abused someone; and physically abused someone.

Figure 3 displays the proportions of respondents in the sample who had at least an alcoholic drink of any kind in the last 12 months and indulged in any of these antisocial and unlawful behaviours while under the influence of alcohol, across the six waves of the survey from 2004 to 2019. It shows that drink driving and verbal abuse are the two most common antisocial behaviours undertaken by Australians under the influence of alcohol. The prevalence of any of these behaviours can potentially impose costs resulting from legal action, health-care costs and lost productivity. It is also important to note that verbally abusing someone is a form of emotional abuse that can have serious short- and long-term consequences on the victim's physical and mental health. As such, the resulting cost could be an indirect health-care cost or an intangible emotional cost.

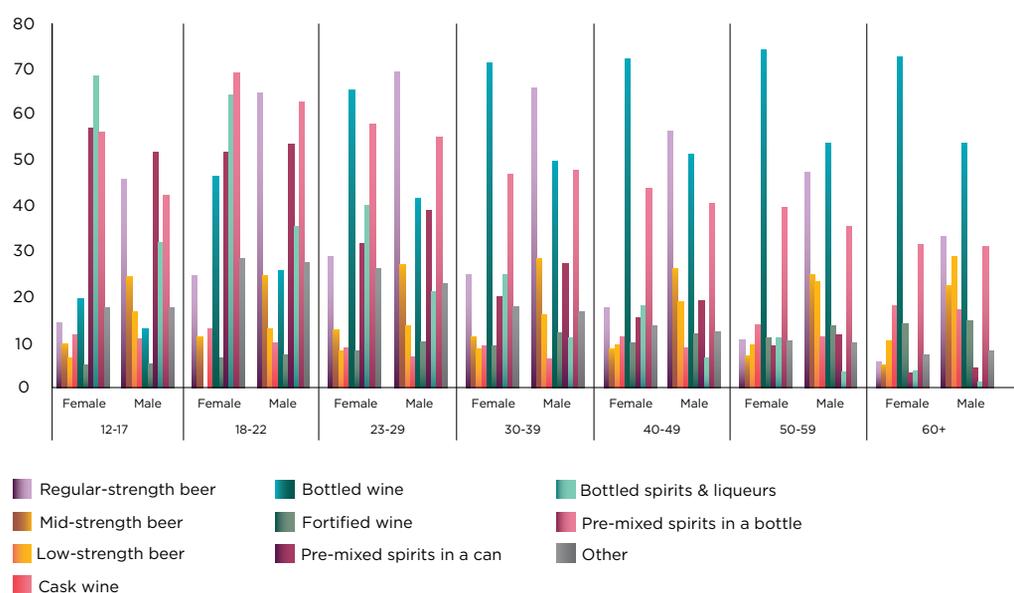
Cost of alcoholic beverages

To study the causal link between alcoholic beverage types and antisocial behaviour, it is necessary to include beverage-specific prices in the analysis. As the NDSHS does not provide data on beverage prices, data on the value and volume of sales of off-premise consumption for specific drink types for the survey years of 2004, 2007, 2010 and 2013⁴ were purchased from AC Nielsen.⁵ Implicit prices per litre of beverage were then constructed by dividing the value of sales measured in dollars by the respective volume of sales measured in litres of beverage. The state-level monthly prices were then converted to state-level annual average prices and matched to the dataset by survey year and state. Individual-specific beverage prices were derived using the aggregated state-year prices and individual beverage consumption quantity patterns available from the NDSHS, following Lewbel (1978).⁶

Other control variables

The econometric analysis controls for a range of drinkers' socio-economic, demographic and lifestyle factors available in the survey. In particular, the explanatory variables include individuals' age, gender, marital status, educational attainment, a quadratic specification of (the natural logarithm of) real household income, labour market status, family structure, Indigenous status and whether the individual resides in a capital city. I also include state and year indicators to capture any change in policy or law enforcement, and taste preference.

Figure 2. Participation rates by age and gender of the drinkers (%).



³ In the survey, information on individuals' behaviours when intoxicated is collected via a question asking, 'In the last 12 months, did you undertake the following while under the influence of or affected by alcohol?'. In all surveys prior to 2019, respondents ticked 'Yes' or 'No' for each of the following activities: 'Went to work', 'Went swimming', 'Operated a boat', 'Drove a motor vehicle', 'Operated hazardous machinery', 'Created a public disturbance or nuisance', 'Caused damage to property', 'Stole money, goods or property', 'Verbally abused someone' and 'Physically abused someone'. In the 2019 survey, the questions were structured slightly differently. Here, the options were presented in a list with the instruction to 'select all that apply'.

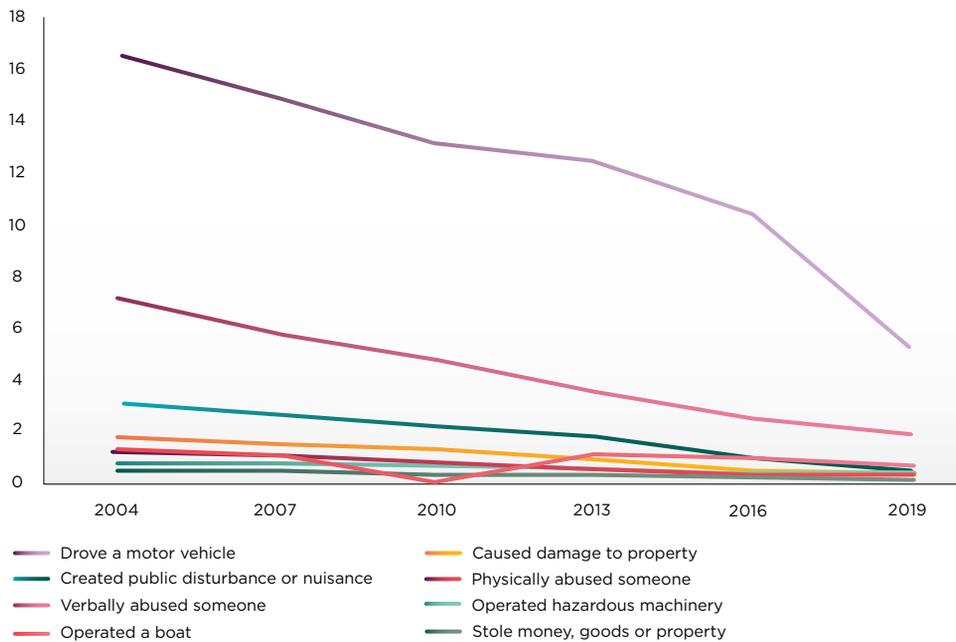
⁴ Owing to interruption in price data collection, AC Nielsen was unable to provide similar price information for the latest two survey years, that is, 2016 and 2019. Using the alcohol CPI available from the Australian Bureau of Statistics (ABS, 2020) as the aggregated trend, I thus extrapolated the specific drink prices in 2013 to their corresponding prices in 2016 and 2019. All prices are converted to Australian dollars of the financial year 2011/12 using the all-items CPI of respondents' respective states of residence, also available from the ABS (2020).

⁵ AC Nielsen collect data using the ScanTrack Liquor service that tracks value and volume of sales for off-premise consumption of liquor from supermarkets, grocery/convenience stores and liquor chains (AC Nielsen, 2014).

⁶ Note that the use of aggregated price series in the analysis of individual-level data is not uncommon in the literature (for example, Pesko et al., 2016). However, since the prices from AC Nielsen only vary by state and year, they only provide limited variation for identification. To reinforce identification in this study, I employ an approach proposed by Lewbel (1989) and further explored by Hoderlein and Mihaleva (2008) in both parametric and nonparametric settings.

Figure 3.

Sample participation in antisocial behaviours for respondents who had at least an alcoholic drink of any kind in the last 12 months (%).



EMPIRICAL ANALYSIS AND KEY INSIGHTS

Empirical model specification

For practical reasons, I further group the eight antisocial and unlawful behaviours into two broad groups. Given similarities among some of these behaviours, one admissible approach to grouping would be: 1) drink driving (drove a motor vehicle); 2) hazardous, disturbing or abusive behaviours (operated a boat/hazardous machinery; created a public disturbance/nuisance; caused damage to property; stole money, goods or property; verbally or physically abused someone). To investigate the links between the 10 alcohol beverage types and the two broad groups of antisocial and unlawful behaviour, that is, drinking driving, and hazardous, disturbing, or abusive behaviours, I estimate the causal effect of beverage types respectively for either group of negative behaviour. Specifically, I estimate two sets of 11-equation endogenous multivariate probit (EMVP) models for drink driving and hazardous, disturbing or abusive behaviours, using alcohol beverage prices as instrumental variables to identify the causal effect.⁷

Key insights

The key results of interest, that is, the marginal effects (MEs) and their explicit rankings for the two outcomes, are summarised in Table 1. Full estimation results are available upon request. Note that these rankings are based on the magnitudes of the MEs that measure the effects of beverage types on the probability of engaging in each of the two behaviours. They are not rankings for the exact external costs associated with drinking these beverages, as I do not make any assumptions on the actual monetary cost of engaging in these behaviours. Nonetheless and importantly, I am able to rank the beverages based on the strength of their association with risky and abusive behaviours.

Beverage preference and drink driving

Focusing on drink driving first, the results in Panel A of Table 1 seem to divide the beverages into two groups. Regular-strength beer, pre-mixed spirits in a can, mid-strength beer, bottled wine, cask wine, and bottled spirits and liqueurs are all associated with a higher probability of drink driving, whilst low-strength beer, pre-mixed spirits in a bottle, fortified wine and other alcoholic drinks are related to negative or insignificant effects on the probability of drink driving. Specifically, in terms of ranking, regular-strength beer has the

highest positive impact, and is shown to be linked to a 9.1 percentage-point-higher probability of drink driving. Bottled wine ranks second for causal effect once observable covariates and endogeneity of beverage choice are both controlled. Interestingly, cask wine and bottled spirits and liqueurs, the drinks that have drawn much attention in the tax debate, while having a positive impact on drink driving, both rank behind mid-strength beer, with a respectively 3.3 and 2.2 percentage-point higher probability for drink driving. In contrast, low-strength beer and pre-mixed spirits in a bottle are shown to be among the drinks that have the highest association/impacts for reducing the probability for drink driving.

The findings in this study are generally consistent with those of previous studies (Smart, 1996; Rogers and Greenfield, 1999), which find drink driving to be mostly linked to beer and spirits. The study also finds bottled wine to be a significant contributor to drink driving. In addition, unlike previous studies which mostly aggregate all wine types as a homogeneous product, here I use differentiated products. And bottled wine is, in fact, shown to be associated with a higher impact on drink driving than cask wine.

⁷ The estimation of standard errors is clustered at the state level. Since there are only eight states in Australia, to adjust for few cluster biases, I employ the score wild bootstrap proposed by Kline and Santos (2012) for complex nonlinear models using Webb's six-point distribution (Webb, 2014; Cameron and Miller, 2015).

Table 1.
Marginal effects and rankings of beverage type on outcome probabilities.

Panel A: Drink driving			
Ranking	Drinks	ME	95% CI
1	RSB	0.091***	[0.081, 0.101]
2	BW	0.055***	[0.046, 0.065]
3	PMSC	0.038***	[0.026, 0.053]
4	MSB	0.035***	[0.023, 0.048]
5	CW	0.033***	[0.021, 0.046]
6	BS	0.022***	[0.013, 0.032]
7	FW	0.001	[-0.014, 0.016]
8	Other	-0.004	[-0.017, 0.008]
9	PMSB	-0.017**	[-0.030, -0.004]
10	LSB	-0.018**	[-0.029, -0.007]

Panel B: Hazardous, disturbing or abusive behaviours			
Ranking	Drinks	ME	95% CI
1	RSB	0.050***	[0.044, 0.056]
2	PMSC	0.031***	[0.024, 0.039]
3	CW	0.029***	[0.020, 0.038]
4	MSB	0.022***	[0.014, 0.030]
5	BS	0.014***	[0.009, 0.019]
6	Other	0.006	[-0.001, 0.014]
7	PMSB	-0.001	[-0.008, 0.006]
8	FW	-0.002	[-0.009, 0.005]
9	BW	-0.003	[-0.008, 0.002]
10	LSB	-0.027***	[-0.032, -0.021]

Notes: RSB: regular-strength beer; LSB: low-strength beer; MSB: mid-strength beer; BW: bottled wine; FW: fortified wine; CW: cask wine; PMSC: pre-mixed spirits in a can; PMSB: pre-mixed spirits in a bottle; BS: bottled spirits and liqueurs; Other: other alcoholic drinks. *, ** and *** represent significance at 5%, 1% and 0.1%, respectively.

Beverage preference and hazardous, disturbing or abusive behaviours

Results from Panel B in Table 1 indicate that regular-strength beer, pre-mixed spirits in a can and cask wine are the top three drinks that relate to the highest MEs for increasing the probability of hazardous, disturbing or abusive behaviours. Cask wine currently has the lowest tax on per LAL across all beverages, which has long been the focus of tax reform discussion. The significant association and causal effect of cask wine revealed here (both in relative magnitude and significance) are consistent with Stockwell et al. (1998), and provide a compelling argument for an increase in cask wine tax. The other two beverages that have positive MEs and are ranked the next highest, are bottled spirits and liqueurs and mid-strength beer. Recent data show a growing preference for bottled spirits among young girls (AIHW, 2020). This is also reflected in Figure 2 where we see that bottled spirits and liqueurs are by far the most preferred drinks among adolescent girls.

There is another interesting result to note regards pre-mixed spirits in a bottle. Typically considered a drink preferred by young females, consumption of pre-mixed spirits in a bottle has an insignificant or even a small negative causal effect on hazardous, disturbing or abusive behaviours. Finally, low-strength beer, bottled wine and fortified wine are shown to have negative MEs on the probability of hazardous, disturbing or abusive behaviours, with low-strength beer having the largest negative effect. A noticeable result is for bottled wine. In contrast to the results for drink driving, drinking bottled wine is linked to a lower probability of hazardous, disturbing or abusive behaviours. Nonetheless, a significantly higher tax per LAL is currently imposed on bottled wine relative to cask wine in Australia.

Heterogeneity by demographic group

To further examine the demographic heterogeneity in the links between alcohol beverage type and negative behaviour, I divide the full sample into five sub-samples and estimate the empirical model for each. These sub-samples are respectively Male, Female, Aged 12-29, Aged 30-49, and Aged 50+. The estimated marginal effects of drink types for each sub-sample are listed in Tables 2 and 3. Compared with results of the overall sample in Table 1, mid-strength beer ranks higher for males while for females it ranks lower in terms of its association with drink driving. The rankings are also slightly different for cask wine, pre-mixed spirits in a can and mid-strength beer among males and females, in terms of their associations with hazardous, disturbing or abusive behaviours. In terms of the differences across age groups, mid-strength beer is more highly ranked in older individuals than in the 12-29 age group, for its association with both drink driving and hazardous, disturbing or abusive behaviours. Bottled spirits and liqueurs also rank higher for the younger age group, with both antisocial behaviours.

However, by and large, across the five sub-samples, results are consistent with those using the full sample. Specifically, regular-strength beer, pre-mixed spirits in a can, bottled wine, cask wine and bottled spirits and liqueurs are associated with a higher probability of drink driving across all sub-samples, whilst low-strength beer, pre-mixed spirits in a bottle and fortified wine have negative or insignificant effects on the probability of drink driving. For hazardous, disturbing or abusive behaviours, regular-strength beer, pre-mixed spirits in a can and cask wine are always among the top-ranked drinks, and bottled spirits and liqueurs is also always a significant contributor. In contrast, low-strength beer, bottled wine and fortified wine are shown to have either negative or insignificant MEs on the probability of hazardous, disturbing or abusive behaviours across all five sub-samples.

CONCLUSION

Alcohol taxation is one of the main policy instruments used by governments around the world to correct for market failures and negative externalities that are associated with excessive alcohol consumption. From an economic perspective, consumers who are rational decision makers should be fully aware of all the benefits and costs associated with alcohol consumption. However, the scale of alcohol-related harms reported worldwide indicates the existence of serious market failure, and the price mechanism does not necessarily internalise the external cost.

Other than private costs, there are significant external costs related to excessive alcohol consumption that are borne by society. A more conducive approach to alcohol policy, from a societal perspective, is to impose an appropriate amount of tax to any such consumption based on the negative externalities it generates. This chapter examines the link between alcohol beverage types and risky and abusive behaviours, in order to contribute to the discussion on alcohol policy interventions from an economic perspective. Since it is less feasible to tax heterogeneous consumers, taxing the products that are more likely to be associated with negative external costs appears to be a more feasible and efficient approach. By quantifying the link between individuals' risky behaviours and the types of alcohol beverages they mostly consume, this chapter provides not only evidence to support the case for taxing alcohol, but also some potential empirical justification for differentiated volumetric tax rates by beverage type.

The empirical analysis reveals that, broadly speaking, regular-strength beer and pre-mixed spirits in a can rank the highest in their links to higher probabilities of both drink driving and hazardous, disturbing or abusive behaviours. Next in the ranking are mid-strength beer, cask wine, and bottled spirits and liqueurs, which are also linked to higher probabilities of drink driving and hazardous, disturbing or abusive behaviours. In contrast, low-strength beer and fortified wine are linked to lower probabilities of drink driving and hazardous, disturbing or abusive behaviours.

Our disaggregated beverage study also reveals some other interesting findings. A noticeable result is for bottled wine. Whilst bottled wine is linked to a moderate but positive effect on drink driving, it is also linked to a significantly lower probability of hazardous, disturbing or abusive behaviours. Another interesting

drink is pre-mixed spirits in a bottle, as this beverage is typically consumed by young females. However, once observable demographic factors such as gender and age, and endogeneity of beverage choice are controlled for, pre-mixed spirits in a bottle has a negative causal effect on hazardous, disturbing or abusive behaviours.

The rankings for beverage types by links to negative behaviours seem to depart markedly from the ranking of their current per LAL tax. For instance, of all harmful beverage types, cask wine appears to be significantly under-taxed despite its external costs to society. It is also important to note that the external costs of regular- and mid-strength beer are at least as high as those of pre-mixed drinks and yet there is a significant disparity across their tax rates.⁸ Finally, whilst currently having the lowest per LAL tax among all drinks, there is evidence that cask wine is ranked among the highest for its association with hazardous, disturbing or abusive behaviours.

The current Australian alcohol tax system is complex, anomalous and incoherent, and there is a great need for reform and simplification. In response to similar concerns, the UK government began an alcohol tax review in 2020 and has since produced a proposal for a simpler volumetric tax system that is more consistent across beverages but with a progressive structure so that lower alcohol concentration products pay a lower duty rate (HM Treasury, 2021). This study contributes to the discussion on fairness and economic rationality in alcohol tax reform from a unique angle. It provides important empirical evidence linking alcohol beverage types to negative externalities. The main aim is to show that the same amount of alcohol sold in different alcohol beverage types is linked to different probabilities of harmful behaviours and thus different magnitudes of negative externalities. The findings will thus allow policy-makers to develop policies that can target alcoholic drinks that are more harmful in order to achieve the highest efficiency at the societal level.

Although this study directly informs the alcohol tax reform debate, it cannot suggest the exact amounts of tax for different beverages, as estimating the monetary costs for different alcohol-related behaviours, or separating private and public costs, are beyond its scope. However, the empirical analysis offers sufficient evidence to show that the same amount of alcohol in different beverage forms is not associated with equal harm, and argues against a prominent proposal of 'equal tax for equal alcohol' in the tax reform debate. The design and full evaluation of the impacts of any proposed tax changes, which would need information on the substitution effects across beverages in consumer demand, is also beyond the scope of the current study.

⁸ According to the Australian Taxation Office (2021), regular (greater than 3.5% Alc/Vol) and mid (3% to 3.5% Alc/Vol) strength beer are taxed at \$52.49 per LAL. In contrast, pre-mixed spirits drinks are taxed at \$88.91 per LAL.

Table 2.
Marginal effects on outcome probabilities by sub-sample.

Ranking	Drink	ME	95% CI	Drink	ME	95% CI
MALE						
	Drink driving			Hazardous, disturbing or abusive behaviours		
1	RSB	0.123***	[0.110, 0.136]	RSB	0.061***	[0.054, 0.069]
2	MSB	0.072***	[0.053, 0.091]	PMSC	0.039***	[0.026, 0.052]
3	BW	0.065***	[0.049, 0.080]	CW	0.028***	[0.015, 0.044]
4	PMSC	0.033**	[0.010, 0.056]	MSB	0.021***	[0.010, 0.033]
5	BS	0.030***	[0.014, 0.047]	BS	0.019***	[0.010, 0.029]
6	CW	0.020*	[0.001, 0.042]	Other	0.004	[-0.009, 0.017]
7	FW	0.012	[-0.013, 0.037]	PMSB	0.000	[-0.015, 0.016]
8	Other	-0.017	[-0.041, 0.009]	FW	-0.007	[-0.019, 0.006]
9	PMSB	-0.036*	[-0.062, -0.007]	BW	-0.013**	[-0.022, -0.003]
10	LSB	-0.040***	[-0.058, -0.023]	LSB	-0.037***	[-0.045, -0.028]
FEMALE						
	Drink driving			Hazardous, disturbing or abusive behaviours		
1	RSB	0.059***	[0.043, 0.074]	RSB	0.042***	[0.034, 0.052]
2	BW	0.046***	[0.038, 0.056]	CW	0.032***	[0.022, 0.043]
3	PMSC	0.044***	[0.030, 0.060]	PMSC	0.026***	[0.018, 0.035]
4	CW	0.037***	[0.022, 0.052]	MSB	0.011*	[0.001, 0.022]
5	BS	0.023***	[0.013, 0.033]	BS	0.008**	[0.002, 0.013]
6	MSB	0.022**	[0.004, 0.040]	Other	-0.001	[-0.007, 0.007]
7	FW	0.000	[-0.015, 0.015]	BW	-0.001	[-0.007, 0.005]
8	LSB	-0.008	[-0.022, 0.010]	PMSB	-0.004	[-0.010, 0.002]
9	Other	-0.010	[-0.022, 0.002]	FW	-0.009*	[-0.017, -0.001]
10	PMSB	-0.016**	[-0.028, -0.005]	LSB	-0.018***	[-0.024, -0.011]

Notes: RSB: regular-strength beer; LSB: low-strength beer; MSB: mid-strength beer; BW: bottled wine; FW: fortified wine; CW: cask wine; PMSC: pre-mixed spirits in a can; PMSB: pre-mixed spirits in a bottle; BS: bottled spirits and liqueurs; Other: other alcoholic drinks. *, ** and *** denote significance at 5%, 1% and 0.1%, respectively.



Table 3.
Marginal effects on outcome probabilities by sub-sample.

Ranking	Drink	ME	95% CI	Drink	ME	95% CI
Aged 12-29						
		Drink driving		Hazardous, disturbing or abusive behaviours		
1	RSB	0.129***	[0.100, 0.156]	RSB	0.127***	[0.102, 0.155]
2	CW	0.070*	[0.009, 0.134]	BS	0.068***	[0.042, 0.093]
3	BS	0.065***	[0.040, 0.092]	PMSC	0.053***	[0.030, 0.079]
4	BW	0.054**	[0.020, 0.087]	CW	0.051*	[0.010, 0.093]
5	PMSC	0.049***	[0.024, 0.077]	Other	0.014	[-0.020, 0.046]
6	FW	0.042	[-0.029, 0.132]	PMSB	0.007	[-0.022, 0.037]
7	Other	0.039	[-0.004, 0.084]	MSB	-0.001	[-0.026, 0.026]
8	MSB	0.037	[-0.003, 0.077]	FW	-0.017	[-0.051, 0.023]
9	LSB	-0.012	[-0.054, 0.035]	BW	-0.033*	[-0.059, -0.008]
10	PMSB	-0.022	[-0.052, 0.009]	LSB	-0.067***	[-0.095, -0.037]
Aged 30-49						
		Drink driving		Hazardous, disturbing or abusive behaviours		
1	RSB	0.103***	[0.087, 0.122]	RSB	0.058***	[0.048, 0.068]
2	BW	0.061***	[0.046, 0.076]	CW	0.054***	[0.036, 0.074]
3	PMSC	0.057***	[0.035, 0.082]	PMSC	0.038***	[0.027, 0.051]
4	CW	0.054***	[0.029, 0.081]	MSB	0.034***	[0.021, 0.046]
5	MSB	0.039***	[0.017, 0.062]	Other	0.019**	[0.005, 0.032]
6	Other	0.039***	[0.013, 0.068]	BS	0.013**	[0.004, 0.022]
7	BS	0.021**	[0.005, 0.038]	BW	0.001	[-0.009, 0.009]
8	FW	0.004	[-0.023, 0.030]	FW	-0.005	[-0.017, 0.008]
9	LSB	-0.022	[-0.042, 0.001]	PMSB	-0.013*	[-0.023, -0.003]
10	PMSB	-0.023*	[-0.045, 0.000]	LSB	-0.031***	[-0.040, -0.021]
Aged 50+						
		Drink driving		Hazardous, disturbing or abusive behaviours		
1	RSB	0.080***	[0.067, 0.094]	RSB	0.029***	[0.023, 0.036]
2	MSB	0.042***	[0.026, 0.058]	PMSC	0.014**	[0.004, 0.026]
3	BW	0.040***	[0.030, 0.050]	MSB	0.011***	[0.005, 0.018]
4	PMSC	0.035**	[0.012, 0.062]	CW	0.010***	[0.005, 0.017]
5	CW	0.020***	[0.008, 0.035]	BS	0.006**	[0.002, 0.011]
6	BS	0.014***	[0.004, 0.027]	PMSB	0.003	[-0.005, 0.015]
7	FW	0.003	[-0.012, 0.018]	Other	-0.001	[-0.007, 0.006]
8	Other	-0.003	[-0.020, 0.015]	FW	-0.001	[-0.006, 0.004]
9	PMSB	-0.006	[-0.026, 0.018]	BW	-0.002	[-0.007, 0.002]
10	LSB	-0.011	[-0.023, 0.001]	LSB	-0.009***	[-0.013, -0.004]

Notes: RSB: regular-strength beer; LSB: low-strength beer; MSB: mid-strength beer; BW: bottled wine; FW: fortified wine; CW: cask wine; PMSC: pre-mixed spirits in a can; PMSB: pre-mixed spirits in a bottle; BS: bottled spirits and liqueurs; Other: other alcoholic drinks. Standard errors are given in parentheses. *, ** and *** represent significance at 5%, 1% and 0.1%, respectively. 95% confidence intervals are clustered at the state level and generated by the score wild bootstrap using Webb's (2014) six-point distribution.

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Part 3

Health and Education

Chapter

6

Improving access to
health care in Australia

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& Professor Yuting Zhang*





Improving access to health care is vital in improving population health, yet out-of-pocket costs remain high and Australia scores poorly in international comparisons of access and equity in health care. We provide evidence that current government funding to improve access through Medicare, through private health insurance subsidies, and through programs to improve the distribution of the medical workforce need to be better targeted to those who are in most need of health care and who are most responsive to government subsidies. A 'one size fits all' approach to government policy might be administratively simple but can be inefficient and inequitable. Improving access to health care for vulnerable populations and those on low incomes should be a priority.

INTRODUCTION

Though comparisons of Australia's health system performance with other rich countries are favourable in terms of relatively high health status and health spending is only 10.2 percent of GDP, comparisons are less favourable with respect to access to health care in terms of affordability and timeliness (AIHW, 2022; Schneider, 2021).

Government intervention in the funding and organisation of health care plays a key role in improving affordability and ensuring that populations have equal opportunities to access timely health care. The structure of health-care financing in Australia reflects the split in state and federal responsibilities forged in the Australian Constitution and so major funding reform is difficult. Australia's health care is funded from four main sources. The first is Medicare, the central national pillar of taxpayer-funded health care in Australia. Medicare provides around half of funding for public hospitals, subsidies for pharmaceuticals and subsidies for private medical services provided by general practitioners (GP) and non-GP specialists.

IMPROVING ACCESS THROUGH MORE AFFORDABLE HEALTH CARE

Affordability is an issue because health-care out-of-pocket costs have been rising much faster over time than wages (Bai et al., 2020). Though Australia's funding arrangements for health care do much to improve access by reducing financial barriers for many, it remains the case that around 20 percent (\$1,556/\$7,926 in 2019–20) of the average person's total annual health expenditure is from individual out-of-pocket expenses. Individual out-of-pocket health spending was growing by 2.8 percent per year above inflation just before the pandemic. The proportion of average annual income devoted to personal spending on health care was 2.6 percent in 2018–19 and this proportion is increasing by an average of 1.4 percent per year (AIHW, 2021). The cost burden is higher for those with low incomes, with those in the lowest income decile 15 times more likely to have catastrophic health expenditures (10 percent or more of net income spent on health care) than those in high income groups (Callander et al., 2019)

It is well known that out-of-pocket costs for health care reduce the utilisation of health care for those most in need as much as it does for those less in need (Aron-Dine et al., 2013). This is because most patients cannot reliably self-diagnose and assess their own need (this is why they need doctors) and so do not know whether a specific symptom, such as abdominal pain, reflects a minor diagnosis or something very serious. If one believes that the allocation of resources in health care should be based on clinical need, then the use of out-of-pocket costs to do this is inefficient and inequitable. In 2020–21, 10 percent of Australians who delayed seeing a GP or did not see a GP when needed, reported costs as a reason. For non-GP specialists this was 30 percent (ABS, 2021). If people wait too long, their condition can worsen and require more expensive downstream hospital treatment.

The second funding source is from state and territory governments, which provide the other half of funding for public hospitals. The third source is supplementary private health insurance, which covers private in-hospital services and ancillaries such as optical, dental and some allied health. Private cover is held by 45 percent of Australians, with coverage encouraged by taxpayer subsidies of premiums and financial incentives to encourage uptake. The fourth source is out-of-pocket payments from patients primarily for private health insurance premiums, as well as for private medicals services provided by GPs and non-GP specialists. Within any type of financing arrangement, the distribution of resources also influences access. This mainly concerns the distribution of health-care providers (health workforce, hospitals, primary care practices) across geography, specialty and settings (for example, hospital, primary care, public-private sector).

The aim of this chapter is to focus on three issues that influence access to health care in Australia: affordability, private health insurance and medical workforce distribution. The following three sections will examine each of these, including outlining the key policy issues, the research evidence on how access can be improved, and future avenues for research and policy.

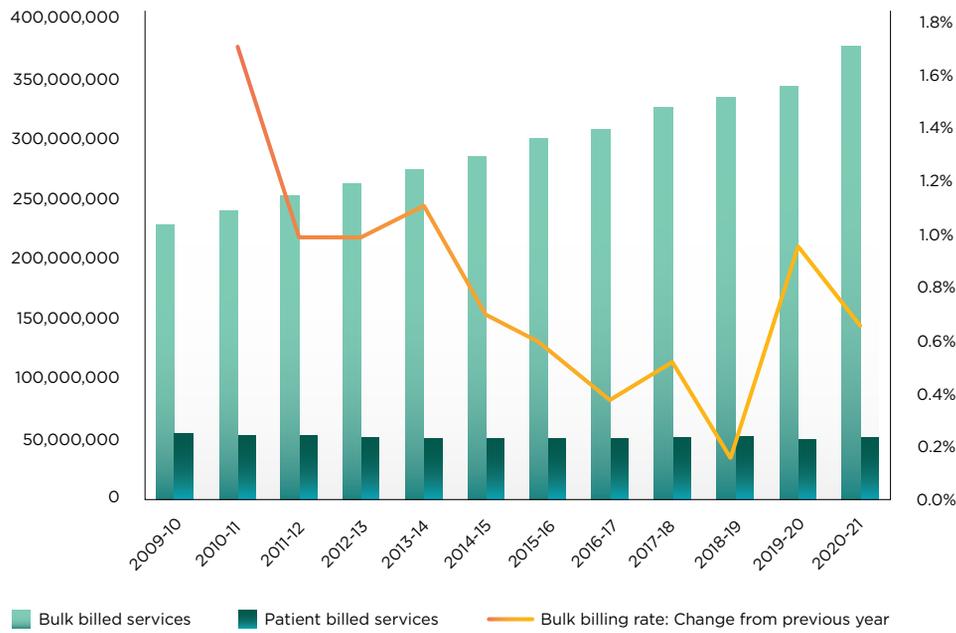
Access to medical services provided by all GPs, and to around 80 percent of non-GP specialists who work in private settings, depends on ability to pay. Medicare reduces out-of-pocket costs for these services by providing patients with a subsidy, whilst doctors can charge fees at above the subsidy. This means that the amount of out-of-pocket cost for a patient is at the discretion of the doctor who can (a) accept the medical benefits schedule (MBS) subsidy as full payment (known as 'bulk billing') or (b) charge above it, which results in patients (and private health insurers for private in-hospital services) having to cover the difference.

Bulk billing rates are highest for services provided by GPs at 88 percent (in 2020–21) and are lowest for out of hospital services provided by non-GP specialists at 45 percent. From 2009–10 to 2020–21 the number of out of hospital services grew by 51 percent, whilst over the same period the proportion of bulk billed out of hospital services grew much more slowly by 7 percentage points from 81 to 88 percent (Figure 1). The growth in bulk billing rates fell after the introduction of the MBS freeze to the indexation of MBS subsidies between 2014 and 2018. Growth in bulk billing rates reached the highest point during the pandemic, when telehealth items were introduced with most items bulk billed.

Bulk billing rates based on the number of services do not capture the financial burden faced by patients since the bulk billing rate reported by Medicare only captures the proportion of services that are fully covered by the subsidy and not the proportion of patients who pay no additional fees. A patient can be bulk billed for some visits but not others, and during a single doctor's visit some services might be bulk billed while others might incur out-of-pocket costs.

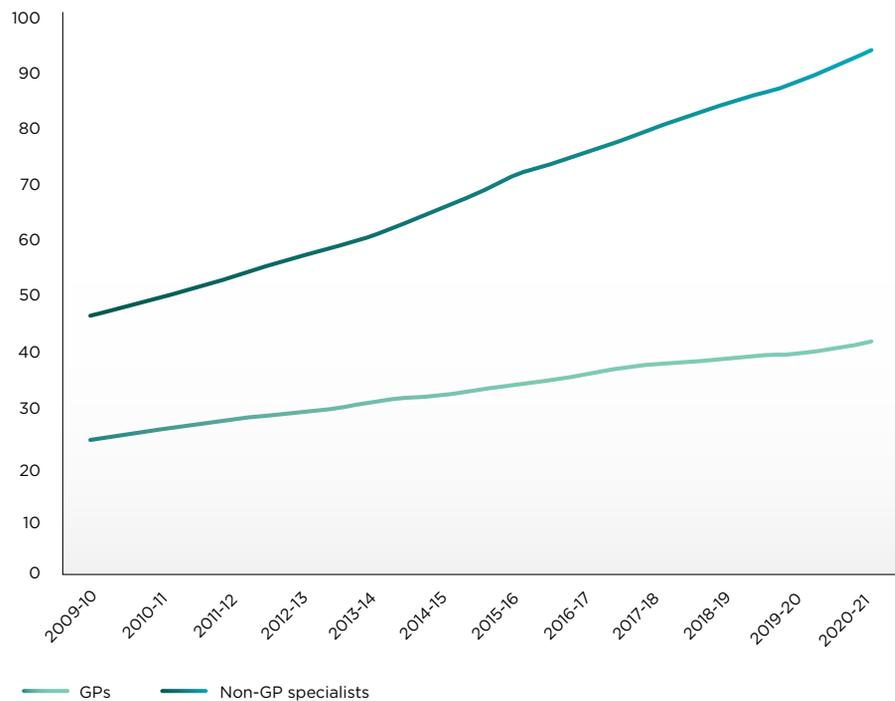
Figure 2 shows the increasing average out-of-pocket per service provided out of hospital for GPs and non-GP specialists. In the decade pre-pandemic, out-of-pocket costs for out of hospital services provided by GPs were growing at a rate of 5.3 percent every year. For non-GP specialists the average change from the previous year was 6.8 percent. This is almost twice the growth of wages over the same period (ABS, 2019), suggesting that affordability is an increasing issue for patients. Though there is much evidence of fee variation (Freed and Allen, 2017), there is much less evidence of what factors influence doctors' decisions to set fees and to bulk bill.

Figure 1.
Number of out of hospital services and annual growth of bulk billing rate.



Source: Authors' own calculations. Annual Medicare Statistics Dataset. Department of Health and Aged Care, <https://www1.health.gov.au/internet/main/publishing.nsf/Content/Medicare%20Statistics-1> (Department of Health, 2021).

Figure 2.
Average patient contribution (in dollars) per service 2009–10 to 2020–21.



Source: Annual Medicare Statistics Dataset. Department of Health and Aged Care, <https://www1.health.gov.au/internet/main/publishing.nsf/Content/Medicare%20Statistics-1> (Department of Health, 2021). Average patient contribution per service = (Out of hospital fee – Out of hospital benefit paid) / Number of out of hospital patient billed services.

The evidence on the drivers of out-of-pocket costs

Within the current system of financing and subsidies, doctors take into account the level of subsidy when setting fees and decide whether patients pay an out-of-pocket cost (the decision to bulk bill or to use gap cover for private inpatient hospital care) and, if so, how much it is.

When setting fees doctors will usually refer to the list of fees recommended by the Australian Medical Association, which are around double that of Medicare subsidies, and they may consider what other doctors in their specialty or geographical area charge. Doctors will set fees to cover the costs of running their practice, which will vary across geographic areas. There is evidence that doctors consider the financial situation of their patients when making pricing decisions as fees are higher for doctors located in more affluent areas (Gravelle et al., 2016; Johar, 2012; Johar et al., 2017). Figure 3 shows the percentage of patients bulk billed is higher if the doctor's main practice is in a disadvantaged area. Doctors are more likely to bulk bill if patients have more complex health and social problems (Figure 3).

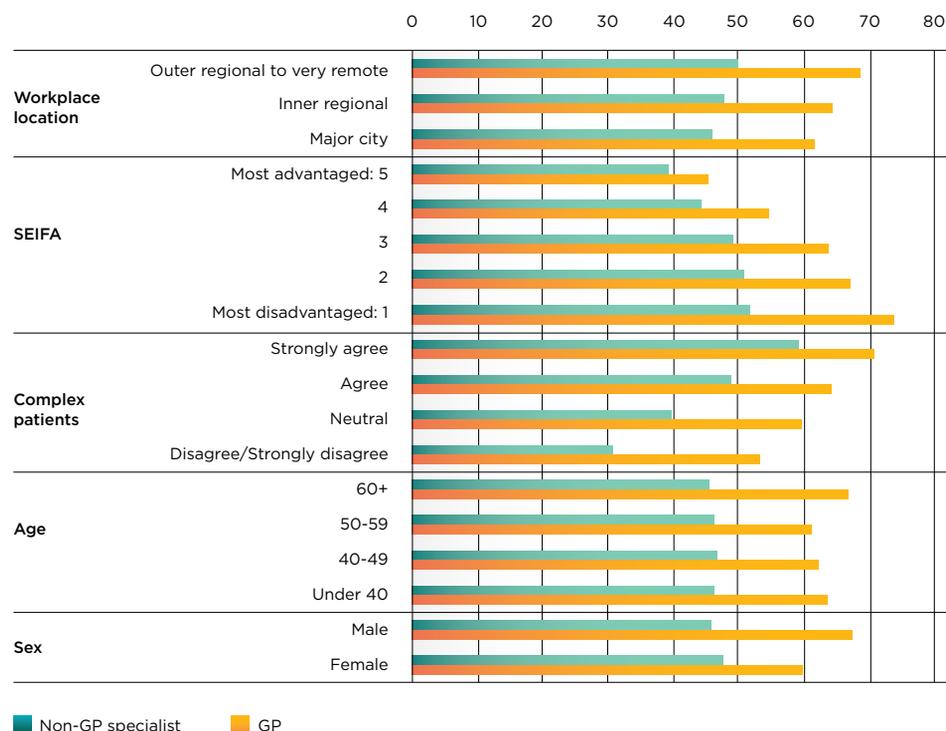
Being self-employed, doctors also need to set fees to cover the value of their own time and expertise. In a market setting this would usually be determined by what patients think is high-quality care. Relative fees would therefore reflect the relative value of the services provided to patients. Patients, however, generally do not possess this information and there are no published data on the quality of doctors and so the demand side of the market is weak, especially for non-GP specialists. Patients rely heavily on their GP's recommendations or recommendations of relatives and friends. It is difficult for patients to shop around and, in many cases, there may be few alternative doctors available, especially

for more highly specialised care. This can provide an environment where doctors have too much market power and where fees and out-of-pocket costs can be too high.

Understanding doctors' motivations and the market conditions under which they work is therefore important for designing policies to increase affordability and reduce the market power of doctors. Our previous research has shown that, for GPs, more competition can lead to lower prices and higher bulk billing rates (Gravelle et al., 2016), and so the structure of the market in terms of the number, size and location of practices can influence competition and therefore potentially keep fees and out-of-pocket costs relatively low. However, we also find evidence that more competition may lead to higher amounts of low value care being provided (Scott et al., 2022). In addition, our research has found that GPs facing more competition are more likely to increase fees if they have a higher level of monetary motivation, whilst GPs who care less about money are less likely to increase fees (Scott and Sivey, 2022).

Non-GP specialists face less competition because their markets are usually smaller. Our research has shown that more competition amongst specialists (defined as more doctors of the same specialty in their local area) does not reduce their fees (Méndez et al., 2022). There is also little informed patient choice because of a referral system that is not fit for purpose (Prime et al., 2020), where neither quality nor out-of-pocket costs have been published (Productivity Commission, 2017) and so high fees can sometimes be interpreted as high quality. The absence of data that captures referral patterns makes policy design in this area particularly challenging.

Figure 3. Average percentage of patients bulk billed by doctor characteristics.



Source: Authors' own calculations. Medicine in Australia: Balancing Employment and Life (MABEL) data from 2008 to 2018. Pooled average of GPs' and non-GP specialists' response to the question: 'Approximately what percentage of patients do you bulk bill/charge no co-payment?'

Policies to reduce out-of-pocket costs

Reducing the extent of market power should be a key factor guiding policy in this area. The ability of doctors to freely set their own fees is protected by the Constitution, so unlike other countries the direct regulation and control of fees is not a feasible policy option. There are several other alternatives. Our research suggests that the use of markets and competition to reduce fees and out-of-pocket costs might only be effective for GPs, and could be less effective for non-GP specialists (Gravelle et al., 2016; Méndez et al., 2022). Increased consolidation of private medical practices could lead to less competition and higher fees. The role of competition policy in this area is therefore important.

Excessive fees and out-of-pocket costs for specialist care and falling private health insurance membership prompted government scrutiny that led to the formation of a Ministerial Advisory Committee on Out-of-Pocket Costs in 2018. Following its recommendations (Department of Health, 2018), the Department of Health launched Medical Cost Finder, a website that allows patients to find the expected cost for common inpatient procedures, which follows similar websites from private health insurers (Chalmers et al., 2020). Our ongoing research is examining the effects of price transparency on out-of-pocket costs. However, our review of the evidence on the effectiveness of such websites, based on studies from the United States, is at best mixed (Zhang et al., 2020) and there are no published data on the quality or value of the services being provided.

The second option available is to increase subsidies for those most in need (and reduce them for those less in need). Fees are influenced by the level of subsidy, and so more careful targeting of Medicare subsidies to those most in need could be considered. It seems more important to reduce out-of-pocket costs for those on relatively low incomes, where even a few dollars might influence the decision to visit their GP or not. Those with concession cards (that is, on low incomes) and children aged under 16 can receive a higher Medicare subsidy if they are bulk billed by a GP, but this is at the doctor's discretion and does not guarantee they will be bulk billed. Even the uncertainty of whether bulk billing would be offered may reduce utilisation. In addition, concession cards are given to those on low incomes but may not protect against very high out-of-pocket expenditures (Jones et al., 2008). Linkage to income tax data would enable more careful targeting of Medicare subsidies to those who need them most.

The current Medicare safety nets are not means tested, such that those on a high income with out-of-pocket expenses above the safety net thresholds receive the same subsidy as those on a low income. The safety nets also mean that individuals incur out-of-pocket expenses in a calendar year before they reach the threshold, and so could still skip visits because of costs if they are unsure of meeting the threshold. At a minimum, access to safety nets should be only for those on low incomes with a reduction in the minimum thresholds.

Though increasing subsidies is an option, the evidence on the effectiveness of increasing subsidies is scarce but suggests unintended consequences. The problem with changing subsidies is 'pass through' where increases in subsidies have led to increased fees, as some doctors take the subsidies as higher income and patient out-of-pocket costs do not change as much, or reductions in subsidies do not lead to reduced fees (Yu et al., 2019). This might happen less often if such increases are targeted to those on low incomes.

Increasing affordable access to primary care should be prioritised because GPs provide preventive health care, help with early diagnosis, and manage continuity and coordination of care. More targeted subsidies to low-income and vulnerable population groups and designing funding models that address the coordinated management of chronic conditions can contribute to more equitable and affordable access to care. The low bulk billing rates, high out-of-pocket costs and large variation in fees between and within non-GP specialties such as surgery, for example, indicate excessive market power and lack of competition (Royal Australian College of Surgeons and Medibank Private, 2017; Scott, 2018). With rising out-of-pocket costs, those who can afford care will continue to pay for it but the most vulnerable will not, widening the gap in equitable access and health status.



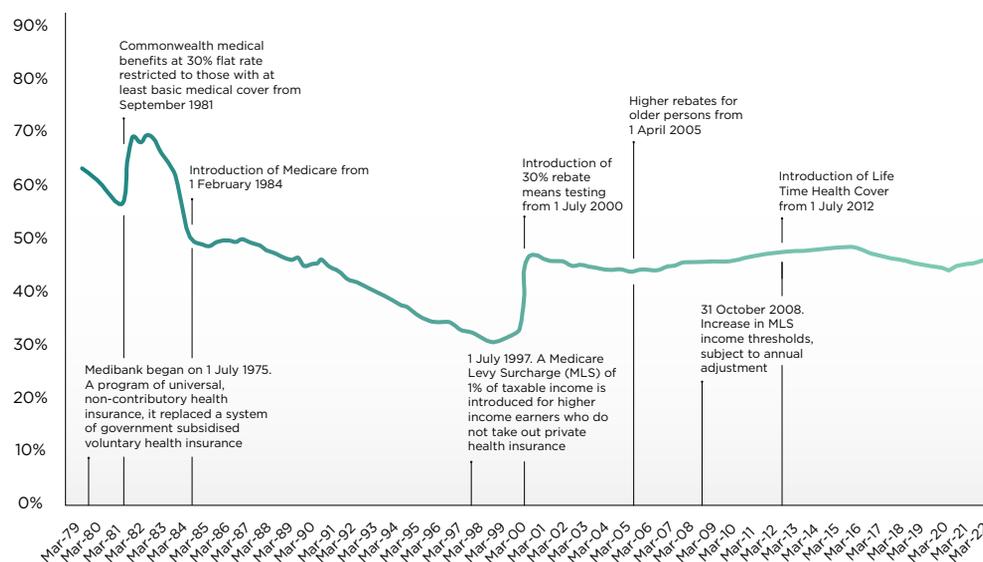
THE ROLE OF PRIVATE HEALTH INSURANCE

Despite having access to a free, high-quality public hospital system, Figure 4 shows that 45.1 percent of Australians purchased private hospital insurance in the March quarter of 2022 (Australian Prudential Regulation Authority, 2022). Supplementary private health insurance can increase access to private health care for those on higher incomes, and if this group chooses to use private hospitals, it is argued that this reduces the pressure on public hospitals and so increases access (reduces waiting times) for those on lower incomes. This is the main justification used for taxpayer subsidies and incentives—‘carrots’ and ‘sticks’ policies—designed to increase the uptake of private health insurance.

Private hospital insurance covers the hospital admission, sometimes with a co-payment, and specialists in private hospitals charge patients a fee, which is partly covered by Medicare and partly covered by private health insurance through ‘gap cover’. Whether gap cover is used, which can lead to no out-of-pocket costs, is entirely at the discretion of the doctor, similar to bulk billing. Those with private health insurance who choose to use private care may therefore need to pay high and unpredictable out-of-pocket expenses.

People often buy private hospital insurance to access shorter waiting times for care in private hospitals and a greater ability to choose one’s own doctor (Zhang and Prakash, 2021). In addition, reasons to buy private health insurance vary substantially by age (Figure 5). For instance, 73 percent of those older than 65 purchased private health insurance for peace of mind, while for those aged 18–34, the most common reasons are ‘I need it for a current health condition’ (for example, young women buy private health insurance when anticipating child birth) (Zhang and Prakash, 2021).

Figure 4. Private hospital treatment coverage (insured persons as a percentage of the population) and key policy changes 1979 to 2022.



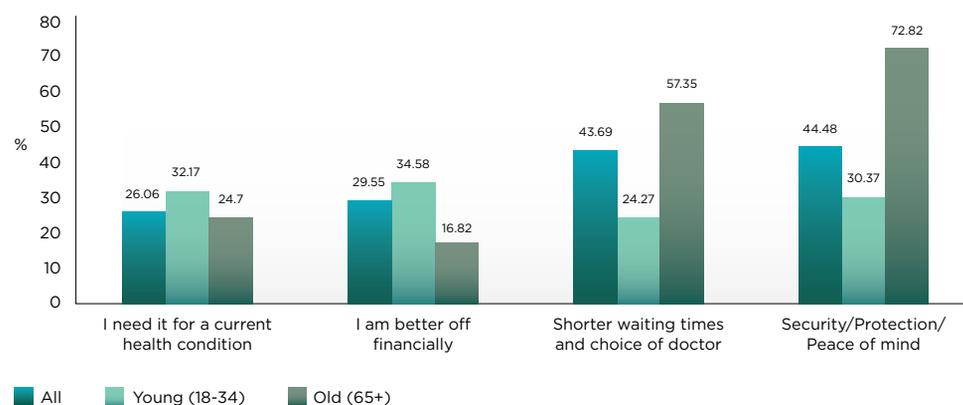
Source: Australian Prudential Regulation Authority. Quarterly Private Health Insurance Membership Trends March 2022. <https://www.apra.gov.au/sites/default/files/2022-05/Quarterly%20Private%20Health%20Insurance%20Membership%20Trends%20March%202022.xlsx>

Three main government regulations were initiated between 1997 and 2000 to encourage people to take out private health insurance (Figure 4). In 1997, the government introduced the Medicare Levy Surcharge (MLS), which imposes additional income tax for people who earn above a certain threshold and do not hold private hospital cover. In addition, the government offered subsidies for private health insurance premiums for those with incomes below certain thresholds (max \$150 discount per year for singles earning <\$35,000, and \$450 for families earning below \$70,000). On 1 July 1999, the government increased the premium rebate to 30 percent of premiums for everyone regardless of income. Finally, on 1 July 2000, the government introduced an age-based premium penalty—Lifetime Health Cover (LHC)—to encourage individuals to enrol earlier in life. If people do not have hospital cover before their base day (the later of 1 July 2000 or the 1 July following their 31st birthday) and decide to buy after, they have to pay a 2 percent loading on top of their hospital premium for every year they are aged over 30 (Commonwealth Ombudsman, 2021).

Since then, the Australian government has made some changes to the above incentives. For example, age-specific premium rebates were introduced in 2005 to increase rebates for adults older than 65, rebates became means-tested and their growth capped in 2012, and MLS thresholds and levy rates increased in 2008 and 2012 respectively (Figure 4). Nevertheless, these three incentives have largely maintained their structure, especially LHC, which has not experienced any major changes since 2000.

Figure 5.

Percentage of the population with private health insurance, by reason for purchase.



Source: Taking the Pulse of the Nation Survey (Zhang and Prakash, 2021).

Evidence on the effectiveness of policies to increase the uptake of private health insurance

The above policy changes have been effective in encouraging the uptake of private health insurance (Frech III et al., 2003). The percentage of people with private health insurance rose from 31 percent in 1999 to 45 percent at the end of 2001. Prior work has estimated the effects of tax and price incentives on the demand for private health insurance (Frech III et al., 2003; Stavrunova and Yerokhin 2014), especially focusing on three policies (MLS, LHC and 30 percent rebates) introduced during 1997–2000 (Palangkaraya and Yong, 2005).

These early studies largely rely on survey data but could not separate the effects of different policies because they were implemented around the same time. As more data have become available, especially large administrative data such as Australian tax data, our recent research has been able to evaluate the causal effects of these policies separately and expanded analyses to different subgroups.

Kettlewell and Zhang (2021) evaluate the overall effect of LHC on the take-up of private health insurance using data from a 10 percent random sample of Australian tax-filers. They show that LHC only affected those at age 31 and the effectiveness of the policy has fallen but then increased over time. They conclude that any modest changes to this policy (or abolishing LHC) would not make much difference to the age distribution of the insured, premiums or take-up rates.

Using similar tax data, Liu and Zhang (2022) study the effect of age-specific premium rebates on private health insurance take-up among older adults. They find that higher rebates led to small increases in private health insurance take-up. For those aged 65 to 69, an increase in rebates from 30 to 35 percent led to a 1 to 1.5 percentage-point increase in take-up in the first two years of the policy. For those aged 70 to 74, an increase in rebates from 30 to 40 percent led to a 1.5 to 2.7 percentage-point increase in take-up. The effects are driven by those in the bottom income quartile. This suggests that old adults are less sensitive to rebates, partly because they may value private treatment more and/or are more risk averse than the general population. The findings support the use of this means-tested rebate policy but suggests a need to recalibrate these income contingent rebates to better target those in the bottom income quartile.

Does more private health insurance improve access to health care?

Though the above policies improve the uptake of private health insurance, this does not necessarily mean that they improve access to health care or improve health status. It is well-documented that health insurance increases health care use and health status compared to no insurance (Baicker et al., 2013; Buchmueller et al., 2005; Freeman et al., 2008; Newhouse, 1993), but fewer studies have investigated the effect of private health insurance on utilisation when free public hospital care already exists (Doiron and Kettlewell, 2020; Eldridge et al., 2017). Substitution of private care for public care would occur only if those with private health insurance use it, and use it in private hospitals instead of public hospitals. Private health insurance can also be used in public hospitals, but with fixed capacity this would contribute to increased waiting times and reduced access for public patients.

Two studies find evidence of substitution and that those with private health insurance are associated with use of more private hospital care than the reduction in public hospital care, both using cross-sectional survey data from 2004 (Doiron and Kettlewell, 2018; Eldridge et al., 2017). The first found that private health insurance was associated with increased total hospital use by 4 percentage points. This represented a net substitution effect of a 16 percentage point increase in private admissions and a 13 percentage-point reduction in public admissions (Doiron and Kettlewell, 2018). The second study found that private hospital insurance did not expand the overall use of hospital care, but increased the likelihood of hospital admission as a private patient by 13 percentage points, 11 percentage points of which came from substitution away from public hospitals (Eldridge et al., 2017). This raises the issue that though there could be substitution, it might be more costly.

There are several studies that have demonstrated the association between having private health insurance and use of private treatment (Cheng and Farshid, 2011; Rana et al., 2020; Srivastava and Zhao, 2008). For example, Rana et al. (2020) use 2009 and 2013 data from the Household Income and Labour Dynamics in Australia (HILDA) Survey to compare use of hospitals among those with and without private health insurance, finding that patients with private health insurance have a higher number of hospital nights' stay but fewer hospital admissions, relative to those without private health insurance. They also note that one quarter of patients choose to use public care despite having private health insurance hospital cover. More recent research finds that LHC increases the uptake of private health insurance by 1.7 percentage points and increases the use of private hospitals by 1.4 percentage points among those who have just turned 31 years old. This effect is small because it only affects those who choose to purchase private health insurance due to the LHC policy (Ananyev et al., 2022). They are uninsured and LHC simply brings forward their purchase. More research is needed to study this for the general population.

Policies to improve access through private health insurance

To improve access to health care, government subsidies to private health insurance premiums should be targeted to those who need them most. Previous evidence shows that people respond to rebate incentives differently. Older and high-income people are less responsive to rebates than those who are younger and on lower incomes. The government could consider lower income thresholds for rebates and increase rebates for younger people who would be more responsive per dollar of the subsidy.

Future policy changes should not focus on changes to LHC. Our research suggests LHC affects only a very small number of people and any changes or even abolition would make little difference to improving uptake amongst the young and overall market premiums. Focusing on increasing the value of private insurance, especially services useful to the young, is a better approach to encourage the young to enrol.

Future policy reform should focus on redesigning MLS policy. The overall effect of the MLS on uptake is relatively small compared to the effect of premium subsidies. Many people buy the cheapest private health insurance plan to avoid MLS but will never use private hospitals when they need hospital treatment because their private health insurance plans do not provide adequate coverage or require high (and uncertain) levels of out-of-pocket spending.

If the goal of private health insurance is to reduce the burden on the public system, current research suggests it would cost less to fund public hospitals directly than trying to encourage people to buy private health insurance and use private hospitals (Cheng, 2014), though there is no evidence yet of the effects on health status or inequalities in access. This also raises the issue of how to encourage increased efficiency in the private hospital sector.



DISTRIBUTION OF THE MEDICAL WORKFORCE

A key aspect of access to medical care within most systems of financing concerns the geographic distribution of the medical workforce. Doctors who graduate within Australia are free to choose where to work. The decision of the geographic location in which to work is complex and the availability of health professionals, especially doctors, in rural areas has been a key policy for many years.

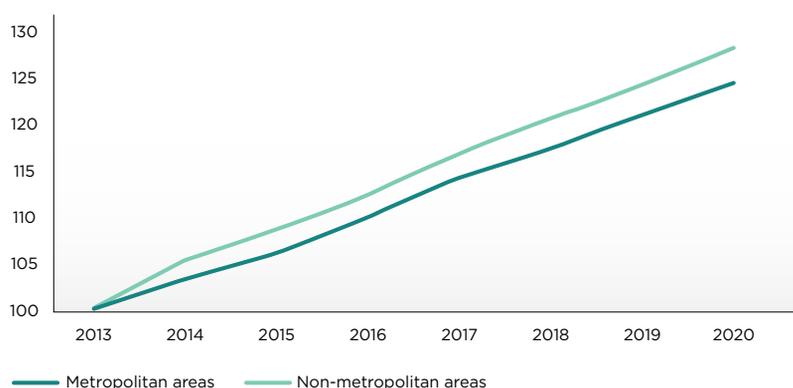
There have been small improvements in distribution over time. In 2020, of the 105,178 doctors working in clinical practice in Australia, 20.9 percent were in non-metropolitan areas compared to 20.3 percent in 2013. This is reflected in Figure 6, which shows that the number of doctors in non-metropolitan areas has been growing slightly faster than those in metropolitan areas. Over the period, average annual growth in the number of doctors in metropolitan areas was 5.4 percent compared to 6.3 percent for doctors in non-metropolitan areas. This is due to faster growth in the number of doctors being trained outside of metropolitan areas and faster growth in the number of specialists in non-metropolitan areas. The number of GPs, which has been the main focus of policy interventions to increase the rural medical workforce, is growing fastest within metropolitan areas (Scott, 2021).

There has historically been little rigorous evaluation of the effectiveness of policies to improve medical workforce distribution, so it is difficult to isolate the source of the slightly improved distribution over time (Buykx et al., 2010; Grobler et al., 2015). The main, and arguably most successful, policy has been filling the gap using international medical graduates (IMGs) who are mandated to practise in areas of 'need' for up to 10 years after they first arrive in Australia, with IMGs comprising 39.6 percent of doctors in non-metropolitan areas in 2020.

The second key policy implemented from around 2000 is self-sufficiency of the medical workforce, which was implemented by 'flooding the market' through doubling the number of medical graduates by opening new medical schools and giving priority to medical training places to domestic graduates. The hope was that new doctors would 'spill over' into rural areas as cities became 'full' and so the need to rely on IMGs would fall over time. Generally, after 20 years, Australia is still heavily reliant on IMGs but there is some aggregate evidence that things are very slowly changing. The number of IMGs has continued to grow by an average of 3.9 percent per year between 2013 and 2020, compared to 6.4 percent growth for Australian medical graduates due to the increase in domestic supply. In 2013, 34.7 percent of doctors (42.9 percent in non-metropolitan areas) were IMGs, which has fallen to 32.4 percent (39.6 percent in non-metropolitan areas) by 2020. However, assuming IMGs are the same quality as Australian domestic graduates (most are from the United Kingdom, for example), importing IMGs is much more cost-effective since Australia does not have to pay for their training. The doubling of domestic medical graduates has therefore been very expensive compared to using more IMGs though the move to self-sufficiency was also driven by ethical concerns related to taking doctors from other countries that may have shortages. Other complementary policies have included increasing the proportion of time spent training in rural areas, providing new career pathways that support rural practice, the preferential selection of medical students who grew up in rural areas, and financial incentives.

A number of policies have evolved over time that use financial incentives to encourage doctors to move to, and stay in, non-metropolitan areas. Doctors in rural areas receive rural 'loadings' for all payments they receive from the Practice Incentive Program, which on average comprises about 10 percent of their annual income. In addition, they receive higher levels of bulk billing incentives, which are used to encourage fees to be set equal to the Medicare subsidy so that patients have no out-of-pocket payment. However, the main current scheme is the Workforce Incentive Program, which was introduced in early 2020. This provides additional payments to GPs depending on their geographic location and how long they have been working there. The minimum payment is \$4,500 per year for a doctor in a Modified Monash Model (MMM) 3 location who has been there for two years. The maximum payment is \$60,000 per year for a doctor who has been working in the most rural area (MMM7) for five years or more. The longer they stay the higher the reward.

Figure 6.
Cumulative percentage growth in the number of doctors.



Source: Authors' own calculations. National Health Workforce Dataset. Health Workforce Data Tool. <https://hwd.health.gov.au/datatool/>. Metropolitan areas are defined using Modified Monash Model (MMM) category 1. Non-metropolitan areas are defined using MMM 2 to 7.

The evidence on improving medical workforce distribution

In terms of training, career pathways and medical student selection, there is no causal evidence for the effectiveness of these policies, though associations are large. For example, evidence from the Medicine in Australia: Balancing Employment and Life (MABEL) survey shows that doctors who spent more than six years growing up in a non-metropolitan area are 2.3 times more likely to end up working in a rural area (McGrail et al., 2011) with stronger associations for those of rural origin and who were trained in a rural area (McGrail et al., 2016).

The effectiveness of the use of financial incentives has only recently been evaluated using data from the MABEL panel survey of around 10,000 doctors per year over 11 annual waves from 2008. One study finds that for the majority of GPs no amount of money can persuade them to move from a metropolitan area to a rural area. This research examined GPs' preferences for rural location using a discrete choice experiment that asked doctors to choose between a series of pairs of different hypothetical jobs, with each job varying according to its geographic location and a range of other job characteristics (income, hours worked, on call, opportunities for social interactions, arranging a locum, size of practice team and consultation length) (Scott et al., 2013). In making these choices, doctors traded-off income for rural location and so it was possible to estimate the change in income required to persuade doctors to work in rural locations. First, 65 percent of GPs chose to stay in their current job over all of the jobs they were offered, regardless of the increase in income offered or improved levels of other attributes. Compared to jobs in metropolitan areas, when offered jobs in rural areas, between 72.5 percent and 91 percent (depending on the characteristics of the rural job) would prefer to stay in their current job. For those who were prepared to move, they would need to be compensated between 10.3 percent (\$18,791) and 130 percent (\$237,002) of their annual income, with 130 percent representing the 'worst' job in a rural area (for example, 10 percent increase in hours, 1-in-2 on-call, rural inland location, very limited social interactions, very difficult to get locum cover, GP and receptionist only and a 10-minute consultation length). These results suggest that financial

incentives would work for only a small proportion of GPs and would need to be much higher than currently offered to persuade them to move to rural areas with poor job characteristics. The results also suggest the importance of other job characteristics to persuade doctors to move to rural areas.

Two studies evaluate a change to the predecessor of the Workforce Incentive Program, the GP Rural Incentives Payments (GPRIP) program. This had a similar structure of payments as the Workforce Incentive Program. In 2010, the eligibility of geographic areas for incentive payments changed because of a change in the way rurality was measured. This resulted in around 750 locations, mainly outside the edges of major cities (inner regional areas), suddenly becoming eligible for incentives and increasing the incomes of GPs in these areas by an average of 3.8 percent. Our research compared changes in the exits and entries of GPs in these newly eligible areas compared to areas that had always been eligible (other rural areas) or ineligible (that is, major cities) using a difference-in-differences design (Yong et al., 2018). This found no impact on entries or exits of GPs overall, though there was some evidence of an increase in entries for newly qualified GPs who are more mobile than more established GPs. This suggests that incentives should be provided only to newly qualified GPs. GPs already in these newly eligible areas received an increased income but did not change their behaviour. It may also be that the average increase in income of 3.8 percent was insufficient to change their behaviour as suggested by the previous study (Scott et al., 2013). A second study examines the effect of this same policy change on waiting times for non-urgent GP appointments and finds some evidence that the number of GPs in newly eligible practices increased, and this did not lead to lower waiting times for existing patients, but did lead to weak evidence of lower waiting times for new patients (Swami and Scott, 2021). The effects of improving the medical workforce distribution on the health of rural populations has not yet been examined in Australia, with only two studies from Japan and Norway showing causal evidence that a reduction in physician supply in rural areas reduced health outcomes (Iizuka and Watanabe, 2016; Kinge and Grytten, 2021).

Policies to improve the distribution of the medical workforce

Overall, there has been constant development and refinement of a range of different policies to encourage more doctors to work in rural areas with relatively higher need for health care. Evidence on what is effective remains scarce but suggests that a range of policies is necessary. Mandating IMGs to work in rural areas has been, and will remain, important though the effect of the reduction in IMGs because of COVID-19 border closures in 2020 to early 2022 is unknown. Recruitment from, and training of doctors in, non-metropolitan areas is also a key policy. Financial incentives seem to have minimal impact on already qualified doctors, suggesting that it is doctors in training who are more mobile and more responsive to such incentives and who need to be targeted. A key issue where there is much less evidence is the role of telehealth in rural areas to improve access. The scope for reductions in costs (for patients and the health system) is significant though there remain doubts about the quality of care provided by telehealth compared to face-to-face consultations, especially where care is provided by phone rather than video (Snoswell et al., 2021). A final issue is that national policy to improve medical workforce distribution has largely ignored the availability of doctors in low socio-economic status areas within metropolitan areas, even though there is clear evidence that the number of doctors is higher in more affluent areas that have relatively lower need for health care (McIsaac et al., 2015).



CONCLUSIONS

Medicare, private health insurance and the funding of public hospitals do much to reduce out-of-pocket costs and improve access to health care for the Australian population. Yet out-of-pocket costs remain high and Australia scores poorly in international comparisons of access to and equity in health care. Further improvements in access to health care needs to be a key policy issue to improve population health, especially in times of crisis such as pandemics, natural disasters and recessions where the gaps and inefficiencies in the system are laid bare.

The evidence we have presented across the areas of out-of-pocket costs, private health insurance and medical workforce distribution suggests that current government spending will be more effective if more precisely targeted. Medicare subsidies need to be better targeted to those on low incomes. Subsidies for private health insurance premiums need to be better targeted to population groups on lower incomes and to those who are more responsive like the young, whilst the MLS also needs to be better targeted. Policies that lower the costs of private health care are also important to consider. The use of financial incentives to encourage doctors to move to and stay in rural areas also needs to be better targeted to younger doctors who have recently completed training and are more mobile.

A 'one size fits all' approach for government policy might be administratively simple but can be inefficient and inequitable. Improving access to health care for those most in need and those with low incomes should be a priority.



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Part 3

Health and Education

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Chapter

7

Youth transitions
after high school

—

Dr Steeve Marchand & Professor A. Abigail Payne



Is Australia doing enough to support successful transitions for young adults? This chapter explores where Australia stands relative to other countries on employment rates for young adults and reports on the core issues that can impact successful transitions into gainful employment. The authors discuss their ongoing work to design a mechanism that will support community place-based initiatives to support successful high school completion and a transition into further education or training that will lead to strong employment opportunities for young adults.

INTRODUCTION

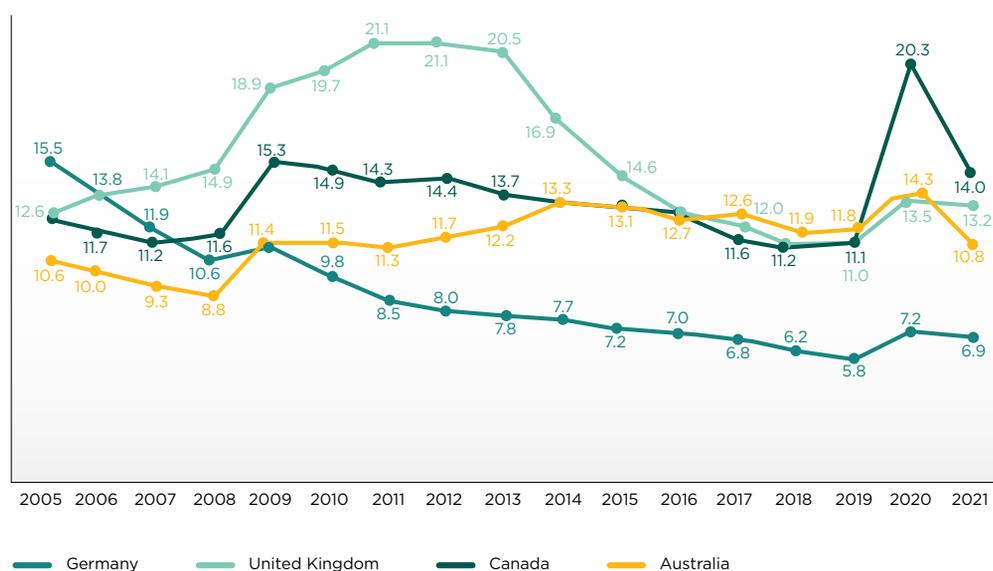
Teenagers approaching the end of high school must choose a pathway for the next phase of their life. This transition period is critical in shaping one’s future: choices made will impact education and employment pathways, both of which can have long-lasting consequences. In an ideal world, such crucial decisions would be made free of barriers and with full consideration of available options. Unfortunately, many teenagers face a variety of disadvantages that can impact their choices and opportunities.

A strong Australian economy should support economic opportunities for young adults. As in many countries, however, young adults in Australia typically face relatively high unemployment rates. Figure 1 depicts the youth unemployment rates for Australia, Canada, the United Kingdom and Germany between 2005 and 2021. Leading up to the COVID-19 pandemic, the unemployment rate for Australian youth was close to 12 percent. Like all countries, this rate increased in 2020 and returned to pre-pandemic rates in 2021. While not the highest for the countries depicted, the youth unemployment rate has remained high in Australia in the last decade. Therefore, we should be concerned that we are not doing enough to support successful transitions.

What does a successful transition look like? Who is responsible for ensuring high school students are provided with opportunities for success? Are we providing the right curriculum and support during high school? Are students pursuing additional training and/or education to meet their interests and abilities, and are there enough of these opportunities available in disadvantaged regions? Are employers providing sufficient opportunities to help place young adults on a trajectory for long-term success? These are all questions we should be raising as we try to shape and enhance policy and practice to improve employment opportunities for young adults.

This chapter provides an overview of the transition from high school to later pathways by Australian youth and highlights several factors associated with (un)successful transitions based on studies conducted in Australia. We also present ongoing work at the Melbourne Institute that is geared to inform the landscape for youth employment. This work will provide policy-makers and service providers with tools to keep track of the evolving state of youth disadvantage across Australia and guide interventions related to training and employment opportunities, and will promote successful transitions of young adults after school.

Figure 1.
Youth unemployment rate, 2005 to 2021.



Notes: Youth refers to persons aged 15 to 24 in Canada, Germany and Australia and persons aged 16 to 24 in the United Kingdom.

Sources: Statistics Canada, Table 14-10-0327-01, Labour force characteristics by sex and detailed age group, annual; European Labour Force Survey (EU-LFS); UK Labour Force Survey (UK-LFS); <https://www.macrotrends.net/countries/AUS/australia/youth-unemployment-rate>.

FACTS ABOUT EMPLOYMENT AND EDUCATIONAL ATTAINMENT

Males and females in Australia exhibit higher rates of unsuccessful transitions from high school than many other countries

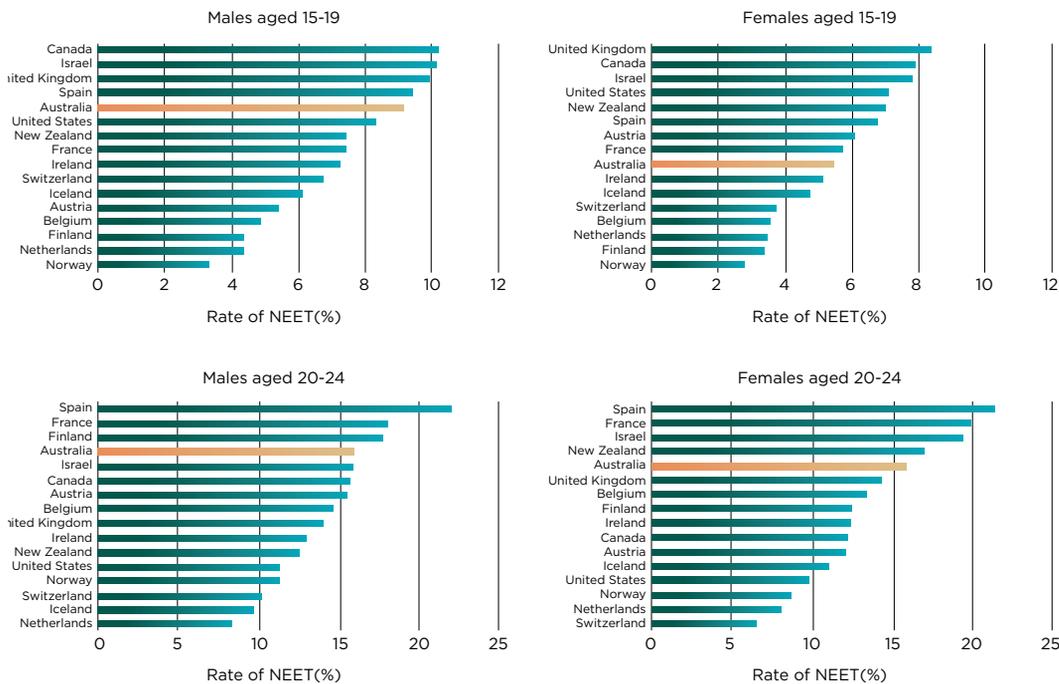
A typical measure of an unsuccessful transition after high school is the rate of young adults who are not in employment, education, or training (NEET). NEET captures the share of youth who have stopped studying or training (either because they have dropped out or because they have completed their studies), but who are nevertheless not working (that is, unemployed or out of the labour force). Figure 2 depicts NEET rates in 2020 for Australia relative to other selected countries, separated by age and gender.¹ A country with a low NEET means that most young adults are gainfully employed.

The figure shows clear differences between genders for the early transition period (aged 15 to 19). For males, Australia ranks 12th, with a NEET rate of 9 percent. Instead of improving, the rate for those aged 20 to 24 is even higher, more than 15 percent. One might expect this rate to decline as young adults mature. Instead, an increasing rate suggests a disconnect between opportunities for training and education and these young men.

Females in Australia fare better. For those aged 15 to 19, the NEET rate is less than 6 percent in 2020 and Australia ranks 8th, exhibiting lower NEET rates than countries such as the United Kingdom, the United States, and New Zealand. This finding may not be too surprising given females are more likely to remain in high school than males. The full-time retention rate for school years 7/8 to 12 for females over the last decade has exceeded 85 percent whereas the rate for males has been closer to 80 percent and declining in recent years.²

Unfortunately, the lower NEET for females does not continue into later ages. For women aged 20 to 24, the NEET is approximately the same as that for men, close to 15 percent. The NEET for men and women in this age group mirrors the unemployment rate observed in Figure 1.

Figure 2. Rates of individuals not in employment, education, or training (NEET) in selected countries in 2020.



Source: OECD (2022) Youth not in employment, education, or training (NEET) (indicator).

¹ For Figure 2, we selected countries that (i) were members of the OECD, (ii) were among the 35 countries with the highest GDP per capita, and (iii) had the indicators available for 2020 at OECD (2022).

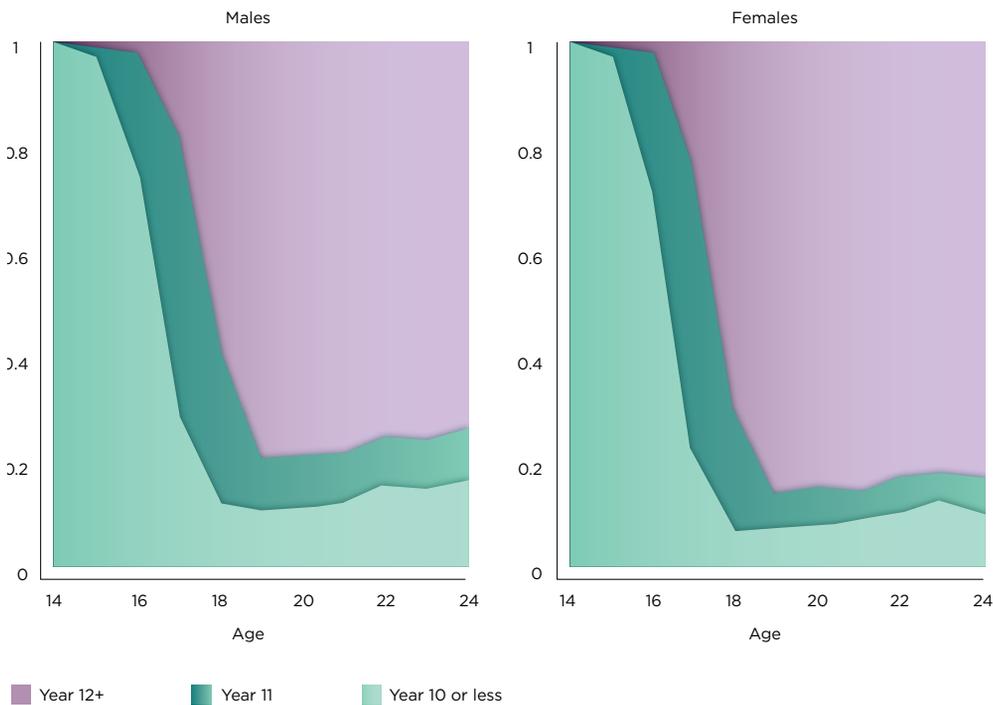
² <https://www.abs.gov.au/statistics/people/education/schools/latest-release#retention-rates>.

A high proportion of students (mostly males) do not continue high school beyond year 10

Australia’s vision for educational attainment, as articulated or supported by the Alice Springs (Mparntwe) Education Declaration (Education Council, 2019) and the National School Reform Agreement (NSRA) (COAG, 2018), aims to create successful lifelong learners who are confident and creative. Young adults are also expected to be active and informed members of the community. Since 2010, the National Youth Participation Requirement expects that all youth will participate in schooling until they complete year 10. Beyond year 10, it is expected that students will remain in full-time education or training until reaching the age of 17. There is, however, variability in requirements and expectations across the states. Thus, in Australia, beyond year 10, one can continue with school (a necessary requirement to enrol in university) or seek training through vocational education training programs and/or apprenticeships.

Figure 3 depicts high school completion rates by age and gender from 2016 Census of Population and Housing data. The figure reveals several key insights. First, many young adults do not continue high school beyond year 10 for both genders. Second, this share is the highest for males. Third, males from younger cohorts increasingly complete high school, whereas completion rates are more stable for females.

Figure 3. High school attainment by age and gender in Australia—2016.



A high proportion of students do not pursue further education or training after high school

Figure 4 shows the evolution of student status by age across genders. The proportion of non-students is similar between males and females until age 17 but increases relatively more for males after that age. The largest gender differences in student status arise from ages 18 to 21. This difference is in large part explained by women moving on to further education after high school in greater numbers, which is a well-documented phenomenon over the last few decades in most developed countries (see Card and Payne, 2021). Importantly, high school performance can be critical in determining these educational pathways after high school. For example, Cardak and Ryan (2022) show that high school performance is the most important predictor of university enrolment for Australian disadvantaged students, as being financially at risk or other disadvantage measures seem to play a lesser role.

A significant share of young adults do not transition to employment after their studies

Do young people who stop studying start working, look for work, or do they fail to join the labour force? Figure 5 shows the shares of students and non-students who are employed, unemployed, and out of the labour force by gender. The sum of the medium-dark and dark orange areas shows the proportion of young people who have stopped studying yet are not working—that is, those NEET. Males and females exhibit separate patterns. A substantial share of males become NEET in their early transition period, suggesting they face strong challenges in their transitions after high school. Furthermore, NEET status for males is explained almost equally by unemployment and dropping out of the labour force for all ages. Thus, for this group, transitions to NEET seem to be explained both by the failure to find work (unemployment) and by becoming inactive (not in the labour force). For females, NEET status is less important in the early transition period but becomes relatively more important with age. As females age, NEET status becomes increasingly explained by those dropping out of the labour force.

Figure 4. Student status by age and gender in Australia—2016.

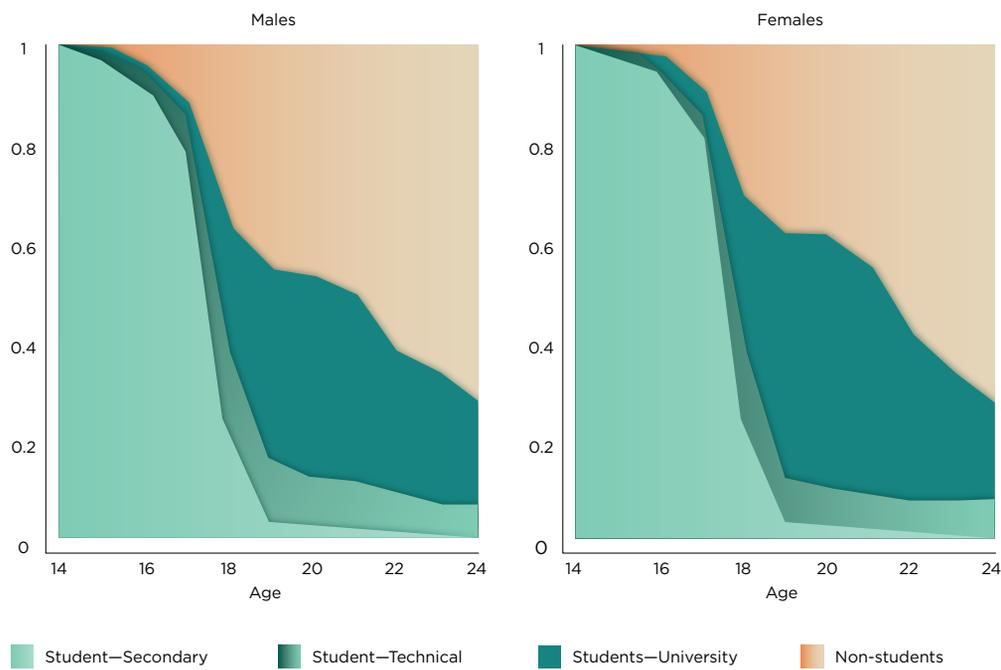
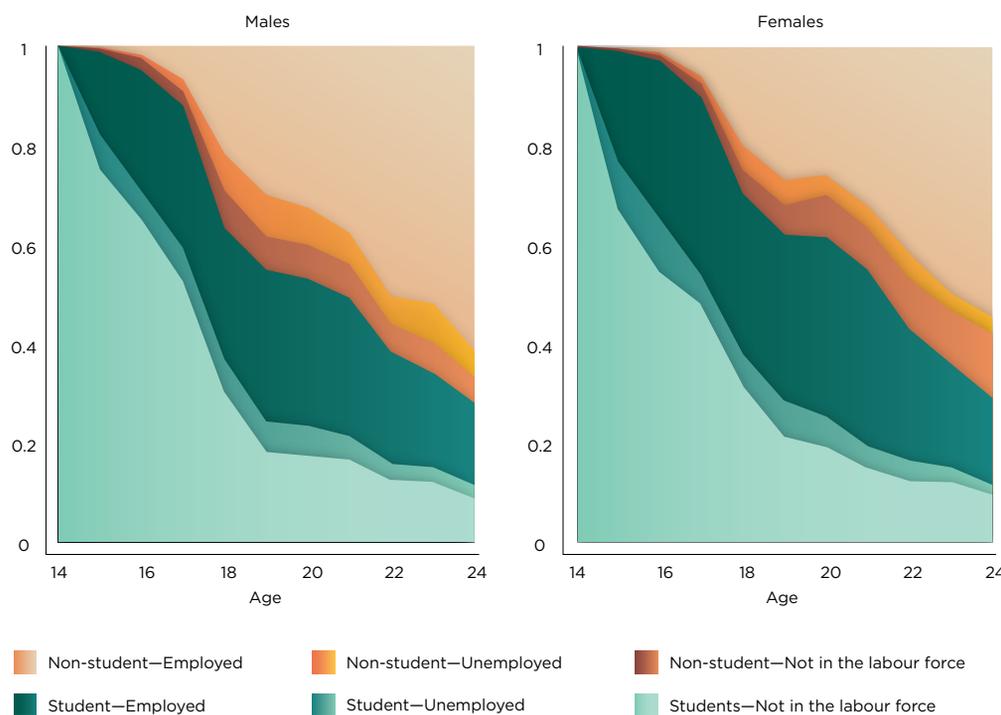


Figure 5. Student and labour market status by age and gender in Australia—year 2016.



Not completing year 12 decreases the probability of transition to employment after finishing studies, but other qualifications can help

The above discussion shows that many Australians do not transition into employment after their studies. But who are those young adults who fail to do so? Figure 6 focuses on individuals aged 15 to 19 who stopped studying or training and presents the probability of being NEET given educational attainment. We separate educational attainment into four categories, combining the state of having completed year 12 or not with the state of having some other qualifications or not. Rates of NEET are high within this age group, as this is a population that stopped studying early. Around 40 percent of those who have stopped studying without any qualification (no year 12 and no other qualification) fail to transition into employment. Obtaining some other qualification reduces the probability of becoming NEET but not for females: females without a year 12 attainment have a rate of NEET of around 40 percent regardless of other qualifications.

Figure 7 presents the rates of NEET for individuals aged 20 to 24 who stopped training or studying. We again observe very high rates for individuals without any qualification, even more so for women (close to 60 percent). All other qualifications play a role in decreasing the probability of transitioning to NEET. Overall, these results suggest that completing year 12 is important in successfully transitioning to employment, but that other qualifications can still play a role. They also highlight that those without any qualifications are especially at risk.

Figure 6.
Rate of NEET for non-students aged 15 to 19—2016.

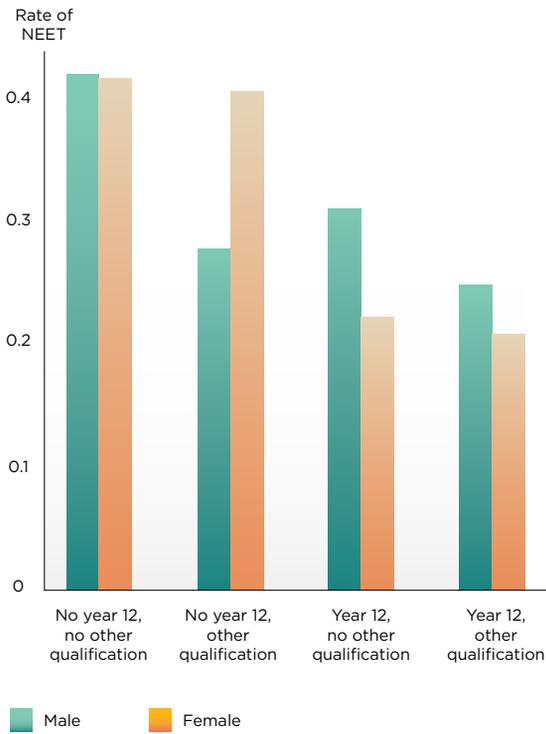
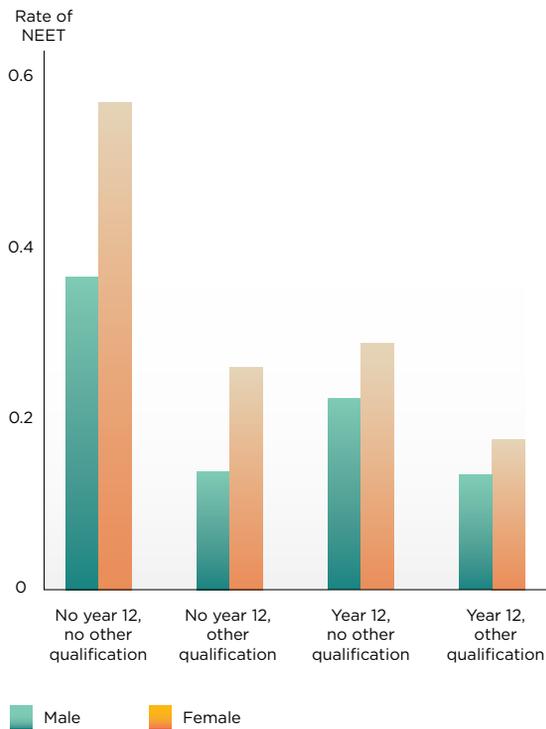


Figure 7.
Rate of NEET for non-students aged 20 to 24—2016.



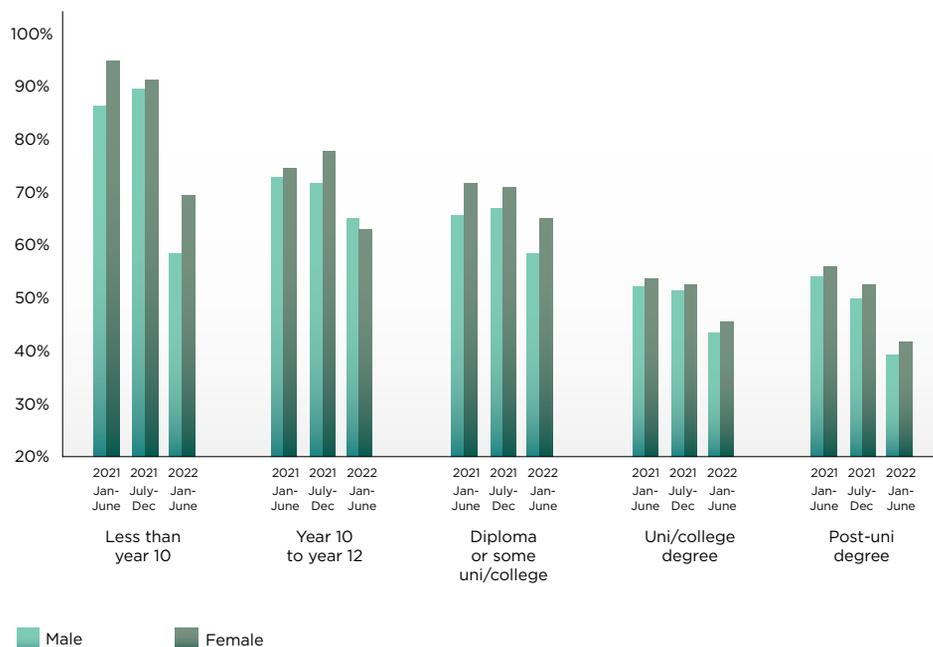
Levels of financial stress for young adults vary substantially with educational attainment

The previous section showed that dropping out of high school is highly associated with failing to transition into employment. There is further evidence that dropping out of high school is also associated with economic struggles in later life. Australians who did not finish high school experience particularly high poverty rates that have been increasing over time (Ananyev et al., 2020).

To illustrate the importance of educational attainment for later life, we use the Melbourne Institute's Taking the Pulse of the Nation (TTPN) data set. The TTPN regularly surveys Australians and inquires, among other things, about the financial stress they experience. Figure 8 depicts the correlation between financial stress and educational attainment by educational attainment and gender between 2021 and 2022. Financial stress is measured as one identifying one's current circumstances as just making ends meet or worse. There is a clear negative relationship between financial stress and educational attainment. Those with a university degree report lower financial stress. In 2021, around 90 percent of individuals with less than a year 10 qualification experienced financial stress, suggesting that this population is part of the group who have suffered financially during the pandemic.

To assess whether the above differences in financial stress can be attributed to differences in employment status, we use TTPN to regress the above financial stress measure on a set of variables, including educational attainment and employment measures. The tables below present the results for men (Table 1) and women (Table 2) aged 25 to 34. The estimations include employment variables (indicating no employment or part-time employment, relative to full-time employment) that strongly predict financial stress for both genders. The estimations also include indicators of half-years and of living in an urban area, which could affect the rates of stress. Even after controlling for these variables, most measures of educational attainment strongly predict financial stress. For both men and women, predicted financial stress is substantially decreased by having a post-high school degree or higher. Furthermore, for females, predicted financial stress is significantly increased when they fail to complete year 10.

Figure 8. Share of individuals experiencing financial stress, defined as making ends meet or worse—Individuals aged between 25 and 55.



Source: Taking the Pulse of the Nation (TTPN) Survey.

Table 1.

Effect of individual characteristics on financial stress, Men.

	Estimated effect	Significance	Robust standard error
No employment	0.194	***	0.028
Part-time employment	0.098	**	0.036
Less than year 10	0.022		0.050
Some post-high school education	-0.070		0.039
Post-high school degree	-0.183	***	0.015
Post-university degree	-0.167	***	0.042
June to Dec. 2021	-0.054	*	0.023
Jan. to June 2022	-0.123	***	0.025
Urban area	0.002		0.029
Constant	0.737	***	0.041
Observations	2587		

Notes: Dependent variable equals one for individuals who financially are just making ends meet or worse and zero otherwise. Ordinary least square estimation includes statistical weights. Standard errors are clustered by state. *, ** and *** indicate statistical significance at 10, 5 and 1 percent confidence levels respectively. The reference category (constant) is for an individual with full-time employment, who completed year 10, who was interviewed from January 2021 to May 2021 and who lives in a rural area.

Table 2.

Effect of individual characteristics on financial stress, Women.

	Estimated effect	Significance	Robust standard error
No employment	0.227	***	0.021
Part-time employment	0.132	***	0.032
Less than Year 10	0.180	***	0.030
Some post-high school education	-0.036		0.035
Post-high school degree	-0.182	***	0.033
Post-university degree	-0.150	***	0.038
June to Dec. 2021	0.014		0.018
Jan. to June 2022	-0.090	***	0.035
Urban area	0.013		0.012
Constant	0.638	***	0.034
Observations	4037		

Notes: Dependent variable equals one for individuals who financially are just making ends meet or worse and zero otherwise. Ordinary least square estimation includes statistical weights. Standard errors are clustered by state. *, ** and *** indicate statistical significance at 10, 5 and 1 percent confidence levels respectively. The reference category (constant) is for an individual with full-time employment, who completed year 10, who was interviewed from January 2021 to May 2021 and who lives in a rural area.



WHICH FACTORS IMPAIR SUCCESSFUL TRANSITIONS AFTER HIGH SCHOOL?

The last section highlights that educational attainment and/or lack of pursuing vocational training is a contributing factor to higher unemployment rates and financial insecurity. This suggests that we should explore avenues for promoting high school completion and identify the challenges that disadvantaged students face. The reasons for higher NEET rates and lower incomes, however, are complex. What might explain the underlying issues that contribute to lower educational attainment and/or higher unemployment rates? In this section, we enumerate factors occurring during youth transitions that have been found to relate to unsuccessful transitions after school and discuss how they can be addressed.

Place-based disadvantage contributes to lower education and income as adults

Recent studies show that disadvantage is substantially place-based. Some Australian regions consistently rank among the highest in terms of poverty rates. For example, among communities that ranked in the highest poverty quintile in 2006, 62 percent remained in that position in 2016 (Payne and Samarage, 2020). More than half of those in poverty in the 2016 Census year were also in poverty in the previous or next Census year. Moreover, living in a region that experiences high poverty is associated with increased probabilities of remaining in poverty in the future (Ananyev et al., 2020).

Importantly, Deutscher (2020) provides evidence that the region in which a person grows up has long-term causal effects on education and income, and that this effect operates most strongly in teenage years. Many factors can explain these results, like the quality of schools and services, differences in the labour market, or the social networks of teenagers. In all cases, these differences imply unequal opportunities for young Australians depending on where they live.

It is crucial to keep track of factors affecting youth disadvantage separately across regions in Australia, as understanding which regions face which type of disadvantage is the first step to tackling place-based disadvantage. To ensure that some young Australians will not be penalised throughout their lives by the region in which they are born, we should closely monitor indicators of regional youth disadvantage and use these to guide our work on providing more equal opportunities across all regions.

Mental health disorders are highly prevalent in high schools and lower completion rates substantially

Adolescence and early adulthood are the most common periods for the emergence of many of the most common disorders, like anxiety, mood disorder, and substance abuse (McGorry et al., 2011). What is more, the prevalence of mental health issues is high among young Australians and is strongly associated with dropping out of school (Bowman et al., 2017; Butterworth and Leach, 2018).

Mental disorders can also be a consequence of living in a disadvantaged region or family. Johnson et al. (2019) show that living in poverty is associated with children's mental disorders, especially for males aged 12 to 17. As mental health problems are both a cause and a consequence of disadvantage, it is likely that they generate a vicious circle that perpetuates disadvantage within a person's life and within their family.

Schools can play a role in promoting better mental health through several types of interventions. In-school interventions around the world can be classified as (i) universal approaches, where teachers include mental health promotion in their curriculum, (ii) selective approaches, where schools hire mental health clinicians who target students at risk of developing mental illness, and (iii) pre-emptive approaches, where health clinicians target students who already exhibit clinical symptoms. In Australian schools, most mental health interventions fall under the universal approach, yet evidence suggests that this approach has little impact and that the other two approaches can be far more successful (Bowman et al., 2017).

Therefore, there is still room for promoting better student mental health in schools. This would require targeting places where mental health issues are important and where resources and services are lacking. Such lack of services can be an especially important problem in rural areas (Hayes et al., 2011), where youth mental health issues can be especially prevalent (Boyd et al., 2006). Making sure all young Australians who need such services can obtain them would be an important element in combating disadvantages that can impact transitions after school and in ensuring equal chances for all.

Early education disengagement and truancy lead to unsuccessful transitions

One important and measurable form of disadvantage is educational disadvantage. It is critical to target lower-performing students or those disengaged from education, as such disadvantage in high school can lead to later educational and economic hardship. Polidano et al. (2013) show that one of the most important predictors of the gap in secondary school completion rates between disadvantaged and non-disadvantaged regions in Australia is the former group's lower numeracy and test scores at age 15. Cardak and Ryan (2022) show that high school performance is the most important predictor of university enrolment for disadvantaged students, as being financially at risk or other disadvantage measures seem to play a lesser role.

There are growing concerns that the education system suits a certain group of students in terms of interest or personality but leaves out students who may become uninterested in schooling for reasons that may include teaching methods, community influences and household factors that can limit time spent on schooling. To combat disengagement, propositions to make secondary schooling more adaptable yet universally recognised are worth considering (see, for example, Milligan et al., 2022).

Vocational education in Australia (VET) has evolved such that students are offered a range of pathways for pursuing training and education opportunities. In many respects, the VET system complements what might be characterised as more general qualifications provided in high school. Polidano and Tabasso (2014) estimate the effects of VET with and without a workplace learning component in Australia and find that offering the former can improve high school completion and improve longer-term employment outcomes. Currently, young people are required to stay in high school until year 10 is completed. As demonstrated in other countries, as well as in longer-term employment outcomes, there are merits to completing high school to year 12. Importantly, this can be done with or without additional training or qualifications. It is worth further exploring the role that post-secondary institutions such as universities and those offering

vocational or hands-on training can play to encourage higher degree completion and to retain students in high school beyond year 10. It is essential that we monitor training opportunities or lack of opportunities across Australian regions and that we ensure that these opportunities are adequate considering the challenges faced by youth in each region.

Another obvious avenue for reducing education disengagement is to make it more difficult for students to leave school through regulation. Beatton et al. (2018) study the effect of the 'Earning or Learning' 2006 reform in Queensland. Before the reform, students were required either to complete year 10 or to reach the age of 16 before dropping out. Since the reform, students must either complete two additional years of activities considered 'earning or learning' after year 10 or reach the age of 17. They find that the reform effectively increased the rate of young people 'earning or learning'. It increased the probability of young people remaining in high school until year 11 or 12, which was partially counterbalanced by a decrease in employment caused by students choosing to remain in school. The reform also caused a significant decline in crime, suggesting that mandatory education can prevent transitions to criminal pathways. However, such reforms should be considered with caution. Beatton et al. (2022) show that the reform also resulted in higher violent school discipline sanctions at ages 16 to 17 (resulting from the change in composition of the student population).

Another indicator of educational disengagement is truancy, or problematic school absenteeism. Thus, a natural avenue for promoting better educational outcomes among teenagers is to implement interventions that can combat this problem. There are currently few studies analysing interventions related to these issues. An exception is Bennett et al. (2018), who analyse a randomised control trial conducted in some of the most disadvantaged areas in Queensland. The intervention implied a partnership between police and schools and targeted a sample of high-risk young people. While not measuring effects on educational outcomes, the authors find that the intervention successfully reduced offending. Thus, keeping track of school absenteeism and designing appropriate interventions may be worthwhile avenues.

Risky behaviour in high school predicts later life problems but interventions can help if well-targeted

Heavy alcohol and other drug consumption during teenage years can have long-lasting consequences. There is clear evidence that cannabis consumption during teenage years is strongly associated with dropping out of high school (Horwood et al., 2010). The association of consuming alcohol and dropping out of high school is less clear (see, for example, Sillins et al., 2015), but heavy alcohol abuse has been shown to have long-lasting consequences on delinquency later in life (Miller et al., 2016). It is thus important to keep track of the prevalence of such risky behaviours and to target young adolescents at risk to intervene when needed.

Intervention can be effective. Teesson et al. (2012) evaluate social learning-based interventions in Australian high schools. They show that several interventions successfully reduced alcohol and drug-related issues, although the effects are modest. Importantly, as for interventions focusing on mental health in Australia, all interventions covered by the study were universal, that is, conducted for all students regardless of their risk or behaviour. However, interventions have been shown to be most efficient when specifically targeted at high-risk individuals (Botvin, 2000). It is thus critical to keep track of which schools face alcohol and drugs issues to assess the need and guide the implementation of such interventions.

Another risky behaviour occurring in school is violence and bullying. Violence experienced during the teenage years can have long-lasting consequences. Moore et al. (2015) show that Australians who experienced aggression during adolescence are more likely to drop out of high school and more likely to become NEET. What is more, Najman et al. (2019) show that Australians who experienced aggression during adolescence have increased odds of adopting heavy drinking behaviour later in life.

Kelly et al. (2020) provide evidence that cognitive behavioural therapy interventions in Australian secondary schools can successfully reduce risks of bullying and harm, but only if interventions are targeted at high-risk students. This again underscores the need to target the appropriate high-risk groups to design effective intervention programs.



A MECHANISM FOR DEVELOPING COMMUNITY-BASED INITIATIVES TO BETTER SUPPORT YOUTH AND THEIR TRANSITION FROM HIGH SCHOOL

The previous section highlighted that the transition period after high school deserves substantial consideration from institutions or policy-makers seeking to promote equal chances for all Australians. It also discussed several measurable factors associated with unsuccessful transitions and underscored that policy interventions targeted at high-risk groups are most effective in combating disadvantage. Yet, it is currently difficult to keep track of youth disadvantage and risk factors that can impact transitions from high school in Australia. Few (if any) tools are specifically designed to provide us with timely information on emerging trends in youth disadvantage in high school and to analyse opportunities relevant for these groups.

For this reason, there is ongoing work at the Melbourne Institute to develop a set of data-driven tools—the Youth Indices of Disadvantage, Employment and Opportunities—to rigorously track and map (i) various measures of youth disadvantage, (ii) labour market needs relevant to disadvantaged youth following their transition from high school, and (iii) training opportunities (or lack of thereof) relevant to young adults. These tools will be based on numerous databases that provide information on these components and that we are gathering and mapping together within the Melbourne Institute Data Lab (MIDL). The tools will take the form of an online platform that will provide dashboards and indicators at the regional level to assess where different types of interventions are needed. Examples of questions our tools will answer are as follows:

1. In which regions do young adults face the most disadvantage?
2. Which forms of disadvantage are youths from a specific region facing? (For example, poverty, education attainment, mental health, employment opportunities after school.)
3. Does disadvantage arise from a lack of labour market opportunities in some regions? Or does it arise from a lack of training opportunities?
4. Should a policy intervention seeking to address youth disadvantage in a specific region focus on providing new training opportunities, promoting existing training opportunities, and/or providing information on employment opportunities, mental health in high school, etc.?
5. Have specific policy interventions succeeded in decreasing youth disadvantage?

Thus, our tools will provide timely information on factors related to youth disadvantage that can impact transitions after high school, as well as on the state of opportunities that can make successful transitions more likely. Figure 9 provides an overview of the indices and data tools we are constructing. The green circles represent categories of information that we are gathering for the Breaking Down Barriers Shared Data Environment at the Melbourne Institute. The orange rectangles represent outputs that will constitute the tools accessible to stakeholders through interactive visualisations and web-based platforms. The lighter green oval represents the underlying analysis that bridges different measures together. Finally, the purple domes represent dimensions on which users will be able to focus. For example, users will be able to analyse labour market needs in specific regions and for specific occupations and industries.

The ‘youth disadvantage dashboard’ will provide different measures of disadvantage specific to young adults. These will include statistics on economic poverty, housing, physical and mental health, education, training and employment. The dashboard makes possible presentation of statistics separately by region and according to selected demographic characteristics, like gender or native status.

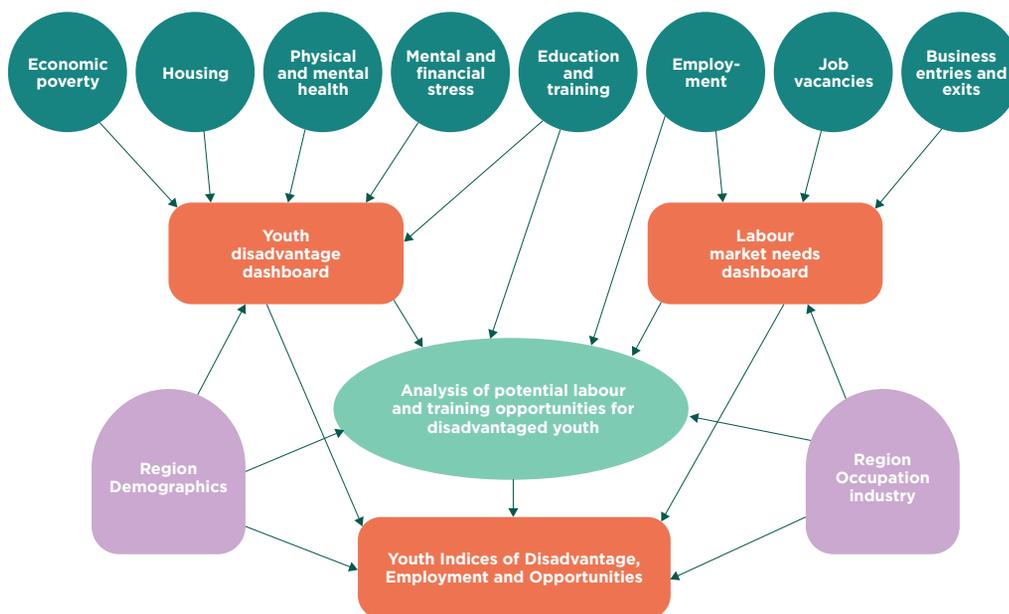
The ‘labour market need dashboard’ will use employment, job vacancies and business entries and exits to provide a picture of job opportunities by region, occupation and industry. It will make possible targeting of occupations or industries that face, or that are about to face, labour shortage challenges.

Combined, the information from the two dashboards discussed above will provide insights for promoting employment and training opportunities for disadvantaged young adults. This will be done by analysing potential matches between disadvantaged youth—as targeted by our youth disadvantage dashboard—and occupations in needs of labour—as targeted by our labour market needs dashboard. The feasibility of potential matches will be assessed using employment, unemployment, education, and training statistics, and will take into consideration the region, demographic, occupation, and industry dimensions.

This analysis will allow the creation of our Youth Indices of Disadvantage, Employment, and Opportunities. The indices will be built from three core components: 1) youth disadvantage statistics constructed from the youth disadvantage dashboard; 2) employment opportunities targeted by the labour market needs dashboard; and 3) measures of potential for policy intervention promoting employment for disadvantaged youth, constructed from our analysis of potential matches. Overall, the indices will provide a series of indicators to understand community-level disadvantage among young adults and the labour market opportunities that could be leveraged to promote employment in this population.

Figure 9.

Overview of the data tools for the Youth Indices of Disadvantage, Employment and Opportunities.



By identifying areas where specific forms of disadvantage occur, our tools will allow monitoring of (i) how educational transitions are progressing, (ii) which risk factors a region is facing, and (iii) which teenagers are susceptible to facing place-based disadvantage that can harm their transition.

These insights should prove useful to better target interventions that have been found to improve outcomes in Australia, like those seeking to address return to school for early school leavers (for example, Polidano et al., 2015), violence in high school (Kelly et al., 2020), alcohol and drugs problems (Teesson et al., 2012) or truancy (Bennett et al., 2018). However, our knowledge of which interventions are best suited to address different types of disadvantages is limited, and more evaluations of interventions are needed to understand what works. By measuring the evolution of various types of disadvantages specifically for young adults through time and across regions, our tools will be ideally suited to evaluate the effects of interventions on a variety of outcomes critical for successful transitions. Furthermore, the mapping of youth disadvantage measures to measures of employment and training opportunities will provide key insights for policy-makers seeking to ensure that opportunities exist where they are needed. This will provide guidance for the implementation of training programs that can favour successful transitions (for example, Polidano and Tabasso, 2014) where they are needed the most.

CONCLUSION

This chapter presented evidence that there is room for improvement in promoting successful transitions from high school to employment in Australia. Many Australian studies have identified a series of risk factors that relate to (un)successful transitions and have shown that interventions can be effective if targeted at the right students. For these reasons, we argue it is desirable to keep track of the different forms of youth disadvantage more rigorously across Australia to allow for well-targeted interventions. We must also make sure that labour and training opportunities exist for all Australians to ensure young adults can choose the best pathways for themselves and society. Our ongoing development of the Youth Indices of Disadvantage, Employment and Opportunities should serve this purpose well by allowing the targeting of specific types of disadvantages specifically for young adults and by allowing the assessment of the lack of employment or training opportunities across regions in Australia.

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Part 4

The Importance of Creating
and Building an Evidence Base

Chapter

8

Maximising
evidence-based
policy analysis
through data sharing

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Each policy or decision a government makes costs money and will impact individuals and communities. Over this century data have increased exponentially and techniques for handling big data sets have improved. And yet, many data sets remain locked up, unavailable, or only provided to a select few individuals. This chapter provides the argument for leaping forward with the provision of data to trusted analysts so that we can build a more effective and timely evidence base to inform policy and practice in Australia. Yet, this chapter also stresses the importance of *not* being reckless or cavalier. We present a framework for both addressing the sensitivity and privacy issues when working with data and for ensuring shared collaboration in the development and structuring of research-ready data sets. The recent passage of the *Data Availability and Transparency Act 2022* (DATA) by the Commonwealth government provides the impetus for state governments and private data providers to adopt the principles that underpin DATA and for the rapid deployment of platforms to make greater use of data.

INTRODUCTION

With modern technological advances in computing, data management and storage, and business practices in the age of the internet, there has been an exponential rise in the amount of data we collect.¹ These data capture our interactions and behaviours and help us to understand better business and service provider finances and activities as well as community and household activities. Much of the information collected for purposes other than for research is, indeed, very useful for social science research. This is particularly true of the public sector with activities such as tax filings, health information, schooling attendance and performance, social security payments, and government expenditures being routinely collected and stored as part of business-as-usual activities.

Data access is a key barrier to better evaluation of existing policies and policy innovation

Gaining access to administrative data for analysis is often challenging and usually involves many layers of bureaucracy. All levels of government capture and hold data for administrative purposes. These data usually cover very large, if not all, of the relevant population. By capturing information on a relevant population, one can more easily study large-scale questions that pertain to that population. The large scale of the analysis is important, both in terms of minimising the risk of obtaining biased results that can happen when one works with a small and non-random sample of the population, as well as in increasing the power of the estimations from the statistical analysis. Moreover, by gaining access to administrative data, one can reduce the cost of research that would be associated with having to collect the information through other means, for example, through surveys. In many cases, the measures from administrative data are more accurate than the same measure if collected through surveys. Finally, because the measures are often collected repeatedly with administrative data, it is much easier to explore behaviour and outcomes over several periods, making it easier to discern patterns of behaviour as well as to address concerns in any analysis where not all measures relevant for the analysis are available for study.

In some parts of the world, such as the Nordic countries, administrative data have been available to researchers for many years (Connelly et al., 2016). In Australia, access to and use of administrative datasets remain under-utilised but use and access has been increasing in recent years due to recent legislation and advocacy and promotion by key stakeholders. Local, state, and Commonwealth government departments hold an extensive number of longitudinal administrative datasets but a lack of relevant frameworks and governance over these data have led to Australian researchers having to look elsewhere to obtain the data they need to study policy (Productivity Commission, 2010).

A 2010 Productivity Commission report concluded that access to de-identified administrative data for public sector staff and researchers be prioritised (Productivity Commission, 2010). In 2015, the Australian Government Public Data Policy Statement released by the Prime Minister mandated that the Australian government commits to optimising the use and re-use of public data to drive innovation (Turnbull, 2015). This use and re-use of data from the public sector (and private sectors too) can generate direct, indirect, and induced impact to data providers, data users and the wider economy respectively. The OECD (2019) shows that data access and sharing can help generate social and economic benefits of up to 1.5 percent of GDP in the case of public sector data and up to 4 percent when including private sector data. This notion cements data as an infrastructural resource and an investment.

4%

Benefit to GDP by enabling access to and sharing public and private sector data.

OECD (2019)

The real shift in thinking around data in Australia, however, came from the Productivity Commission's Data Availability and Use Inquiry in 2016 (Productivity Commission, 2017). This inquiry identified a 'lack of trust by both data custodians and users in existing data access processes and protections' and recommended the creation of data sharing and release policies that subsequently became the *Data Availability and Transparency Act 2022* (Cth). In addition to this legal framework, advances in technical frameworks for data access, such as that evidenced by the increased availability of secure infrastructure (trusted research environments), are leading a wave of hope of increased research access to administrative data from public sector sources amongst researchers. This is great progress for Australian data custodians, researchers and the community who stand to benefit from better policies.

¹ It is estimated that the amount of data in the world will grow from 44 zettabytes (ZB), 44 sextillion bytes, in 2020 (WEF, 2020) to 175 ZB by 2025 (International Data Corporation, 2018).

WHERE TO FROM HERE?

Secure and open data platforms that work together to house and transform data, as well as provide the ability to analyse the data by researchers, policy analysts, and service providers, will support cutting-edge research and ensure Australia plays a role on the international stage. While some platforms exist, there is scope for creating specialised platforms and for providing the mechanisms that support the virtual linking across platforms to enhance data use and to enable deeper and more rigorous analyses of policy relevant questions. These platforms should build on the work by the Office of the National Data Commissioner and the principles (and regulations) captured under the *Data Availability and Transparency Act 2022*. Given the diversity of disciplines and the range of approaches available for data creation, use, and analysis, plus political and governance issues associated with many datasets, a single platform will not suffice. To recognise the potential for using data to promote policy innovation, many platforms will be needed. Collaboration across platforms, as well as the importance of promoting research independence and following a high standard of protocols that permit transparent and verifiable status of the platforms, are necessary components for enabling effective use of data.

The power of administrative data, whether from public or private sources, is that there are many questions that can be studied using a range of domain and disciplinary expertise. Data not developed for research, such as administrative data, must be assessed for quality and transformed for the purposes of the type of analyses that will be undertaken. These assessments and transformations will vary across disciplines given the types of questions studied and the frameworks for studying these questions vary across disciplines. There is value, however, in encouraging the development of platforms that permit and encourage the sharing of knowledge, especially in the use and transformation of administrative data.

We are living in exciting times in that there is greater recognition today of the importance of providing access to critical data that can be used to understand, to improve, and to shape policy and practice, and in developing frameworks and protocols for the housing, transformation, and sharing of data. Equally important are the mechanisms for updating and developing processes for continual updating and improvement of the data assets used for research, analysis, and evaluation.

The purpose of this chapter is to focus on the importance of making better use of administrative data to inform, test, and shape economic and social policy. This chapter aims to provide an argument for why administrative data represents a game changing innovation for undertaking evidence-based policy analysis. It also aims to provide a framework to ensure the appropriate use and analyses of data. We also discuss how recent technological advances such as the use of trusted data environments are making it easier to apply the learnings from data analysis to policy. Finally, we provide an overview of the pitfalls when working with administrative data.

DATA ARE A GAMECHANGER FOR INFORMING AND SHAPING POLICY

The role of administrative data for undertaking social science research

Administrative data bring several opportunities to social science research. This is evidenced by the large rise in its use in economics research. Einav and Levin (2014) find that 26 percent of papers using any form of data published in the *American Economic Review* used administrative data in 2014 compared to 4 percent in 2006. While survey and field experiments remain important today, this chapter focuses on the need to use administrative data both as a tool in the toolkit but also as a means to complement and to enhance the value of survey and field study data. Before proceeding further, it is important to describe what we mean by 'administrative data'. Here we provide (right) a description of administrative data, its structure, and potential issues.

One of the most important advantages of administrative data is the **low cost** for use in research as the data have been collected for other purposes. In comparison, statistical surveys and experiments are expensive to design, develop and implement. While the setup cost for collecting, validating, and transforming administrative data may be high, the running costs are lower (United Nations, 2011). Another advantage of administrative data for social science research is the frequency at which data can be produced, mainly due to the reduced cost and reduced response burden to respondents and data suppliers. This also means that the data can be regularly updated, sometimes continuously, resulting in excellent sources of longitudinal data often of the same unit of observation, that is, individuals, households, businesses and so on.

A significant advantage of administrative data sources is that coverage is significantly larger, with sample sizes much greater than social surveys. Administrative data sources often provide complete or near complete coverage of the target population whereas sample surveys can often only directly cover a smaller sample. While social surveys implement techniques such as oversampling (sometimes referred to as 'boosting'), they still may not support in-depth statistical analysis of specific sub-populations as is possible with administrative data (Connelly et al., 2016). Administrative data are also particularly useful for studying issues where there is an absence of survey data. For example, administrative data offer the opportunity to create cohorts of individuals to study time-varying changes or to study the effects of significant events on individuals when there was no primary data collection at the time. Administrative data tend to capture a potentially more representative population as the data may capture information on those who may not respond to surveys—a feature that is particularly important in the study of poverty and disadvantage.

Here are a few examples of existing research papers that utilise administrative data to explore a range of economic issues.

Chetty et al. (2014) use administrative tax records in the United States to study intergenerational earnings mobility. Using cohort analyses of comparing earnings data from tax records for both parents and their children in adulthood, they conclude that young people entering the work force today have the same chances of moving up the income distribution as children born in the 1970s.

What are administrative data?

Administrative data are defined as data which are derived from the operation of administrative systems and processes. Unlike survey data and experimental data, these data are not collected for research or aimed to address well defined hypotheses. As often is the case, no research input was provided for the design, structure and content that is to be collected. Administrative data are usually very large with large numbers of observations and variables but depending on the organisation particular care needs to be applied to determine the actual sample captured within the data. If the administration collecting the data is a public sector agency as is often the case, this may not be much of an issue as nearly the entire population of individuals may be interacting with these systems. Administrative data are usually messy and often require significant data management capability such as cleaning, organisation and profiling before further analysis can be conducted.

Ananyev et al. (2022) use a 17-year panel dataset comprised of administrative tax records in Australia to better understand who experiences major earnings shock during their working life and what we know about recovery of these shocks. This study permitted an understanding of how changes in the macro-economy affect shocks and recovery, how shocks and recovery vary across age groups, and how changes in family composition (getting married, having children) are correlated with these shocks and recoveries.

Deutscher (2020) also uses Australian tax data to measure the causal effect of neighbourhood location when growing up on adult income and other socio-demographic measures.

Zajac et al. (2021) use what is known as the Multi-Agency Data Integration Project (MADIP) from the Commonwealth government to explore labour market earnings of recent university graduates. They observe differences in earnings and earning trajectories based on the socio-economic background of the students studied.

With greater access comes greater insights

Access to administrative data is only the first step. These data could be instrumental in gaining better insights into a range of issues that affect Australians. Our society today has evolved where most economic and social policy challenges are complex. The complexity of these issues means that to undertake analyses to support policy innovation requires information that reflects many facets of a person, household or community. Below we provide two examples to illustrate how administrative data can support greater complex analyses.

EXAMPLE 1: UNDERSTANDING SCHOOL LEAVERS

Why do some students leave school before completing Year 10? In Australia, using 2016 Census data, analysis by Marchand and Payne (2022, Chapter 7 of this Compendium) illustrates that by the age of 24, close to 20 percent of the population has not completed Year 10. A typical student would complete Year 10 by the age of 16. Since 2010, the National Youth Participation Requirement expects that all youth will participate in schooling until they complete Year 10. What can we do to promote the achievement of this goal? Before we can answer this question, one would want to understand why students may leave school before Year 10.

With administrative data, we can collect information specific to the student, such as attendance rates, grade progression, and performance in school (on standardised tests and in the classroom). We can also capture information about the student's household, which can range from a better understanding of the family dynamics, including moving locations, household size, and other characteristics that can impact the living environment of the student. Further, we can capture information about the student's schooling environment and residential community. By observing the student and their environment over time, we can better assess the core factors that might impact the likelihood of leaving school early. And with close to the population of all students, we can better understand differences across specific geographies, the impact of service provision to support students who might be at risk for leaving school before year 10 and consider targeted approaches for achieving the goals of the National Youth Participation Requirements. By capturing geographies across Australia, we can better understand why interventions work in some areas but not others, allowing for both a general understanding of the issues associated with school completion as well as an exploration of how best to provide tailored but tested solutions across geographies.

EXAMPLE 2: BREAKING THE CYCLE OF DISADVANTAGE AND REDUCING INCOME POVERTY

Payne and Samarage (2020) and Ananyev et al. (2020) document that overall poverty rates in Australia have been relatively stagnant over the last decade and that there are many communities where poverty rates are alarmingly high. They also show that education and employment are highly correlated with exiting poverty. Vera-Toscano and Wilkins (2020, 2022) document that a young adult who experiences economic disadvantage as a child is more likely to experience poverty as an adult than a child who experiences no economic disadvantage growing up.

Encountering economic disadvantage and/or falling into poverty, however, is not simply tied to education and employment. As eloquently illustrated by Mallett and Cooney-O'Donogue (2019), income poverty can be accompanied by housing or food insecurity, being socially disconnected, not having good information about where to get help or what services are available, and much more. There are many economic and social drivers that can lead to falling into poverty, exacerbate one's circumstances or limit the ability to exit from poverty. There usually is no single silver bullet that will drive a big reduction in or prevent poverty. But there are multiple solutions that can support

the alleviation of poverty. Which solutions will work best will depend on the family circumstances, the economic conditions, and the community and social context of the areas in which a given family lives. Not too surprisingly, research illustrates that to tackle poverty we should look at the combination of economic, social, and psychological factors and how they relate to each other (see, for example, Bossuro et al., 2022).

The complexity of the factors that contribute to poverty as well as the opportunities and support that can be provided to support an exit out of poverty and/or to prevent an entry into poverty is an area of work that would benefit greatly from increased access to administrative data. Data at the individual or household level, as well as community-based measures, are available from many publicly run sources and can even include privately sourced data. Accessing data about education, employment, housing, social welfare, tax, and interactions (positive and negative) with a range of departments or service providers helps to address the complexity of the issues and to provide more targeted insights into the possible ways to address poverty as well as to provide better guidance on the factors that can contribute to a set of interventions being more successful than a second set of interventions.

The power of administrative data to complement and inform survey data collection and field studies

Administrative data provide a necessary and complementary component to other methods for collecting data and undertaking analyses. In many instances, the data can provide insights into policy issues on their own. Sometimes, however, the data can be complemented with publicly available information that can be coded into a dataset and added to the administrative data. For example, data on matters that relate to activities in a community such as plant opening/closings, bush fires/droughts/floods and pandemic lockdowns, as well as changes in policies and other factors, can assist in supporting analyses by including explanatory information that affects one set of communities but not another set of communities. These additional measures might also provide a context for exploring the effects of an event on a community or a given population.

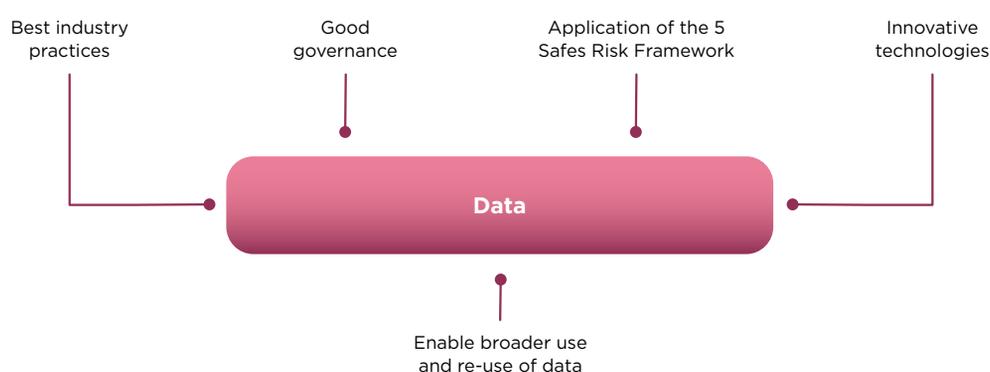
Administrative data, however, can also be used to enhance datasets that are generated through surveys. There are at least three ways in which administrative data can be used to support survey data collection and/or analysis. First, administrative data can be used to identify trends in behaviour, geographic areas of interest, and similar conditions. By undertaking analysis before survey development, the questions asked in the survey and the types of respondents pursued for the survey will be more refined than if one starts with a hypothesis and general knowledge of an issue that has not been tested. Second, if the survey dataset contains geographic and other demographic identifiers, then administrative data can be used to capture information about the geography (or population) under study that is not collected as part of the survey. Third, if permission is gained to link survey responses to administrative data, then the questions asked on the survey can focus more on matters that are not easily captured through administrative data. For example, in understanding poverty we might want to better understand the role played by being socially disconnected, the efforts undertaken to exit from poverty (for example, the types of jobs one has pursued, success in gaining interviews), as well as knowledge of the services available to support one's situation. Similarly, with survey data that are linked to administrative data, it is possible to make use of the survey data to explore backward-and forward-looking questions.

The opportunities for creating better field studies and randomised control trials would be increased if one had access to administrative data with measures that could affect decisions on the population to study and/or the types of experiments to run as part of the trial. Beyond the trial, administrative data can be used (if linked to the respondent and/or at least available with a relevant geographic identifier) to explore longer-term effects of interventions introduced through the trials. Administrative data could also be used to follow subjects who drop out of studies to better assess the potential biases introduced as a result of attrition in the original sample.

FRAMEWORK FOR ENSURING APPROPRIATE AND BROAD USE OF DATA

In this section we focus on providing a framework for maximising the value of administrative data for social science research. This framework focuses on: (1) appropriate governance; (2) the use of best practices for creating research-ready datasets; (3) the use of trusted research environments; and (4) the use of innovative technologies and practices from other research domains. Figure 1 outlines the framework.

Figure 1.
Framework for ensuring appropriate and broad use of data.



Good governance around ethical use of data

Administrative data often contain personal and sensitive information. Before any dataset is used, one must follow a set of practices that includes: (1) a consideration of ethical issues for using the data; (2) a structured approach that allows for the transformation of the data in a manner that permits the de-identification of records; (3) a governance and access process that minimises the risk of identification and/or release of the personal or sensitive information in a manner that would be harmful; (4) a consideration of where best to house data and the processes followed for accessing the data using a secure and protected environment; and (5) a development of practices and procedures for vetting analyses outside of any secure environment to ensure the information that is released cannot be used to re-identify the individuals used in the analysis. These practices illustrate the importance of developing frameworks to enable wider access to administrative data sources. These frameworks should cover multiple dimensions: legal; policy; organisation; and technical (United Nations, 2011).

Use of best practices

One of the best research practices to ensure the efficient use and re-use of administrative data is ensuring appropriate data quality. Administrative data can be messy and inaccurate. Information can be inputted incorrectly or not filled in at all (creating missing information). Moreover, the specific information collected and/or the process used for collecting the information can change over time. These changes can result in inconsistencies in the measures created. Thus, before any dataset is accessed, an assessment of the quality and consistency of the information collected is required. Failure to assess the data quality and understand the potential effects of data quality can lead to significant biases in the output. A crude but effective example of this could be an operational process where operators enter a zero to an income field within an organisational database when respondents have not provided a response. Failure to treat this variable to remove the zeros would lead to bias in the income distribution in the data used for analyses. As such, researchers often spend a large amount of time cleaning and understanding the data before the research analysis can commence. In some fields, such as data science, it is normal for researchers to spend up to 50 percent of their work time on cleaning and organising data (Anaconda, 2020) with some cases going as high as 80 percent (Lohr, 2014).

In instances where researchers use the same data asset across different institutions or sub-units within an organisation (or sometimes within the unit itself), researchers often perform the same processes to create a 'research-ready' dataset with no communication or sharing of information with other users of the same data.

There is currently no common understanding of what is defined as a 'research-ready dataset'. Work done by McGrath-Lone et al. (2022) involves a thematic analysis of relevant publications to define five broad characteristics of a research-ready dataset. These are data usability for research ('enhanced'), data accessibility ('access'), data comprehensiveness and ability to link to other data ('broad'), data transformation and quality checks ('curated'), and data documentation ('documentation'). Our experience and that collective captured in the 60 years of working with data at the Melbourne Institute, and more recently through data curation activities within the Melbourne Institute Data Lab, informs us that additional practices around data reproducibility and data profiling should be included when creating a research-ready dataset. Hence our description (right) of a research-ready dataset and its features that have positive impacts on social science research practice.

What is a 'research-ready' data set?

A 'research-ready' data set is a data set that has undergone a range of technical tasks such as data transformation, harmonisation, data cleaning and preparation; as well as standardisation and documentation. The aim of creating such a data set is to do sufficient processing of the data to reduce the technical burden on the researcher and make the data available for **broad research purposes**. Subsequently, more processing could be performed by experienced researchers in particular sub-themes of research to create an 'analysis-ready' data set that is aimed at **investigating specific research questions**.

A research-ready data asset should have the following features to be useful and have a meaningful impact on social science research practices:

- The data should be meaningful and usable for research and statistical purposes including standardisation to an appropriate format.
- The data should be accessible with relevant permissions to 're-use' data for research, and appropriate frameworks in place (such as the Five Safes frameworks) when determining access.
- The data should have sufficient robustness checks and data quality checks to ensure data transformations are accurate and correct.
- The data should be transformed to increase research potential such as through harmonisation or linked to a range of other data sources (using a linking key at a unit level or using another appropriate variable) to increase the value of the data.
- The data should include indicators or measures of relevance and new derived variables relevant to research.
- The data should be accompanied with information and documentation about all aspects of the data including data collection, sampling framework and representativeness, data profiling to understand the extent of missingness and its impact on the captured sample, data quality statements and information on variables and derived variables.
- The data should be accompanied by relevant programs, code or scripts that enable users to replicate its creation from the 'as provided' data by the data custodians. These programs and code should follow best programming and coding practices including appropriate naming of variables, use of appropriate programming constructs to minimise repetition of code and the use of appropriate comments and descriptions where applicable.

DATA PROFILING TO UNDERSTAND THE DATA

Having a standardised definition for a research-ready dataset enables researchers to have a sequence of steps to create research-ready data assets that maximise value for research.

These steps, highlighted in Table 1, start with the formulation of the research question for which the data will be used and proceed to data profiling. Data profiling is a key step to interrogate the data using a range of descriptive analyses to understand its sample, data quality and missingness. Understanding missingness, the occurrence of missing values in the data, is crucial as it directly impacts the sample captured in the data. Missing data may be random (no systematic differences between missing data and complete data) or not random, where subsequent analysis may be biased if not handled correctly. For example, if you are using administrative tax return data to study people entering into poverty, removal of non-complete longitudinal histories for people with low incomes would be detrimental to the overall research design.

Another crucial aspect of the second step is to open a dialogue with the data provider to understand other details that may not be fully captured in the data documentation. This includes data collection protocols and any changes to these during the time that data were captured, treatment of variables, data quality statements and so on. The final and most critical stage is ensuring that the whole process is documented through memos, analysis plans and analysis code (see below) that allows the researcher to replicate the process used to take the data 'as provided' by the data provider to the research-ready dataset.

INCREASING REPRODUCIBILITY OF THE DATA

Once the data have been cleaned and they have been made ready for research, there is often the need to replicate this process of data cleaning. Sometimes this may be to reproduce another version of the research-ready dataset with variations required for specific themes of research. Often this is simply another form of documentation to ensure efficient re-use of the data by someone who was not involved in the cleaning and transformation processes. This replication activity is usually done by sharing of analytical code, scripts or programs that replay a set of instructions that take the 'as provided' data from the data custodian to create the research-ready version of that same dataset.

This is a practice also increasingly followed by academic journals where researchers publish their data and code to increase scientific transparency, reproducibility and re-use of data. However, in practice, it is often easier to write new code than reuse old code. A recent study by Trisovic et al. (2022), which analysed over 9,000 unique R files to reproduce over 2,000 replication datasets, found that three of four files failed to complete without error on the first try. A little over half of the files still failed to complete after code cleaning techniques were applied. This highlights that there is a need for knowledge and practices that are commonly used in other fields such as the computer sciences to be effectively translated to research settings.

Table 1.

Framework for creating a 'research-ready' dataset.

<p>Formulate the question</p>	<p>The first step is to formulate the research theme and/or research questions for which these data would be used. These questions need to be broad as 'research-ready' data are intended for broad themes of research while 'analysis-ready' data are intended for focused questions within the research theme.</p> <p>Formulation of this theme will aid in focusing on the types of data or specific measurements required for research. This also aids in identifying the data assets that need to be sought out to support this research.</p>
<p>Understand the data</p>	<p>A very critical step is to understand the data. Some key questions that should be asked and answered are as follows.</p> <ul style="list-style-type: none"> • What measurements are captured? • How were the data collected? • How is the sample defined? • What additional measures are required or useful to collect? • What is the unit of observation? • Are there missing observations and/or measures? • Are measures consistently collected over time and/or are measures added or dropped over time? • How does having missing information affect my sample? <p>If we have repeated observations for the same individual (or relevant unit), do we observe consistent information for the non-time-varying information (for example, gender, birthdate), and can we make sense of the time-varying information or fill in missing information?</p> <p>Administrative data capture usually follows administrative procedures that may not place a high weight on data quality captured. For example, measures such as address may not be updated. This step is about opening a dialogue between the research team and the data provider to ensure all information relating to data collection (and any changes to procedures of data collection) are identified.</p>
<p>Process the data</p>	<p>Once a deep understanding of the dataset as it currently stands has been identified, the next step is to begin processing the data to create the research-ready data asset. The data may need to be transformed to a specific format, and data cleaning, imputation and derivation of new variables will need to be done to support analyses of the research question(s) identified earlier.</p>
<p>Documentation</p>	<p>While this step appears here in this table, it is a step that must start when starting step no. 1 above. All decisions and aspects of research-ready data creation must be documented to maximise their re-use by other researchers. Documentation also includes the code, programs and scripts used for its creation. Appropriate coding standards and practices, which include naming conventions, proper commenting practice and use of complex code structures to minimise code repetition, need to be followed.</p>

Use of trusted research environments

One of three reasons provided in a Productivity Commission report (2013) on why Australia lacks a culture of information sharing and data release is the protection of privacy. The other two are lack of data quality and concerns by governments about adverse findings on policy effectiveness. The security and confidentiality of individuals and businesses that interact with government systems is key to ensuring the public's trust in government to handle their data and subsequently use them for informing future policy. Opening data access to parties outside government, and in some cases other departments of government, increases the risks of disclosure.² In recent years, data providers have been more open to providing access to parties outside of government through the use of risk frameworks. One framework used in Australia is the Five Safes framework (Ritchie, 2008) used by several Australian government agencies, including the Australian Bureau of Statistics, as well as national statistical organisations overseas.

The Five Safes framework is applied across five distinct domains: projects, people, data, settings (what is determined to be the infrastructure used for data access) and outputs (from this infrastructure). These domains are usually applied in the following ways:

- **Safe Projects** Data applications undergo screening to ensure project goals and research purposes are aligned with the authorised purposes for data use.
- **Safe People** People who wish to access the sensitive data undergo appropriate vetting and training prior to being granted access.
- **Safe Data** Confidentiality of data units (that is, individuals, households, businesses, etc.) are protected through the use of statistical techniques such as de-identification, suppression, aggregation, top/bottom coding, random noise, etc.
- **Safe Settings** Security settings and controls in place for the environment used for data access and use are assessed to ensure they are appropriate.
- **Safe Outputs** Strict controls are enforced around which data (if any) and outputs derived from the data can be taken out of the safe setting (above). This includes the application of statistical disclosure control techniques to vet outputs before they are released to researchers.

One of the main drivers enabling data access is the security of the environment (safe settings) used for data access and use. Safe settings, together with the application of controls to minimise disclosure risk through the other four domains, ensure that researchers can access sensitive data in a way that no longer greatly limits the type or detail of data that researchers can access. Traditionally some of the requirements for these settings were achieved using physical purpose-built rooms where researchers used to access specific data and were unable to take any data outside these rooms. Today with advances in network infrastructure and cloud computing, a range of information security controls can be imposed on researcher environments and tailored at a user or project level.

There remain multiple instances, however, where data providers securely transfer and extract the data to individual researchers who are then responsible for their storage, analyses and destruction. But this responsibility is based on 'trust' and does not implement a safe environment framework. Such practices are costly and inefficient both to data custodians, as there is often a repetition of common tasks, and to researchers, who must adhere to technical and governance barriers imposed by data custodians. The secure and shared data environment model is a centralised approach that helps reduce these costs and inefficiencies.

In Australia, over the years, agencies that conduct data integration, Accredited Integration Authorities (or Accredited Data Service Providers under the new scheme outlined by the *Data Availability and Transparency Act 2022* (Cth)), conduct high-risk data integration activities using a range of data sources and have used secure data environments to provide access to researchers and policy-makers. The ABS DataLab is one example of a secure data environment run by the Australian government. There is an increasing use of secure data environments to broaden access to detailed and sensitive data in a safe and secure way (Department of the Prime Minister and Cabinet, 2021), especially from non-governmental organisations. One such environment is the Melbourne Institute Data Lab (MIDL), a protected-level environment that enables the housing, curation and analysis of sensitive data. This is an investment led by the Melbourne Institute because of the importance of being able to create 'shared' environments that allow authorised researchers to access information from different sources, additional information contained in research-ready data assets enabling faster and better analyses of data. These shared environments also provide the unique ability to bring in private sector and public sector data with the aim to answer multiple research questions under a singular research/policy theme.

At varying levels of security settings and certifications these environments provide a good coverage for a range of security requirements imposed by data custodians. But more work needs to be done in this space to move away from the 'one size fits all' mode of thinking to understanding that multiple secure environments provide an excellent platform to data custodians to share their data with a large group of researchers. Moreover, there is also a need for better communication and integration between these systems. The current infrastructure landscape for social science research is fragmented across multiple systems with different resources, user bases, standards and protocols. There is a gap in how these systems can communicate with each other and share sensitive data, which makes it easier for researchers to migrate systems to better suit their research needs. This is the primary focus of the Integrated Research Infrastructure for the Social Sciences (IRISS) project led by the Australian National University with participation by the Melbourne Institute, the Institute for Social Science Research at the University of Queensland and the Australian Urban Research Infrastructure Network.

² Disclosure, or breach of confidentiality, of an individual, a group of individuals or a business being re-identified through a data release.

Use of innovative tools

THE USE OF APPLICATION PROGRAM INTERFACES FOR DATA ACCESS

One technological feature that is seeing increasing use for data access is via application program interfaces, or APIs. APIs are commonplace in computer sciences, specifically in fields of web development for websites or social media sites to request and share data from other web sites. In social science research there is often a need to access data stored in a web page or a series of web pages. This could include names and locations of child-care services, information relating to COVID-19 policies as they came into effect, obtaining location data for businesses in a business register or accessing labour force statistics for a specific area in Australia. Traditionally this would have been done manually or through the use of web scraping, the process of using automated scripts to extract information and content from a web page. Nowadays, the use of APIs allows researchers to request the data they want from the website directly through programming languages of their choice and plug the result directly into their research analyses. This is an amazing achievement for data sharing in the social sciences, but more work needs to be done to better inform researchers about how to access and utilise these tools for research. Another avenue for APIs is enabling data re-use. At the completion of a project or report, researchers could provide an API that allows other researchers to request relevant data stored on a web server or secure cloud repository. This would be effective in cases where the dataset is complex and unstructured and quite large in size.

INTERACTIVE DATA VISUALISATION AS A TOOL TO BETTER ENGAGE POLICY-MAKERS

Over the last three decades data visualisation has made a significant impact on how we explore data and extract insights. Given the increasing complexity of data, as is the case with administrative data, data visualisations offer a more user-friendly way to communicate key findings or insights with a range of stakeholders. Its visual and engaging nature also caters to communicating with stakeholders such as policy-makers who may not hold specialist expertise to interpret a table, for example, one with coefficients from a regression model. Nowadays data visualisation has expanded further into multiple focus areas through the use of interactive dashboards, data discovery tools and interactive visualisations for visual 'story telling' of data-derived insights. These technologies have also been adapted to sharing insights on social science issues by news agencies,^{3,4} research organisations (Taylor, 2014),^{5,6} and government agencies.⁷ Interactive visualisation tools are engaging and can transform data into different visualisations with the click of a button. These tools make it easier for non-specialists to interact with the data and glean insights and trends in the underlying data at their own pace or interest. Due to privacy constraints, most visualisations use publicly available data or 'safe data' that have been vetted out of secure data environments. Most of the time this would mean data used are aggregated to some extent, limiting the level of data exploration possible with the flick of a finger. There needs to be more work in how technical controls can be used to make possible interactive visualisations that work for data held in secure data environments without impacting privacy and confidentiality. These methods can ensure we can move from data visualisations that are used to inform on today's story, to visualisations that are regularly updated to evolve with new incoming data as they are available.



³ 'Income mobility charts for girls, Asian-Americans and other groups. Or make your own', New York Times, 2018

⁴ 'Australian Census Explorer', SBS, 2022

⁵ 'Debt in America, An Interactive Map', The Urban Institute, 2022 <<https://apps.urban.org/features/debt-interactive-map/?type=overall&variable=totcoll>>

⁶ 'Breaking Down Barriers Data Visualisations', Melbourne Institute: Applied Economic & Social Research, 2022 <<https://melbourneinstitute.unimelb.edu.au/research/reports/breaking-down-barriers/data-visualisations>>

⁷ 'Specialist homelessness services annual report, 2019-20', Australian Institute of Health and Welfare, 2020 <<https://www.aihw.gov.au/reports/homelessness-services/specialist-homelessness-services-annual-report/interactive-data-visualisation>>

CHALLENGES WHEN WORKING WITH ADMINISTRATIVE DATA

Issues with access

One of the first issues with the use of administrative data for research purposes is ethics. Administrative data are not primarily collected for research purposes and, as a result, the public may have issues over their use and linkage to other administrative data sources. Currently this is managed through frameworks such as the Five Safes framework that ensures data are de-identified before release, the use of additional training and vetting before granting access, accessing data from a secure setting where access is controlled and monitored and having various output vetting processes in place. However, due to this nature of the data, access is still an issue. This is the case when requiring access to data from the Australian government while not in Australia. In most secure data environments, access to projects by existing, already authorised users, is not possible. This is particularly problematic in cases where academics are travelling or for affiliated academics overseas who want to study Australian economic and social policies.

Other issues with data access relate to the time and effort required to get access to administrative data. Time spent applying for access and undertaking training limit the time researchers have to do exploratory analysis. Access through secure data environments also greatly limits the possibilities for other researchers who do not have access to the same data to replicate results. Connelly et al. (2016) argue that making data analysis code and documentation accessible would allow researchers to examine research practices and build on existing work in the future.

Issues with data quality

As noted above, administrative data are often less systematic and require more data management to create research-ready data assets in contrast to traditional types of social science data. Administrative data may have large numbers of repeated observations based on how individuals or businesses interact with the administrative organisation. Administrative data may also have a large number of missing values based on the data collection procedures in place at the time. There may also be limited or no information about how data collection procedures and staffing change over time. Administrative systems may have variations in these aspects unlike that found with primary collected data where a team of interviewers undergo training and perform the data collection in a specific time-frame. These differences

ultimately lead to lower data quality in contrast to primary collected data. It is generally accepted that data captured through surveys have a range of sources of errors, including measurement error, processing error, coverage error, sampling error and nonresponse error (Groves and Lyberg, 2010). Groen (2012) shows that administrative data may also contain measurement error arising mainly due to reporting differences. For example, the value that a respondent writes down as income for a social survey is different from that which they provide for tax purposes. While the latter seems more accurate, the reporting difference arises from the timing of the data collection. The survey may be collecting data monthly while the tax office collects data annually resulting in a seam effect where variations are larger in the administrative data over the survey data.

There are instances where data providers see the value in the data they capture for research purposes. In these instances, they often invest internally to curate and improve the data quality prior to release to researchers. With increasing budget and time constraints, however, the line item for data production for research purposes, especially when it is outside the remit of the organisation, may be the first to go. There needs to be a significant contribution of time and resources, including analysts with specialist technical expertise to understand, cleaning and curating data for research use. Often these data skills are not taught to social scientists in any depth, but a range of programs are available for data scientists. As Einav and Levin (2013) point out, often when companies are hiring for 'data scientists' to undertake such activities, they are generally looking for people trained in computer science rather than econometrics. For future economists who wish to work with large-scale administrative datasets, it is recommended to acquire some new skills in tools used by computer scientists, such as R, Python and SQL for conducting analyses, as well as some specific skills in efficient memory management such as compression, chunking and indexing. A key takeaway for budding social scientists (and data scientists) when working with administrative data should be to learn the concepts of data preparation but understand and assess the effects to the sample when conducting these steps. Administrative data have large numbers of observations making statistical significance less relevant, but economic theory needs to be applied to formulate the research question, hypotheses and to apply reasoning for understanding attitudes and behaviours.

Issues with documentation

There is often a lack of clear documentation accompanying administrative data. As administrative data are often captured through business-as-usual activity, there are no clear descriptions, data quality statements, and metadata that form the underlying data documentation. This is not the case with primary data sources where there is a wealth of data documentation provided by the data collector and the data production team. Data collection processes, including questionnaires in the case of surveys, are described in great detail for social scientists to understand the implications of the measures that are captured. With administrative data, there is often limited or no documentation on the data collection/generation process. Additional effort is required by researchers to understand this process and its implications for the measures captured by the data. Often with administrative data, researchers begin projects without full knowledge of the data. This is the main reason why investment in creating research-ready data and documentation for reuse, and enabling the sharing of data, analytical code, and documentation with other researchers through shared data environments, will have dramatic returns for social science research practices in the future.

CONCLUSIONS

From a policy evaluation and innovation perspective, we should increasingly demand the building of a relevant evidence base to inform and test ideas. Like many countries, Australia has public and private data holdings that could be used to achieve deeper and more rigorous insights.

Critical to the building of the evidence base are the following components:

- Making it easier to access data by trusted users, such as has been articulated in the *Data Availability and Transparency Act 2022* (Cth).
- Encouraging best practices to understand, document and transform administrative data into research-ready datasets.
- Promoting and enabling stronger collaboration across research teams and organisations, especially to enable easier data access and better development of research-ready datasets.
- Building an eco-system of trusted data platforms where each platform provides unique and important capabilities given the diversity of disciplines and issues for which the same datasets can be used but also permitting the platforms to coordinate and collaborate with each other.
- Ensuring relevant infrastructures are in place to provide a high standard of expectations that relate to data governance, legal agreements and data access and use to address concerns that relate specifically to the sensitivities and ownership of the data that can be used for research and policy analysis.

We have seen over the past decade many inroads for better and more effective use of data and the building of evidence to help us to address the complex issues faced by Australia (and the world). But much more progress is needed.



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Part 4

The Importance of Creating and Building an Evidence Base

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Chapter

9

How much evidence
is in Australia's
evidence-based policy?
The case of expanding
early childhood
education

—

Professor Marco Castillo & Professor Ragan Petrie



The Australian government invests billions of dollars in programs to help various populations increase their economic prosperity. How much evidence is behind the benefit-cost of these programs? Using data on the population of Australian children, we show that increased preschool enrolment during the expansion of funded preschool for four-year-olds is associated with no, or negative, effects on measures of school readiness. These findings are worrisome and highlight the urgency of rethinking the process of moving forward with large-scale policies to improve child outcomes in the absence of rigorous causal evidence of effectiveness.

POLICY RELEVANCE FOR AUSTRALIA

Every policy brief arguing for expansion of early childhood education cites the enormous and consistent returns from the Perry Preschool Project (see Elango et al., 2015, for a review). Australia is no exception (Fox and Geddes, 2016; The Front Project, 2019; Nous Group, 2020). Perry Preschool was a randomised controlled trial (RCT) that provided high-quality preschool education to a small sample of low-income children in the early 1960s. RCTs are considered the gold standard for policy evaluation because they provide direct, causal evidence of the effectiveness of a policy. While the returns to Perry are impressive, comparable to that of the stock market (Garcia et al., 2021), it remains unclear how generalisable these returns are to other contexts and populations.

The returns from Perry have been heralded as justification for country-wide, universally funded preschool, even though there has been no RCT measuring the returns to such a far-reaching policy.² Indeed, the existing evidence on returns from preschool programs are most remarkable for disadvantaged children (Cascio, 2021; Elango et al., 2015), suggesting that returns would not be uniform across all children and might not merit the cost of a universally funded program. The expansion of child care in Canada showed the overall effect was negative in the short and long term (Baker et al., 2008, 2019).

Not all eligible children for preschool end up enrolling, even in funded programs. In the United States, enrolment in the two major universal state preschool programs in Georgia and Oklahoma was 59 percent and 74 percent, respectively (Cascio and Schanzenbach, 2013). In Australia, low-income families are less likely to have their child enrolled in preschool for four-year-olds compared to higher-income families (80 percent for those earning A\$26,000/year versus 90 percent for those earning A\$52,000/year).³ Evidence from the roll-out of universal preschool in Germany suggests that the children who would benefit the most from going to preschool are the least likely to attend (Cornelissen et al., 2018).

Australia expanded funded preschool to four-year-olds in 2008, and the state of Victoria is currently rolling out funded preschool to three-year-olds under the argument that 'two years are better than one' (Fox and Geddes, 2016, p.5). Recently, New South Wales (NSW) and Victoria announced funded preschool would extend to 30 hours a week (from the current 15) for four-year-olds (Kolovos, 2022). Over A\$9 billion is committed over the next decade in Victoria for early childhood education, and NSW has committed A\$5.8 billion to expand four-year-old education.

The status quo in Australia is to conduct ex-ante and ex-post policy evaluation that relies on statistical methods. These methods are not designed to provide actual, causal evidence of a program's effectiveness, but rather are an approach to deal with non-experimental data. Causal evidence of the effectiveness of policies could be achieved via small-scale pilots and RCTs conducted prior to implementing large-scale policy changes, with careful attention paid to the viability of scaling up to the population (see List, 2022, for an excellent discussion of the challenges to scaling). Alternatively, estimates of the returns to a policy at scale can be obtained, under some assumptions, if rich individual-level, linked data measuring inputs and outputs are available.

It may be premature to implement such large-scale, funded preschool programs in Australia. The evidence to date on the potential effects of funded preschool of four-year-olds is based on statistical methods using data from the representative sample of children in the Longitudinal Study of Australian Children (Warren and Haisken-DeNew, 2013).⁴ These analyses rely on matching methods. The underlying assumption is that children with the same observable characteristics, that is, age, gender, household income, etc., can be matched and those who went to preschool can be compared to those who did not to estimate the effects of preschool on educational outcomes. This would work as long as no other relevant factors that might explain school readiness are left out. If there are other important factors that are not measured, that is, parental motivation for their child to succeed, and parental investments in their child and home environment, then results from these analyses will be misleading.

To our knowledge, no randomised evaluation or roll-out of these universal preschool programs has been done or is planned. The case for universally funded preschool in Australia is in need of further study. We offer a population-level analysis of preschool expansion on measures of child development. Our findings show no, or negative, effects of preschool on the outcomes of Australian children.

² There have been US state-level RCTs on universal preschool, but nothing at a country level (Cascio and Schanzenbach, 2013). See also Gray-Lobe et al. (2021) for a recent evaluation of universal preschool in Boston, United States.

³ Authors' estimations are based on Australian Bureau of Statistics (ABS) Census data.

⁴ A cost-benefit analysis of the returns to preschool (The Front Project, 2019) uses three studies, including Warren and Haisken-DeNew (2008), Magnuson and Duncan (2013) and Centre for Education Statistics and Evaluation Department of Education (2017). The assumed effect size of preschool on schooling outcomes (0.17 SD) is relatively optimistic if we consider that the effect size for Head Start is 0.37 SD for disadvantaged families that would have not attended pre-school and zero for households with access to alternative options (see Kline and Walters, 2016). Our approach of using population data, and no assumptions on matching individuals on observables, provides an accurate picture of the effects of increasing preschool enrolment on school readiness of the population of Australian children at the level of a local government area (LGA).

FRAMING THE ISSUE

Without data from a RCT that encourages some children to attend preschool more than others, our analysis uses currently available data on the population of Australian children to assess if an increase in enrolment in four-year-old preschool is associated with a change in school outcomes. We note this is not causal but has the advantage that it illustrates associations at the population level for children who did and did not attend preschool and controls for differences across regions.

To set the stage for the analysis, consider the thought experiment in which two identical communities, that is, LGAs,⁵ experience different growths in preschool enrolment. If preschool has a positive effect on child development, we expect that the community with more children attending preschool will have better child development outcomes. Of course, no two communities are identical. The best we can do is to verify that those communities that increase enrolment in preschool relatively more also present relatively greater increases in measures of child development of the population of children in the community.

Before we continue, though, we should consider how an expansion of funded preschool might yield different returns on child development depending on the background of the children brought in by the policy. Consider one scenario where children already enrolled in preschool might be there because parents recognise some difficulties that have to be amended. If this is the case, new children encouraged to enter preschool because of the policy might be better prepared for school already and would likely benefit less from preschool than those already enrolled. In this scenario, preschool enrolment increases, but there is no effect on average child development at school entry of the population.

In another scenario, children already enrolled in preschool might be there because parents from more advantaged families have enrolled them to free up their time so they can work. These children are likely to be better prepared for school anyway since their parents have resources to provide a richer household environment. If this is the case, children who enter preschool because of the policy might be ex ante worse prepared for school and benefit most from attending preschool. In this scenario, preschool enrolment increases, and if preschool helps these new entrants, child development measures at school entry would improve. However, if preschool does not help these new entrants, no improvement would be seen in child development at school entry.

These simple arguments illustrate that if we only look at the outcomes of children who attended preschool, and not the entire population of children, we will likely have results that do not measure the effect of preschool itself on child development. Worse yet, we won't be able to determine the direction of the bias. To assess the effect of the increase in preschool enrolment on child development, we need measures of child development for children who attended preschool and who did not attend preschool. By measuring the development of all children in the population, we can then assess if increased preschool enrolment leads to better or worse outcomes in the population of children entering school. This assumes that the overall change in child development is due only to those entering the preschool system.

It is not clear what effect an increase in preschool enrolment might have on child development at school entry. It is possible to see worse outcomes if, for instance, an increase in preschool enrolment leads to a deterioration in the quality of preschool overall. In this case, both children who enter because of the policy and children who would have attended preschool anyway will be worse off.

Our analysis allows us to determine the relationship between an increase in preschool enrolment in a LGA and child development in the LGA for the population of Australian children. If we observe that increasing preschool enrolment is associated with no change in child development, this means that having more children in preschool did not improve the development of Australian children.

As we show in the next section, Australia has population-level data that allow us to assess whether more preschool is associated with better or worse school outcomes.

⁵ LGAs are used as the unit of observation in our analysis because both ABS Census data and the Australian Early Development Census are aggregated into LGAs and can therefore be matched. LGAs are an ABS Mesh Block approximation of gazetted local government boundaries as defined by each state and territory. As of 2022, there are 566 LGAs covering the whole of Australia, including unincorporated areas, without gaps or overlaps.

DATA CONSTRUCTION

We take advantage of two high-quality sources of information. The Australian Census of the population of 2011, 2016 and 2021, and the Australian Early Development Census (AEDC) of 2012, 2015, 2018 and 2021.⁶ The most disaggregated level at which the data are available from both sources, and then can be matched, is at the LGA level. The results reported use the LGA as the unit of observation. The Census reports enrolment in preschool by LGAs for different age groups. The AEDC evaluates all children entering school on a series of measures of child development to assess school readiness. Combining these two datasets therefore gives us the possibility to assess changes in school readiness and changes in preschool enrolment at the population level.

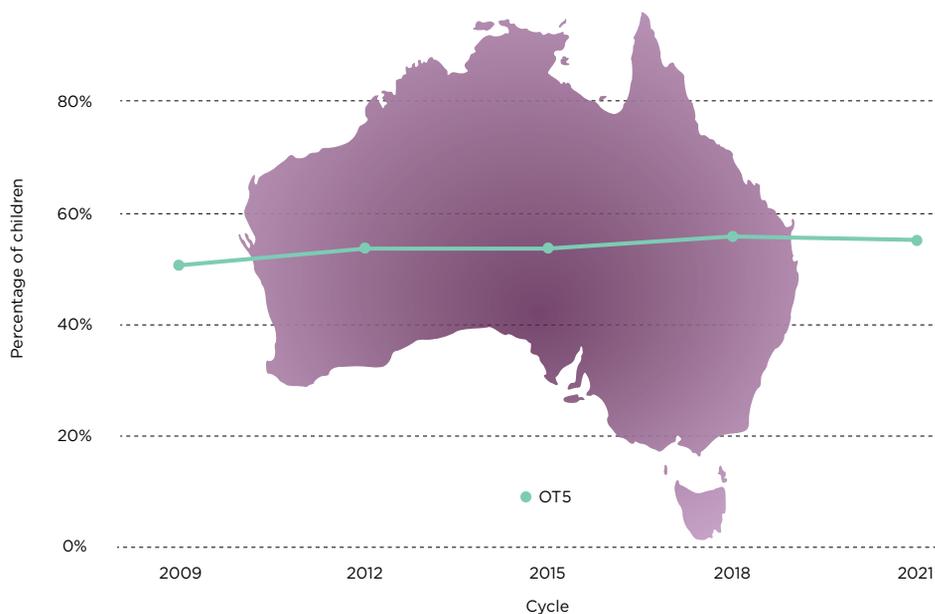
The AEDC data

The Department of Education describes the AEDC as follows:⁷

“The AEDC is a national assessment conducted every 3 years to examine how children have developed by the time they start school. The AEDC highlights what is working well and what needs to be improved or developed to support children and families. The AEDC was first conducted nationally in 2009. Around 300,000 children have been included in each collection of the AEDC, totalling around 1.5 million children. Data is collected by teachers of children in their first year of school. Teachers respond to around 100 questions that measure early childhood development across 5 key areas known as domains. Children are allocated a score against the domains to determine whether they are developmentally on track, at risk or vulnerable.”

The five AEDC domains are physical health and wellbeing, social competence, emotional maturity, language and cognitive skills (school-based), and communication skills and general knowledge. The most recent AEDC data collection was undertaken between May and July 2021. Nationally, data were collected on over 305,000 children in their first year of full-time school and from approximately 7,500 primary schools. At a national level, Figure 1 shows that the percentage of children who were on track on all five domains has remained mainly flat over the past 12 years and decreased from 55.4 percent in 2018 to 54.8 percent in 2021. Results from the AEDC also show a slight increase in the proportion of children who are developmentally vulnerable. Children assessed as developmentally vulnerable on one or more domains increased from 21.7 percent in 2018 to 22 percent in 2021. Children assessed as developmentally vulnerable on two or more domains also increased from 11 percent in 2018 to 11.4 percent in 2021.⁸

Figure 1.
Percentage of Australian children on track on all five AEDC domains.



Source: AEDC data from Data Explorer: <https://www.aedc.gov.au/early-childhood/findings-from-the-aedc>

⁶ We do not use the 2009 AEDC data because we could not access Census data for 2006.

⁷ <https://www.aedc.gov.au/about-the-aedc>

⁸ <https://www.aedc.gov.au/about-the-aedc>

The Census data

Using the preschool enrolment data from the Census, we are able to match 546 LGAs, out of 562 LGAs in the country, to the AEDC data. After accounting for additional data loss across years, we use 493 LGAs in our final analysis.⁹

DESCRIPTION OF THE ESTIMATION APPROACH

To estimate the relationship between enrolment in preschool and child development we constructed a dataset that includes the outcomes for each AEDC indicator by LGA. We added to that dataset the best approximation of the number of children who attended preschool in the year prior to the AEDC. We did this by calculating the proportion of children aged between three and four whose parent(s) reported the child attending a preschool in the Census data. Since the Census takes place in different years than the AEDC, we used simple extrapolation to approximate the proportion of children attending preschool in each year.

We rely on Census data for two main reasons. First, answering the Census survey is mandatory and therefore less likely to suffer from underreporting. Second, answers from the Census data are less likely to be biased due to changes in reporting policy. The ABS has improved annual reporting of preschool enrolment by service providers since 2016.¹⁰ Using these latter data would likely overestimate the changes in attendance due to increased effort in collecting data. Parents reporting to the Census are less likely to be affected by these changes in policy.

A simple correlation between the AEDC results from a LGA for a given year and enrolment in preschool from the Census data for the previous year is likely to produce uninformative results. For instance, more advantaged LGAs will likely have higher enrolment levels and better AEDC outcomes even if preschool is ineffective. This is because more advantaged LGAs attract populations with better resources to provide a rich home environment for children. To avoid this issue, our analysis uses changes in enrolment and changes in AEDC results. Changes remove factors that might exist in some areas but not others. Our analysis then focuses on the outcomes of those entering or exiting the preschool market. These children face the same local conditions as those already enrolled in preschool and enable us to better detect a relationship that is not spurious due to unaccounted for factors.

LIMITATIONS OF OUR ANALYSIS

The main limitation of the current analysis is that it is based on non-experimental, observational data. The data are not generated from a RCT or other exogenous changes in preschool enrolment. This means that we cannot disentangle the effects of increased enrolment from other factors that might be influencing outcomes at the same time. For instance, we do not know if LGAs that increased enrolment faced events that coincided with these changes, or lack of changes, in school readiness. There is no way to know if such events might explain what we observe, given the data that are currently available.

The second limitation of the current analysis is the inability to determine potential mechanisms behind the reported results. This is due to a lack of data. For instance, we do not have a way to determine if the increase in enrolment is concomitant with a decrease in the quality of preschool. At the time of writing, we are unable to access data on the average quality of preschools over time. This could be a mediating factor that would explain the associated null or negative effects of preschool enrolment and child development indicators. Having access to these data, as well as unit-level data on the child, would help to determine what is driving our results at the population level.

⁹ Some LGAs could not be matched because the LGA was split or combined with another LGA. The final analysis is conducted on data from 493 LGAs. Data loss is due to no reported AEDC data for that LGA. The AEDC does not report data for a LGA if fewer than 15 children had valid AEDC scores, less than two teachers had completed instruments for children in that location, or instruments were completed for less than 80 percent of all non-special-needs children.

¹⁰ The ABS collects data yearly on preschool education from centres for the National Early Childhood Education and Care Collection, <https://www.abs.gov.au/statistics/people/education/preschool-education-australia/latest-release>.

ANALYSIS AND KEY INSIGHTS

Figure 2 presents the relationship between preschool enrolment the year prior and AEDC school readiness measures. This is estimated from regression analysis.¹¹ These results are based on the 493 LGAs we were able to match across the Census years. The figure reports the effect of a 10-percentage-point increase in preschool enrolment on AEDC measures of child development. The first five items listed along the x-axis are the disaggregated AEDC measures of health, social, emotional, language and communication factors. The last two are the percentages of children with no vulnerabilities or at most one vulnerability. The dots represent the change in the measure for a 10-percentage-point increase in enrolment. The maroon horizontal line represents no change in the measure.

How do we interpret these results? Figure 2 shows that a 10-percentage-point increase in preschool enrolment is associated with a half-a-percentage-point decrease in the proportion of children on track on the health domain of the AEDC. Similarly, a 10-percentage-point increase in preschool enrolment is associated with roughly a half-a-percentage-point decrease in the proportion of children on track in any of the AEDC domains. In other words, these effects are too large to be just due to chance. The bars attached to each estimate tell us if these effects are large enough to be considered significant. The figure shows that these estimates have a 10 percent chance of being observed if enrolment actually did not have an effect on AEDC outcomes. In other words, these effects are too large to be just due to chance. The last two columns show the results regarding the proportion of children with no vulnerabilities and at most one vulnerability. The estimates also show a negative relationship between preschool enrolment and AEDC outcomes; however, these estimates are noisy and not statistically significant.¹²

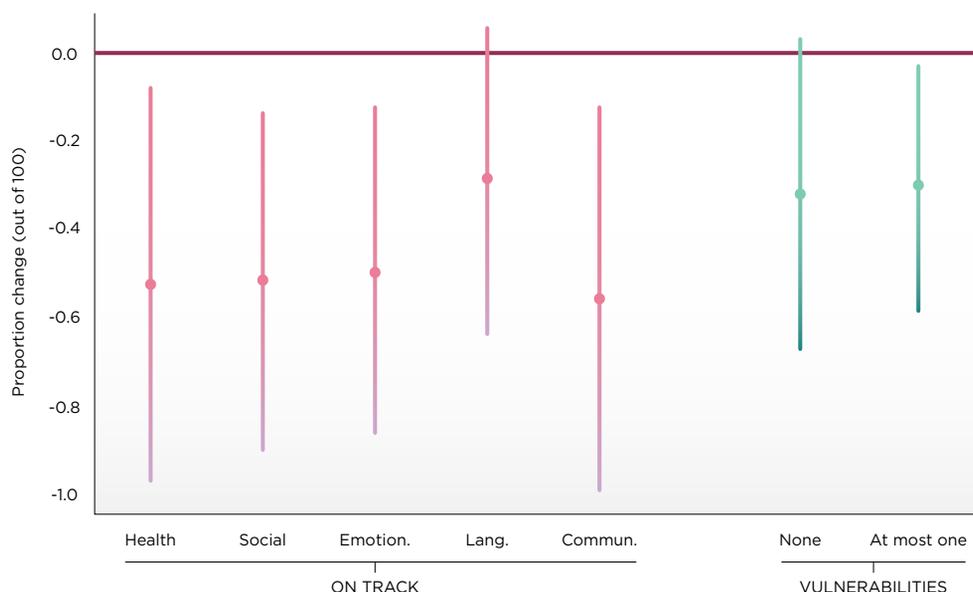
To put these results in perspective, in 2021, 54.8 percent of children were on track in all five domains, that is, presented no vulnerabilities, according to the AEDC. If a LGA increased preschool enrolment by 20 percentage points, the percentage of children with no vulnerabilities would decline by 0.7 of a percentage point to 54.1 percent. While the change in the percentage of children presenting no vulnerabilities may not have moved by much, it still represents a negative, or null, change in child development. This is from the expansion of a program that costs billions of dollars and is designed to yield better school readiness outcomes for children.

Thus, in the Australian population, an increase in preschool enrolment in the previous year is associated with a decrease in all five school readiness indicators.

Figure 2 shows that LGAs with relatively higher growth in preschool enrolment are faring worse than areas with slower growth. Before we discuss these results further, it is important to note that these results cannot be attributed to a compositional change in children responding to the AEDC because the AEDC is a population census. Nor is it due to only having measures of child development from children enrolled in preschool. The analysis looks at the population of children entering primary school, so we observe measures of child development for those who went to preschool and those who did not. The results show that the outcomes of the average child in a LGA, not the outcomes of the marginal entering child, are relatively worse as preschool enrolment increases. These results are therefore concerning for both Australian children and the cost-effectiveness of preschool expansion.

One might be concerned that some effects of preschool might be delayed or that the AEDC is not sensitive enough to capture developmental changes. We find no evidence to suggest this is the case. We also looked at educational outcomes further in the future, after initial school enrolment. For instance, increases in preschool enrolment in previous years have no effect on year 3 Naplan scores.

Figure 2. Relationship between preschool enrolment and school readiness indicators.



Notes: Each dot represents the average proportional change in each AEDC measure, no vulnerabilities and at most one vulnerability for a 10 percentage-point increase in preschool enrolment. The lines around the average represent standard errors. The maroon horizontal line represents no effect.

¹¹ Specifically, we use ordinary least squares regressions to regress the outcome of interest, that is, an indicator of being on track for each of the five indicators and being on track for two, on lagged preschool enrolment in the year prior and dummy variables for each LGA and each year the data are available.

¹² Estimates weighted by the population in the LGA show similar trends. The effects on all five indicators and on vulnerabilities show no significant effect of an increase in preschool on the school readiness of Australian children.

¹³ <https://www.aedc.gov.au/early-childhood/findings-from-the-aedc>

Relating these results to previous research on the impact of early childhood education on childhood development, we can suggest some potential hypotheses for these findings. It is possible that children entering preschool would have been better off either staying at home or attending day care. This is consistent with the evidence that the returns to preschool are not universally positive as shown by research on the expansion of preschool in Germany (Cornelissen et al., 2018) and Canada (Baker et al., 2008, 2019). Another possibility is that the expansion of preschool is accompanied by a decrease in quality. This can happen if new preschools are of lower quality or new teachers are less prepared. In this case, even if children would benefit from preschool, the lower quality of services might lead to a decrease in AEDC outcomes.

Are the negative or null effects of preschool on school readiness indicators evident in all LGAs? The analysis presented so far looks at results over all LGAs in Australia. It is possible that some states have been able to increase the supply of preschool without loss of quality. To get a sense of regional differences, we split LGAs between those in Victoria and NSW and those not in these two states. Figure 3 reports these results. We see a clear difference between preschool enrolment and child development by region.

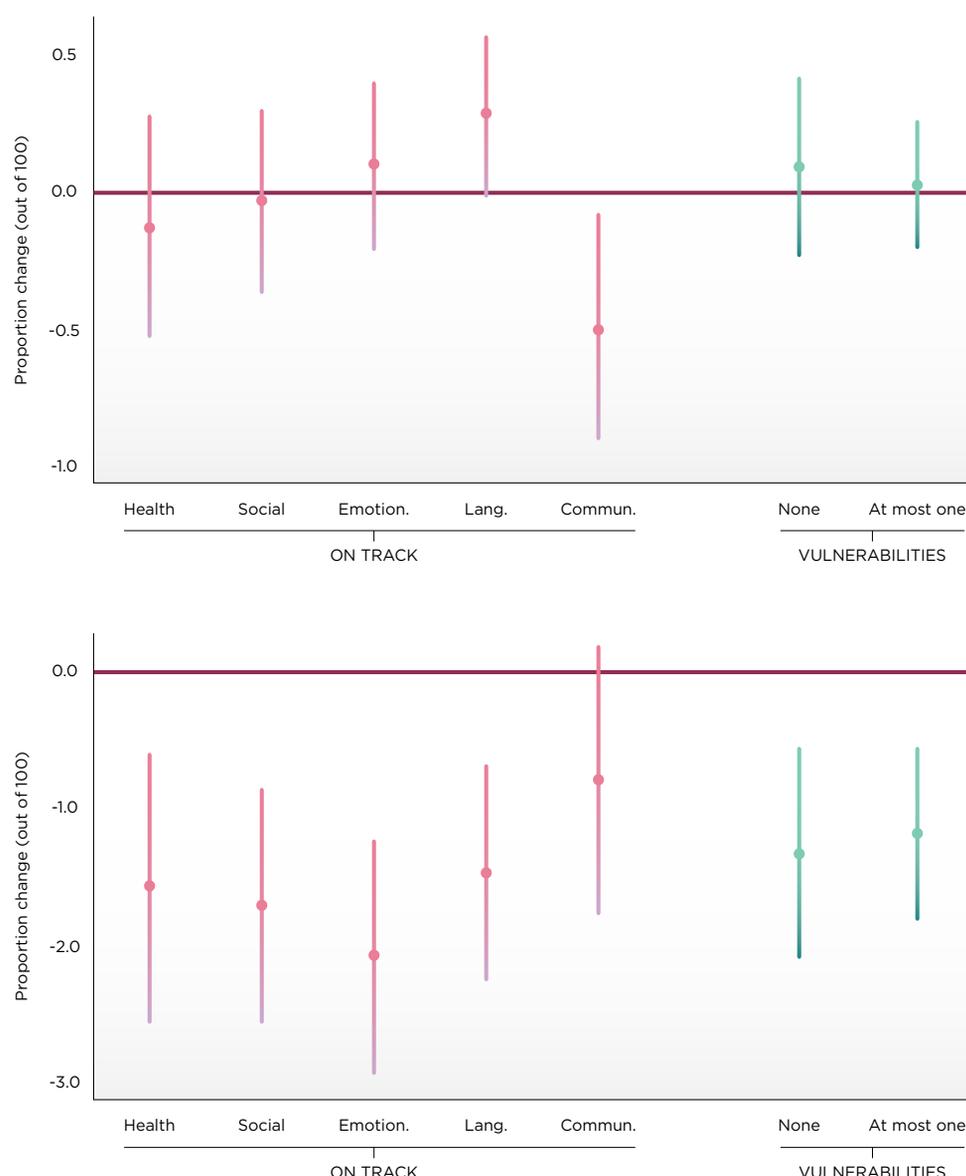
In Victoria and NSW, the expansion of preschool has not been accompanied by an overall decrease in AEDC outcomes. If anything, these two states show that the increase in preschool enrolment has had no effect on AEDC outcomes. This contrasts with the rest of the nation. Preschool expansion in other states is associated with a decrease in AEDC outcomes.

Thus, in Victoria and NSW, the increase in preschool enrolment in the prior year is associated with no change in overall school readiness, but in the rest of the country, it is associated with a decline in school readiness.

We should note that the average LGA in Victoria and NSW has increased preschool enrolment from 69 percent in 2015 to 90 percent in 2021. LGAs not in these two states have increased enrolment from 46 percent in 2015 to 60 percent in 2021.

Figure 3.

Relationship between preschool enrolment and school readiness indicators, by LGAs in Victoria and NSW (Panel A) and the remaining states (Panel B).



Notes: Each dot represents the average proportional change in each AEDC measure, no vulnerabilities and at most one vulnerability for a 10 percentage-point increase in preschool enrolment. The lines around the average represent standard errors. The maroon horizontal line represents no effect.

INFORMING POLICY

The Australian Commonwealth and state governments are vested in increasing enrolment into preschool and thereby improving children's school readiness.¹⁴ Our results provide a cautionary note on the benefits of preschool as it is currently implemented. The findings show that the expansion of preschool has had, at best, neutral results in terms of child development measures for some children and, at worst, bad outcomes for others.¹⁵ This calls for investment in rigorous research to understand what works in early childhood education and how to improve child outcomes through the expansion of preschool. As we noted at the start of this chapter, the evidence on the benefits of universal early childhood education is mixed. The evidence presented here for Australia coincides with that assessment.

The findings presented in this chapter are not without precedent. Several high-quality early childhood interventions fail to scale up (Andrew et al., 2018; Attanasio et al., 2020). The economics of the scale-up problem are now well understood (see List, 2022). There is potentially a loss of quality as programs expand and marginal resources are used up due to supply constraints in the short term. For instance, there may be a sufficient supply of high-quality teachers for a small preschool program but not enough as the program scales up to reach more children. Then, the average quality of teachers and preschools would decline.

Big investments require proper prospecting. For instance, oil companies typically spend US\$3/barrel in exploration before any drilling is started.¹⁶ Shouldn't public investment of the magnitude of preschool expansion require a fraction of what industry is willing to pay to avoid costly mistakes? This does not imply government should not invest in children. On the contrary, there is evidence that high-quality preschools delivered at small scale to targeted groups can have sizeable and positive returns to child development (see Elango et al., 2015; Castillo et al., 2020; Fryer et al., 2020). However, investments should be made smartly, based on scientific evidence and take into account how program delivery will be affected as programs scale up.¹⁷

More work can be done to understand the barriers that prevent the realisation of the benefits of early childhood education, even if there is not a taste by government to run RCTs. Access to unit-level administrative data that link preschool attendance to location and later outcomes can help map who would benefit most from attending preschool and who would benefit most from subsidies to attend preschool. Some children might benefit from going to preschool, others might benefit from staying at home. There are potentially enormous gains from linking datasets but also from linking RCTs to longitudinal datasets. The AEDC should be collected annually, not every three years, to properly assess the school readiness of preschool expansion. Preschool affects not only the child attending school, but also their siblings and families. Spillover effects are also likely to materialise (List et al., 2019). We should expect that if results are positive, more families will enrol their kids in preschool. But, the opposite is also true: no visible gains from program participation might make it difficult for good policies to be adopted.

Our findings are based on population-level data that are disaggregated to the lowest level possible and still allow us to link preschool enrolment rates to school readiness measures. Data at the child level, combined with measures of school quality and preschool attendance, would improve the analysis immensely, although it would still be associations and not show the causal impact of increased enrolment on school readiness.

Thus far, the findings are troubling. They point to the importance of building in small-scale RCTs of potential programs prior to rolling them out at scale to understand what causal impact the program has on child development outcomes. These studies would help determine who would benefit from the program and what aspects of the program need to be improved for maximum impact. Without this evidence, money may be spent unwittingly on programs for Australian children that have no effect when the money could have been spent on alternative programs that yield positive results. Incorporating RCTs in the piloting phase and during roll-out would provide the evidence Australia needs to provide effective, evidence-based policies.

¹⁴ See <https://www.dese.gov.au/child-care-package/preschool/preschool-reform-funding-agreement> and https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/BudgetReview202122/UniversalAccessToPreschool

¹⁵ Preschool expansion may have had other effects, such as freeing up labour time for parents. The key goal of the preschool expansion is to better prepare children for school. Thus, our analysis is focused on that outcome.

¹⁶ <https://www.reuters.com/article/us-oil-exploration-risk-analysis/oil-exploration-costs-rocket-as-risks-rise-idUSTRE61A28X2010021>

¹⁷ The need for RCTs has been voiced before in Australia (Center for Education Statistics and Evaluation, 2018).

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Part 4

The Importance of Creating
and Building an Evidence Base

—

Chapter

10

Coping strategies
in the face of
major life events:
New insights into
financial wellbeing
in Australia

—

Dr Ferdi Botha & Professor John P. de New



This study outlines the literature on research into financial wellbeing in Australia and provides new insights using 2020 data from the nationally representative Household, Income and Labour Dynamics in Australia (HILDA) Survey. Using a battery of financial and non-financial major life event shocks, we analyse how Australians experience these shocks in terms of financial wellbeing outcomes. We outline important determinants of financial wellbeing and demonstrate that prudent financial behaviours, attitudes, and high financial literacy contribute substantially to high levels of financial wellbeing and the ability to plan for current, unexpected, and long-term future required expenditures.

INTRODUCTION

Household income and wealth are arguably the most important determinants of personal affluence and command over societal resources. As such, researchers using the world's household panel and repeated large-sample cross-sectional datasets have been proficient in capturing detailed information on household income and wealth, indeed even including many of their separate component parts. In most studies, though we capture very well the level of income and wealth a household has at its disposal, we are often quite vague about how the household actually manages its resources, which can be equally as important. For any level of income and wealth, household finances may be balanced and buffered, or conversely, cash-poor and poorly managed, leading to vastly different outcomes and behaviours in the face of unexpected expenses, illness, unemployment, retirement or even daily necessary expenses. A household's access to financial resources does not imply that it spends that income in a prudent manner, conducive to its own 'financial wellbeing'. In this study we outline some newer advances in the measurement and analysis of the concept of financial wellbeing and how people can deal with shocks affecting their financial situation.

What exactly is 'financial wellbeing'? The literature is filled with various conceptualisations and there are far too many to list exhaustively here (for further details see Comerton-Forde et al., 2022). Previously the literature was largely American-based and focused on perceived (self-reported) measures and scales of financial wellbeing (see Prawitt et al., 2006; Consumer Financial Protection Bureau, 2017; Netemeyer et al., 2018).

The United States Consumer Financial Protection Bureau (CFPB) (2017) provides a very useful foundation, containing outcome-oriented components, as well as some subjective components. The CFPB (2017) defines financial wellbeing as comprising several different dimensions: having control over day-to-day and month-to-month finances (current time); being able to absorb a financial shock (unexpected events); being on track to meet financial goals (future); and having financial freedom (flexibility). This is a comprehensive definition relevant for the United States, which provides the basis for this study.¹

Of course, the financial wellbeing measures must reflect the institutional background of the country for which they were defined. Here we will focus on the concept of financial wellbeing tailor-made for Australia, with appropriate components reflecting the institutional setting in Australia.

The study of 'financial wellbeing' has gained significant traction over the past few years. Drawing on work by the CFPB (2017), amongst others, Comerton-Forde et al. (2018) develop robust and validated scales of financial wellbeing using survey and bank-record data from Australians. Formally, financial wellbeing encompasses financial outcomes that people experience (Comerton-Forde et al., 2022, p. 137) and is defined as the extent to which people both perceive and have: (1) financial outcomes in which they meet their financial obligations; (2) financial freedom to make choices that allow them to enjoy life; (3) control of their finances; and (4) financial security—now, in the future, and under possible adverse circumstances.

Previous work has identified several determinants of financial wellbeing, with good financial behaviours being particularly important (Comerton-Forde et al., 2022). However, relatively little is known about how different major life events (shocks) are empirically associated with financial wellbeing. Comerton-Forde et al. (2022) find that a major financial improvement is related to higher perceived financial wellbeing, whereas a major financial worsening and requiring government support but not getting access, is related to lower perceived financial wellbeing. It is unclear whether a broader set of possible life events is associated with people's perceptions of financial wellbeing and how the financial wellbeing effects of such life events can be mitigated by advantageous financial behaviours, attitudes and high financial literacy.

In the recent past, Australia has endured several crises of enormous magnitude: the global financial crisis of mid-2007 to early 2009; the major bushfires in the states of Victoria and New South Wales from September 2019 to March 2020; and the ongoing COVID-19 pandemic from March 2020. Each of these seismic events has important implications for the populations directly and indirectly affected. Against this backdrop of shocks, we are interested in examining how Australians experiencing shock events are affected in the form of their associated financial wellbeing, and what they may be able to do to mitigate any negative shocks. Life event shocks are particularly interesting to examine empirically, as they are difficult to anticipate and to adapt one's behaviour accordingly.

Using nationally representative data on Australian adults, in this study we explore a set of 23 major life events to determine which are most strongly associated with financial wellbeing. We show that certain events, such as serious personal injury or illness to a family member, are moderately related to financial wellbeing. Notably, we find that financial behaviours and attitudes are very strong determinants of financial wellbeing, suggesting that most adverse financial wellbeing effects from seemingly negative major life events can be mitigated if people have sound financial behaviours and attitudes. This study is of particular interest, as data were collected in 2020 during the COVID-19 pandemic, which affected Australia particularly harshly, with many states going into extended lockdowns on a recurring basis. The pandemic itself spread very quickly and caused widespread illness with a number of fatalities. The employment situation, social movement and general health of many Australians were dramatically affected.

For all financial decision makers, financial literacy is an important cornerstone. Being able to understand fundamental relationships such as interest rates, the mechanism of inflation, investment diversification, risk and return and money illusion (scaling of prices and incomes) has been shown to be crucial for good financial outcomes (Lusardi and Mitchell, 2011). This analysis will also explore the mitigating role of financial literacy to deal with negative economic shocks. Encouragingly, financial literacy can be taught in the schooling system for children and in seminars for adults. In addition, transparent financial product disclosure statement (PDS) information can help to make information required for financial decision making as understandable as possible (ASIC, 2011).

¹ In this study we focus on adult financial wellbeing, however there are also conceptualisations for child and youth financial wellbeing, outlined in Haisken-DeNew et al. (2019a).

The key to dealing with low probability, yet very negative events, is to prepare for contingencies and insure in some manner against such negative shocks. In the realm of financial wellbeing, preparing for these unexpected negative events can be achieved through systematic savings, holding adequate portfolios of liquid and illiquid assets, not being overly exposed to unilateral interest rate changes and adapting personal spending patterns to provide some buffer, should immediate and large expenditures be required to address events such as illness/death, unemployment, bankruptcy and forced relocation due to natural catastrophe. As financial wellbeing explicitly deals with the prudent intertemporal management of financial resources, it is of particular policy interest to know how Australians are able to handle such shocks, and whether prudent financial management strategies are adequate to sustain them during troubling times. Should this not be the case, further active policy measures to secure Australians may be required, such as macro/micro-prudential regulation, mortgage rules for banks, expanded unemployment insurance and a guaranteed minimum income policy. The Australian JobKeeper and JobSeeker Supplement support payments introduced temporarily in March 2020 during the worst of the COVID-19 pandemic were widely seen as effective in providing economic assistance to those most vulnerable: the unemployed, casual labourers and those (currently or previously) working in precarious industries or occupations. Most importantly, these payments ensured a substantially higher level of economic security than was previously available in Australia.

In addition to standard socio-economic determinants, in this study we specifically examine the crucial role of people's own overall 'financial strategies', encompassing financial attitudes, financial behaviours and financial literacy, in determining financial wellbeing. One may not be able to change one's household income quickly in the face of an economically significant shock, but a systematically prudent overall financial strategy may be sufficient to mitigate the worst effects of most shocks. This study will allow us to quantify empirically the extent to which prudent financial strategies can indeed do this, whilst controlling for standard socio-economic characteristics, including household income. Not only is the statistical significance of the component parts of the financial strategy important, but also the respective economic significance. If one were to have a prudent financial strategy, could one withstand major shocks and stabilise one's financial wellbeing? If this were to be the case, this would provide evidence for active governmental or bank regulatory policies designed to increase regular household savings, improve financial transparency of costs to eliminate hidden costs, improve financial literacy both for school-age children and adults, and make the public aware of the cost of financial decisions focusing on high time-preference, such as credit or 'buy now, pay later' purchases.

DEVELOPMENT AND IMPLEMENTATION OF THE FINANCIAL WELLBEING SCALES

Development of financial wellbeing scales

In Comerton-Forde et al. (2018), the Melbourne Institute and Commonwealth Bank of Australia (CBA) collaborated to develop validated scales of financial wellbeing among a representative sample of Australian adult clients of CBA. This initial report developed and tested two financial wellbeing scales: the CBA-MI Reported Financial Wellbeing Scale and the CBA-MI Observed Financial Wellbeing Scale (version 1).

The Reported Financial Wellbeing Scale is a 10-item scale (providing a 0-100 metric) based on self-reported data that covers three temporal dimensions, that is, 'every-day' (day-to-day outcomes), 'rainy-day' (provision for emergencies) expenses and 'one-day' (provision for retirement) expenses. The Observed Financial Wellbeing Scale (version 1) is a 5-item scale (also providing a 0-100 metric) based on actual observed bank-record information that was also linked to the self-reported survey data. Although the Reported and Observed Scales are moderately correlated, with individuals with higher reported financial wellbeing tending to also report higher observed financial wellbeing, the scales measure distinct operationalisations of financial wellbeing.

Following the work by Comerton-Forde et al. (2018),² Haisken-DeNew et al. (2018, 2019b) subsequently developed a revised and improved observed financial wellbeing scale, namely the CBA-MI Observed Financial Wellbeing Scale (version 2). The scale itself is optimised using item-response theory (IRT) to arrive at the collection of best performing scale components. Only the best performing scale components are added to the scale, and each component is defined such that higher values of the component (each taking on discrete values zero through four) correspond to higher values of financial wellbeing. This has been done in such a manner that the component parts can be simply added together to obtain an overall financial wellbeing score, with substantial coverage over the entire financial wellbeing distribution.

The first academic journal publication utilising both the Reported and Observed Scales was the *Economic Record* (Comerton-Forde et al. 2022). It is the only published study to combine the two different financial wellbeing scales for the same linked sample of bank customers. There is a strong concordance of the two measures, providing added confidence in the bank-record-only measure.

To ensure wide circulation, in collaboration with CBA, the Melbourne Institute reports publicly on this quarterly bank-record data (CBA and MI, 2021a, 2021b, 2021c, 2022a). Basic trends in financial wellbeing development are described for a lay audience, with background macro-economic analysis to provide the economic context. Central to the discussion of financial wellbeing is not only the average levels, but also the distribution itself, and how this is changing over time. Based on cut-offs empirically identified by response patterns, the financial wellbeing distribution is segmented into four sections: 'having trouble', 'just coping', 'getting by' and 'doing great'. These four mutually exclusive segments are followed over time and distributional developments are contextualised against the backdrop of current economic events. Over the period of the COVID-19 pandemic, this has been especially important, due to dramatic movements in the observed financial wellbeing scale itself and all driving economic factors.

Empirical evidence for Australia

Based on the need for a shorter version of the 10-item Reported Financial Wellbeing Scale for use in surveys with limited space or survey time and to reduce respondents' cognitive load, Botha et al. (2020) used the original 10-item CBA-MI Reported Financial Wellbeing Scale to develop a 5-item scale of reported financial wellbeing, termed the CBA-MI Reported Financial Wellbeing Scale 5 (see Table 1). The 5-item scale retains largely the same properties as the 10-item scale by capturing all three temporal dimensions with identical weighting, yet with fewer items and still reliably measuring the construct of reported financial wellbeing.

The 5-item Reported Financial Wellbeing Scale has subsequently been included in Wave 20 (for the year 2020) of the HILDA Survey, and is planned to be repeated every four years.

This is the first large sample, nationally representative survey in the world³ to include a validated scale of financial wellbeing, with a general discussion of the scale's properties and predictors of financial wellbeing reported in Wilkins et al. (2022). In a recent *Australian Population Studies* special issue on survey questions that the Australian Bureau of Statistics should include in the 2026 Census, Botha and de New (2021) argue for the inclusion of the 5-item Financial Wellbeing Scale. Publication of this article was not only strategic to increase visibility and adoption of the 5-item Reported Financial Wellbeing Scale, but also to provide strong arguments for why inclusion of the financial wellbeing scale in the Australian Census would inform national social and economic policy.

In a publication in the *Journal of Population Economics* on the impacts of COVID-19-related labour market shocks (such as job loss and reductions in earnings and working hours) on Australians' financial wellbeing, Botha et al. (2021) fielded a unique survey that used the 5-item Reported Financial Wellbeing Scale to measure perceived financial wellbeing. The study found that individuals who reported experiencing an adverse labour market shock due to the pandemic had substantially lower perceived financial wellbeing than people who did not experience such shocks. It was also found that the association of financial wellbeing with labour market shocks was most significant for those in the lower tail of the financial wellbeing distribution.

Published in the *Economic Record* using a combined survey and bank-record dataset, Comerton-Forde et al. (2022, p. 149) state that:

“Two key lessons are that (1) financial behaviours are particularly strong correlates of both reported and observed financial well-being, and (2) many of these behaviours are modifiable. If at least part of these strong correlations is driven by a causal link between financial behaviours and financial well-being, this implies we can increase financial well-being for many people by helping them modify their financial behaviours. Importantly, modifying these behaviours will likely be more easily achieved than improving people's overall socioeconomic standing by increasing their income or education.”

As is clear from the above discussion, since their inception, the jointly developed Financial Wellbeing Scales have made a significant impact on the academic and engagement landscapes. To date, the analyses highlight several factors that are significantly related to higher/lower financial wellbeing, with financial behaviours consistently emerging as arguably the most important. In the following section, we consider whether, and the extent to which, a range of major life events (shocks) are associated with reported financial wellbeing. Our aim is to gain a broader understanding of the life events most likely to impact on financial wellbeing and identify financial strategies to mitigate any adverse financial wellbeing effects arising from such negative life events.

² See also the lay-person accessible publication, Comyn and Ribar (2018).

³ This 2020 wave of financial wellbeing information is attached to 20 years of personal and household context for a nationally representative sample of Australians aged 15 and over.

APPLICATION: FINANCIAL WELLBEING, MAJOR LIFE EVENTS, AND FINANCIAL BEHAVIOURS

Data and methods

We use data from Wave 20 of the HILDA Survey, conducted in 2020 at the height of the COVID-19 pandemic. This survey instrument includes our 5-item scale of perceived financial wellbeing for the first time, in the HILDA Self-Completion Questionnaire (SCQ). We use information on respondents who answered all five financial wellbeing items and provided complete information on all variables used in the analysis, resulting in an analytical sample of 14,777 respondents.

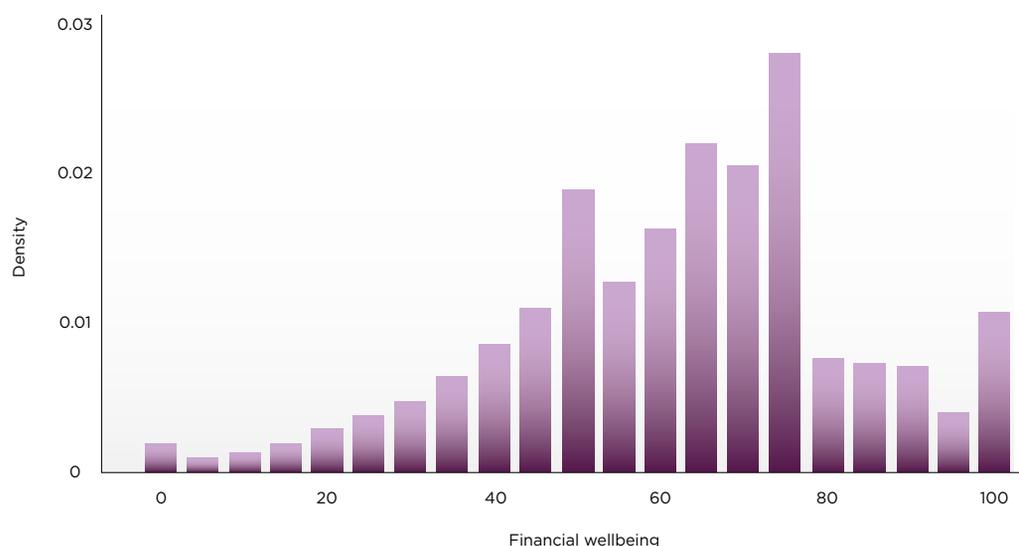
The financial wellbeing items and their response options are listed in Table 1. The reported financial wellbeing scale is obtained by a simple summation of all five items and by multiplying the summation by five (5) to obtain a score ranging from 0 (low financial wellbeing) to 100 (high financial wellbeing). Figure 1 displays the financial wellbeing distribution. The mean financial wellbeing score in this sample is 60.7 and the median is 65.

Table 1.
5-item financial wellbeing scale.

Question	Response
<p>How well do the following statements describe you or your situation?</p> <ol style="list-style-type: none"> 1. I can enjoy life because of the way I'm managing my money. 2. I could handle a major unexpected expense. 	<p>0 - Not at all 1 - Very little 2 - Somewhat 3 - Very well 4 - Completely</p>
<p>When it comes to how you think and feel about your finances, please indicate the extent to which you agree or disagree with the following statements:</p> <ol style="list-style-type: none"> 3. I feel on top of my day-to-day finances. 4. I am comfortable with my current levels of spending relative to the funds I have coming in. 5. I am on track to have enough money to provide for my financial needs in the future. 	<p>0 - Disagree strongly 1 - Disagree 2 - Neither agree nor disagree 3 - Agree 4 - Agree strongly</p>

Source: Botha et al. (2020).

Figure 1.
Financial wellbeing scale distribution (0–100 scale).



The HILDA Survey includes a battery of questions asking respondents to indicate whether a predefined list of major life events happened to them in the past 12 months. The major life events considered are:

- got married;
- separated from spouse or long-term partner;
- got back together with spouse or long-term partner after a separation;
- pregnancy/pregnancy of partner;
- partner or I gave birth to, or adopted, a new child;
- serious personal injury/illness to self;
- serious personal injury or illness to a close relative/family member;
- death of spouse or child;
- death of close relative/family member (e.g., parent or sibling);
- death of close friend;
- victim of physical violence (e.g., assault);
- victim of property crime (e.g., theft, housebreaking);
- detained in a jail/correctional facility;
- close family member detained in a jail correctional facility;
- retired from workforce;
- fired or made redundant by employer;
- changed jobs (i.e., employers);

- promoted at work;
- major improvement in financial situation (e.g., won lottery, received an inheritance);
- major worsening in financial situation (e.g., went bankrupt);
- changed residence;
- a weather-related disaster (e.g., flood, bushfire, cyclone) damaged or destroyed home.

Table 2 reports the prevalence, and the associated average level, of financial wellbeing for those not having and having experienced the event respectively, for our main variables of interest, namely major life events and financial behaviours, financial attitudes and financial literacy. Many life events or shocks have low incidences, with being detained in jail (0.2 percent), death of a spouse or child (0.6 percent) and getting back together with spouse/long-term partner after separation (0.9 percent) being the lowest reported experienced events. About 3 percent and 3.2 percent of respondents reported having experienced a major financial improvement and major financial worsening, respectively. Just over 14 percent changed residence, 11.6 percent changed jobs, and 11.8 percent experienced the death of a close relative or family member.

In terms of financial behaviours related to savings habits, 15 percent of Australians report not saving at all, whereas roughly 38 percent have no savings plan but do save whatever money remains after spending their income, and 36 percent save regularly. Attitudes on the times most important

in relation to savings and investment decisions vary widely. Just under 15 percent believe the next week is the most important consideration, compared to 20 percent who believe it is the next year. About 23.8 percent of Australians believe the next five years or more are most important when making savings or investment decisions. The average financial literacy score of 4.47 suggests that the average Australian answered 4.47 questions correctly out of five. Just under 4 percent of respondents answered all five financial literacy questions incorrectly, whereas 41.3 percent answered all questions correctly.

To examine the determinants of perceived financial wellbeing in a multivariate framework, we estimate a simple linear regression (OLS) of the form:

$$fwb_i = \alpha + \beta event_i + \gamma_i financial_i + \delta_i X_i + \varepsilon_i,$$

in which the outcome variable fwb_i is financial wellbeing (0–100), $event_i$ denotes the various life events, $financial_i$ is financial strategy (financial behaviours, attitudes and literacy), X_i is a vector of additional control variables and ε_i is a standard error term. Interpretation of β_i , for example, will indicate whether persons who experience a specific life event report higher or lower associated financial wellbeing compared to persons who do not experience such an event.

The coefficient γ_i on $financial_i$ will identify the amplifying or mitigating role of financial behaviours, attitudes, and literacy.



Table 2.
Summary statistics.

	Proportion (%)	Financial wellbeing	
		Without	With
Life events			
Got married	1.9	60.7	64.7
Separated from spouse/long-term partner	3.5	61.0	52.2
Got back together with spouse/long-term partner after separation	0.9	60.8	50.3
Pregnancy/Pregnancy of partner	4.7	60.7	61.3
Birth/adoption of new child	2.9	60.8	60.4
Serious personal injury/illness	7.6	61.2	55.3
Serious personal injury/illness to family member	13.1	61.2	57.8
Death of spouse or child	0.6	60.8	55.1
Death of close relative/family member	11.8	60.9	59.5
Death of close friend	10.9	60.8	60.2
Victim of physical violence	1.5	61.0	44.7
Victim of property crime	2.5	60.9	52.7
Detained in jail	0.2	60.8	30.1
Close family member detained in jail	1.6	60.9	50.6
Retired from workforce	2.6	60.7	62.6
Fired or made redundant	4.4	61.2	50.9
Changed jobs	11.6	61.1	58.2
Promoted at work	5.9	60.5	64.6
Major improvement in financial situation	3.0	60.5	69.2
Major worsening in financial situation	3.2	61.5	36.7
Changed residence	14.1	61.3	57.5
Weather-related disaster damaged or destroyed home	1.5	60.8	54.6
Saving habits			
Don't save: Spend more/as much as income	15.0	64.6	39.8
Save whatever is left over: No regular plan	38.1	61.8	59.0
Spend regular income, save other income	11.0	60.1	66.1
Save regularly by putting money aside each month	35.9	55.7	69.7
Most important time for savings/investment			
The next week	14.4	62.9	47.8
Next few months	24.0	62.0	56.8
Next year	20.1	60.8	61.8
Next 2-4 years	17.7	59.9	64.8
Next 5 or more years	23.8	58.3	68.6
Financial literacy			
No correct answers	3.9	61.2	50.7
One correct answer	5.0	61.2	51.7
Two correct answers	9.0	61.4	54.2
Three correct answers	15.7	61.6	56.2
Four correct answers	25.2	60.7	60.9
Five correct answers	41.3	57.2	65.8

Note: N = 14,777. Indicates portion of sample having the characteristic and the average level of financial wellbeing, for example, 13.1 percent of respondents experienced 'Serious personal injury/illness to family member' with average financial wellbeing of 57.8 (0–100).

RESULTS AND DISCUSSION

Table 3 reports the regression results on the extent to which our main variables of interest, major life events and financial behaviours, attitudes and literacy explain perceived financial wellbeing. The coefficient on the gender dummy suggests that financial wellbeing is almost one-point higher for men than for women which, although statistically significant, is not particularly large. As expected, financial wellbeing is significantly higher (by roughly 4.5 points on the 0–100 scale) among Australians who report a major financial improvement in their financial situation. Additionally, for women, serious injury or illness to a family member is related to higher financial wellbeing, whereas for men the birth/adoption of a new child and work-related promotion are significantly associated with greater financial wellbeing.

For men, serious injury or illness to a family member, retiring from the workforce, and home destruction/damage due to weather-related disasters (about five points) are related to lower financial wellbeing. For women, lower financial wellbeing is related to the birth/adoption of a new child, and job loss or redundancy. A major worsening in financial situation, such as bankruptcy, is strongly associated with lower reported financial wellbeing for all Australians. Financial wellbeing is on average lower by between 11.8 and 12.9 points among individuals who experience a major worsening of their financial situation.

Financial behaviours and financial attitudes are very important determinants of financial wellbeing. For each additional financial literacy question answered correctly, financial wellbeing is higher by between 0.7–1.2 points. Longer time horizons in relation to savings and investments tend to be associated with greater financial wellbeing. For example, those who view 'the next few months' and the 'next 5 or more years' as most important times for investment or savings decisions report financial wellbeing scores of 2.5 and 6.9 points higher relative to people who perceive 'the next week' as most important. Financial behaviours, as measured by respondents' savings habits, have considerably significant associations with financial wellbeing. Saving money more frequently and having clear savings plans are strongly related to better financial wellbeing. When compared to individuals who do not save at all, those who save whatever money is left over, even without a regular savings plan, report about 13-points higher financial wellbeing. Persons who save regularly each month have about 21 points higher financial wellbeing scores (on the 0–100 scale) as compared to those who do not save.

The main takeaway from our findings is that, although some major life events—especially serious illness in the family, a major financial deterioration such as bankruptcy and property damage due to weather-related disasters—are associated with significantly lower perceived financial wellbeing, prudent financial behaviours and attitudes have the potential to be associated with much higher levels of financial wellbeing. The implication is that the potential adverse financial wellbeing shocks of major adverse life events can likely be mitigated by sufficient financial literacy, longer savings and investment horizons and, especially, having good and frequent savings goals.

Regardless of the level of household income or employment circumstances, knowledge of financial fundamentals or financial literacy, a prudent savings plan that incorporates long-term goals, and sensible financial behaviours are skills that can be learned, practised and taught to household members to mitigate negative shocks that may arise. These important coping strategies are especially important in a country such as Australia, which provides only a minimal level of unemployment subsistence support upon entry into unemployment in the form of the JobSeeker program, at a much lower replacement rate than unemployment insurance, offered by many European countries.

According to the OECD (2005, p. 5), financial education programs should be designed to meet the needs and the financial literacy level of their target audience, as well as reflect how their target audience prefers to receive financial information. Financial education should be regarded as a life-time, on-going and continuous process, in particular in order to take account of the increased complexity of markets, varying needs at different life stages, and increasingly complex information.'

In our empirical analysis, we see that the highest levels of financial literacy and frequency of regular savings more than compensate for the negative shock of 'weather-related disaster damaged or destroyed home'. These skills are teachable and, indeed, the state of Victoria mandates this curriculum in its schools (Department of Education and Training, 2021). Similarly, NSW offers online learning with the 'Treasurer's Financial Literacy Challenge' intending to teach school children the real cost of standard purchases, such as cars, using real-life scenarios.

There are examples of government supporting voluntary additional savings for long-term goals. The Commonwealth government provides incentives through the Australian Taxation Office for savings for first home purchases in its First Home Super Saver Scheme. It allows Australians voluntarily to save money for a first home inside a person's superannuation fund (retirement savings), allowing first home buyers to take advantage of the concessional tax treatment of superannuation. Other voluntary additional payments into the superannuation scheme can be made with preferential tax treatment such as salary sacrifice contributions, voluntary payments into the scheme with government co-contributions, home downsizing payments for those aged 65 and over and spousal splitting of contributions (Australian Tax Office, 2022). From our empirical analysis, we see clearly that long-term savings provide additional financial security, which can be drawn from in times of financial need, especially if experiencing a negative shock with financial implications.

CONCLUSION

This study provides an overview of the Melbourne Institute's development and implementation of financial wellbeing scales for Australians in close collaboration with CBA. We also describe the growing adoption of the jointly developed Financial Wellbeing Scales in the academic community, and in an empirical application, examine how major life events and financial behaviours, attitudes and literacy explain perceived financial wellbeing.

The Financial Wellbeing Scales were carefully designed and rigorously tested, culminating in the 10-item CBA-MI Reported Financial Wellbeing Scale and the CBA-MI Observed Financial Wellbeing Scale (version 2). A short-form version of the Reported Scale was subsequently developed, leading to the 5-item Reported Financial Wellbeing Scale. This 5-item scale has since been included in Wave 20 of the HILDA Survey for the first time and has been used as a central outcome in academic journal publications.

In our empirical application, we found that some major life events are associated with higher or lower reported financial wellbeing. This is especially the case when experiencing a major financial worsening such as bankruptcy, which is related to significantly lower perceived financial wellbeing. In times of major crises, governments can play a key role in buffering economic shocks by implementing policies such as JobSeeker and JobKeeper to avoid the clearly negative shock of a 'major worsening in financial situation'. Importantly, however, the results suggest that good financial behaviours (saving regularly with a regular savings plan) and financial attitudes (longer time horizons in relation to savings and investment) are very strongly associated with higher financial wellbeing. Having sound financial behaviours is, therefore, an important way in which the financial wellbeing effects of negative major life events can be mitigated. Thus, preventative strategies for households to save systematically in 'good times' before crises eventuate are crucial to a successful coping mechanism. Policies that foster regular household savings or equity accumulation as a safeguard in times of economic downturn could be supported actively by government: for example, first-time home purchase, voluntary superannuation contributions up to a threshold and tax exemptions for 'locked in' regularly monthly savings up to a threshold.

It is important to note that in this study we use a single wave of cross-sectional data, and so none of the estimates reported can be interpreted as causal effects, rather only as non-causal associations. However, by focusing on life event shocks in this analysis (which embody a substantial degree of exogeneity to the people affected), we do have at least estimates that are likely to be indicative of the magnitude of potential causal effects. Nonetheless, the CBA-MI Financial Wellbeing Scales have enormous potential for use in both policy and academic settings, reflecting people's actual situation and the manner in which they manage their finances. The availability of longitudinal data on financial wellbeing will significantly expand the range of research questions that can be studied and will provide a stronger evidence base for estimating causal effects. Longitudinal analyses will be possible once the 5-item financial wellbeing scale is again included in the HILDA Survey in 2024.

Table 2.
Predictors of financial wellbeing.

	All	Only female	Only male
Life events			
Got married	1.584 (1.427)	3.185 (2.023)	0.348 (2.037)
Separated from spouse/long-term partner	1.086 (1.078)	0.930 (1.500)	0.974 (1.505)
Got back together with spouse/long-term partner after separation	-2.049 (2.242)	-4.860 (3.028)	3.204 (2.646)
Pregnancy/Pregnancy of partner	0.745 (1.081)	2.457 (1.503)	0.020 (1.329)
Birth/adoption of new child	0.034 (1.214)	-3.007 (1.788)*	2.947 (1.461)**
Serious personal injury/illness	0.220 (0.707)	1.452 (0.848)*	-1.080 (1.082)
Serious personal injury/illness to family member	-1.025 (0.502)**	-0.105 (0.630)	-2.054 (0.783)***
Death of spouse or child	-2.160 (1.904)	-1.973 (2.165)	-3.220 (3.506)
Death of close relative/family member	0.060 (0.571)	0.453 (0.728)	-0.296 (0.825)
Death of close friend	-0.198 (0.538)	-0.390 (0.733)	0.013 (0.767)
Victim of physical violence	-1.525 (1.279)	-1.462 (1.687)	-2.190 (1.926)
Victim of property crime	-1.997 (1.034)*	-2.153 (1.468)	-1.803 (1.403)
Detained in jail	1.506 (3.253)	4.723 (5.535)	-0.286 (4.192)
Close family member detained in jail	-0.326 (1.284)	1.159 (1.642)	-2.707 (2.078)
Retired from workforce	-1.184 (1.157)	0.670 (1.648)	-2.956 (1.569)*
Fired or made redundant	-1.180 (0.920)	-2.443 (1.297)*	-0.312 (1.238)
Changed jobs	-0.432 (0.641)	-0.887 (0.976)	0.268 (0.748)
Promoted at work	1.167 (0.730)	0.073 (0.870)	2.154 (1.172)*
Major improvement in financial situation	4.471 (0.798)***	4.421 (1.102)***	4.577 (1.180)***
Major worsening in financial situation	-11.872 (1.107)***	-12.205 (1.524)***	-12.948 (1.539)***
Changed residence	0.424 (0.633)	0.248 (0.844)	0.684 (0.910)
Weather-related disaster damaged or destroyed home	-4.262 (1.568)***	-3.320 (2.609)	-5.627 (1.866)***
Saving habits (Ref: Don't save: Spend more/as much as income)			
Save whatever is left over: No regular plan	13.195 (0.685)***	13.395 (0.887)***	12.821 (0.970)***
Spend regular income, save other income	17.942 (0.862)***	18.822 (1.079)***	16.863 (1.272)***
Save regularly by putting money aside each month	21.099 (0.755)***	21.702 (0.968)***	20.360 (1.095)***
Most important time for savings/investment (Ref: The next week)			
Next few months	2.468 (0.640)***	2.419 (0.853)***	2.495 (0.934)**
Next year	3.512 (0.740)***	3.761 (1.031)***	3.291 (0.988)***
Next 2-4 years	5.340 (0.709)***	5.492 (0.935)***	5.122 (1.033)***
Next 5 or more years	6.914 (0.761)***	7.191 (0.950)***	6.663 (1.136)***
Financial literacy	1.031 (0.156)***	1.229 (0.203)***	0.734 (0.225)***
Male	0.987 (0.388)**		
Number of observations	14,777	7,963	6,814
R-squared	0.446	0.445	0.460

Notes: Results represent OLS estimates of the predictors of Reported Financial Wellbeing on the 0–100 scale. Additional control variables included are a constant, age, education, labour force status, household equivalised annual disposable income, general- and mental health, whether a respondent has any resident children, marital status, housing tenure type, region of residence, immigrant status and Indigenous status. Robust standard errors are shown in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.10.

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About



MELBOURNE INSTITUTE: APPLIED ECONOMIC & SOCIAL RESEARCH

The Melbourne Institute: Applied Economic & Social Research is a research-only, academic department in the Faculty of Business and Economics at the University of Melbourne. With 60 years' experience as a distinguished economic and social policy research institution, the Melbourne Institute has a long-standing engagement with Australian economic and social policy, informing and shaping policy by using economic frameworks supported by its strength in building data and undertaking rigorous statistical analysis. The Melbourne Institute has expertise in data analysis, survey methodology, running field experiments and randomised control trials, and working with administrative and proprietary data. The Melbourne Institute is home to over 50 accomplished researchers with international reputations for publishing in top academic journals as well providing high-quality, independent and impartial applied research for government, business and community groups.

The Melbourne Institute works closely with Commonwealth and state departments to establish key economic and social policy questions to study, to design improved policies or interventions, and to evaluate the impact of these new policies and interventions. Over the last 60 years, the Melbourne Institute has undertaken many meaningful research projects with significant impact. Working with the Department of Social Services, the Household, Income and Labour Dynamics in Australia (HILDA) Survey is Australia's world-renowned household survey that has been undertaken since the early 2000s. At the onset of the COVID-19 pandemic, researchers recognised the lack of information available on how Australia was coping with the pandemic from a social and economic perspective. This resulted in the commencement of the Taking the Pulse of the Nation (TTPN) Survey which has quickly become a key source of current insights into a wide range of issues faced by Australians.

The Melbourne Institute also has a long-standing engagement with macroeconomic policy through the Consumer Attitudes, Sentiments and Expectations in Australia (CASiE) Survey, its monthly Inflation Gauge and related reports on the economy. It is also engaged on issues related to health, especially through its work on the health-care workforce and aged care, education and training, early childhood development, and employment and skills. The Melbourne Institute has been involved in producing the Poverty Lines quarterly reports and other social indicator reports such as the Social Inclusion Monitor (in partnership with the Brotherhood of St Laurence) and the Household Expenditure Measure.

The Melbourne Institute's work in tackling poverty and disadvantage harks back to its founding director, Ronald Henderson. We continue to seek to understand and find solutions for ending poverty in Australia on a number of fronts. This includes a partnership with the Paul Ramsay Foundation, serving as the Melbourne node of the ARC Centre of Excellence for Children and Families over the Life Course (The Life Course Centre), targeted projects such as involvement in the evaluation of Early Years Education Programs in Victoria and Queensland, and evaluations of social housing programs in New South Wales. In recent years, the Melbourne Institute's work has also expanded beyond Australia to include a range of studies to better understand disadvantage in the Asia-Pacific region.

The Melbourne Institute is dominant in its involvement in economic and social policy not only due to the rigour of its research but through its service on many national and international advisory groups and ongoing collaboration with a range of academic and policy-oriented organisations and government departments. It also is known for its convening of a range of experts to discuss and inform the understanding of pressing issues in Australia. For more than 20 years it has partnered with *The Australian* newspaper in the delivery of the Economic and Social Outlook Conference.

As Australia has moved towards a consensus of wanting more evidence-based analysis and policy-making, the Melbourne Institute has evolved to include as part of its suite of data and analytics services the creation of the secure Melbourne Institute Data Laboratory for the purposes of creating, housing, curating and analysing data. Through this laboratory, the Melbourne Institute is paving the way for stronger collaboration with data custodians to ensure analysts from a range of organisations will have better and more timely access to data through the creation of shared data environments.

AUTHOR BIOGRAPHIES

Paul Kelly

Paul Kelly is Editor-at-Large on The Australian and a former Editor-in-Chief of that paper. He writes on Australian politics, public policy, history and international relations and is a regular television commentator. Paul has covered every prime minister from Gough Whitlam to Anthony Albanese. He has written 12 books on Australian politics and policy including 'The End of Certainty' on the Hawke/Keating reform age, 'The March of Patriots' offering a re-interpretation of John Howard and Paul Keating as prime ministers and 'Triumph and Demise' on the Rudd-Gillard Labor government. In 2001 he presented the five-part television documentary for the ABC '100 Years – The Australian Story' and wrote a book under the same title.

Paul has been a Fellow at the Kennedy School of Government at Harvard University, a visiting professor at Kings' College London and a visiting fellow at the Lowy Institute. He has been a long serving delegate at meetings of the Australian American Leadership Dialogue. Paul has a doctorate from the University of Melbourne. He is a fellow of the Academy of Social Sciences in Australia and a Fellow at the Australian Institute of International Affairs. His most recent book 'Morrison's Mission' is an account of Scott Morrison's foreign policy.

Professor Peter Dawkins

Peter Dawkins is Emeritus Professor of Economics at the Mitchell Institute for Education and Health Policy at Victoria University, a dual-sector university based in the west of Melbourne, where he was Vice-Chancellor and President from 2011 until 2020. He was the Ronald Henderson Professor of Applied Economic and Social Research and Director of the Melbourne Institute from 1996 to 2005. Following that, for six years, he was Deputy Secretary of the Department of Treasury (2005–2006) and Finance and Secretary of the Education Department (Victoria) (2006–2010).

Professor Dawkins' career has spanned academia and the public service, and his academic career has involved extensive public policy research and involvement in government advisory committees and reviews.

He holds a BSc (Hons) and a PhD from Loughborough University, and a MSc (Econ) from the University of London. He has held various university teaching, research and leadership roles at Loughborough University (1976–1984), Flinders University (1984–1987), Murdoch University (1987–1990), Curtin University (1990–1995, where he was Curtin's first Professor of Economics), the University of Melbourne (1996–2005) and Victoria University (since 2011).

Professor Dawkins has a passion for the power of education to transform lives and for evidence-based economic and social policy. As Vice-Chancellor and President of Victoria University, he led a major reform of teaching and learning in the form of the 'block model'. His research and policy work has been mainly focused on labour markets, employment, unemployment, taxes and transfers, education and training, innovation and enterprise dynamics.

In 2017 he became an Officer of the Order of Australia for his contributions to tertiary education, economic and social research, and public administration. He is a Fellow of the Academy of Social Sciences, a Fellow of the Institute of Public Administration (Australia) and an Honorary Fellow of the Australian Council of Educational Leaders. He is a board member of UniSuper, a member of the Council of the University of Tasmania and Chair of the West of Melbourne Economic Development Alliance.

Professor A. Abigail Payne

A. Abigail Payne has been the Director and Ronald Henderson Professor at the Melbourne Institute since 2016. A driving force behind her work is the use of data and statistics to inform economic policy, especially in the area of public economics. Her research covers: the effects of policy on educational outcomes, transitions in schooling, gender differences in educational attainment and student performance; understanding donor and charity behaviour; exploring the determinants of poverty and disadvantage in Australia; and identifying mechanisms and effective policies for reducing poverty. Her research has been published in top economic and public policy journals. During 2022 she has been a Visiting Fellow at Hoover Institution (Stanford University).

Prior to her moving to Melbourne, Professor Payne was Professor of Economics at McMaster University (Canada) where she was the inaugural director of MacDATA, McMaster's Big Data Institute, and the creator and director of the Public Economics Data Analysis Laboratory ('PEDAL'), a secure data facility to address key public sector issues. She also has held positions at the University of Illinois and the University of Toronto, and she practiced law for five years at a private law firm in Washington, DC. Previously Professor Payne was a Tier II Canada Research Chair in Public Economics, and she received a National Academy of Education/Spencer Foundation Post-doctoral Fellowship for her research on higher education issues. She received her PhD from Princeton University, and holds a JD from Cornell University and a BA (Hons) from Denison University.

Professor Payne has been a driver behind the building of the Melbourne Institute Data Lab and the creation of share data environments, and serves on many committees in Australia and internationally. This includes serving as member of the Australian Statistics Advisory Council, chair of the ifo Institute's Scientific Advisory Council, co-editor of *Economic Inquiry*, member of the Asian and Australasian Society of Labour Economics Board, panel member of the Department of Treasury's Macroeconomic Group Economic Advisory Panel, member of the Go8 Economics Experts Panel, and board member of the Brotherhood of St Laurence and University of Melbourne Partnership Board. During the pandemic she also served on ad-hoc committees for the City of Melbourne Economic Strategy and the Department of Premier and Cabinet (Victoria) Vulnerable Indices.

Professor Payne's roles include project lead for the Paul Ramsay Foundation Breaking Down Barriers Shared Data Environment, chief investigator for the ARC-COE Life Course Centre, developer of a partnership with Roy Morgan Research, part of a team that leads the development of the TTPN survey, and an investigator on projects funded by the Austral Data Research Commons. She also works with the Lord Mayor's Charitable Foundation, the Victorian Department of Premier and Cabinet, and the Victorian Department of Education.



Dr Ferdi Botha

Ferdi Botha is a Senior Research Fellow at the Melbourne Institute whose research focuses on subjective and financial wellbeing, mental health, economic sociology and applied microeconometrics. He has published in many high-ranking journals such as *Social Science & Medicine*, *Journal of Population Economics*, *Journal of Happiness Studies*, and *Economic Modelling*. He has been a co-editor of *Social Indicators Research* since 2019 and is one of the co-authors of the annual *Household, Income, and Labour Dynamics in Australia (HILDA) Statistical Report*.

Dr Botha was a joint recipient of the 2020 University of Melbourne Faculty of Business and Economics Deans' Award: Research Engagement & Partnership (Levels D and E). He is part of the Financial Wellbeing research group at the Melbourne Institute, and in collaboration with the Commonwealth Bank of Australia and the Auckland Savings Bank he has developed and analysed financial wellbeing scales based on self-reported and bank-record information.

He has also worked with the Australian Securities & Investments Commission (ASIC), Verifier/MoneyPulse, the Australian Institute of Health and Welfare, and the New South Wales Department of Communities and Justice.

Dr Botha is part of a team that leads the development of the TTPN Survey. He has also been a Research Fellow at the Australian Research Council (ARC) Centre of Excellence for Children and Families over the Life Course since 2019. He received his PhD in social and economic sciences at the University of Antwerp, Belgium, in 2017.

Professor Marco Castillo

Marco Castillo has been a Professorial Fellow at the Melbourne Institute since 2018. His research interests lie primarily in the areas of behavioural economics, public economics, economics of education and experimental economics. His research focuses on the use of experimental methods to identify optimal policy design and interventions in areas ranging from child development, human capital accumulation, discrimination and charitable fundraising.

Professor Castillo has published in top economic journals and received multiple grants from the US National Science Foundation, the US Agency for International Development, and the Science of Philanthropy Initiative. He has been an Advisory Editor at *Economia* since 2008 and an Associate Editor at *Southern Economic Journal* since 2017. He served as a member of the Executive Committee of the Economic Science Association and was named a Research Fellow at IZA Institute of Labor Economics in 2018. His research has been covered by the *Australian Financial Review*, *The Conversation* and the Australian Broadcasting Corporation. He has been an invited keynote speaker at conferences in Peru, Guatemala and Colombia.

Professor Castillo holds a position as Professor of Economics at Texas A&M University. He studied economics at the Catholic University of Lima, Peru and received a PhD from University of Wisconsin-Madison with funding from the Ford Foundation. In addition, he has been a member of the steering committee of the TTPN Survey, in partnership with Roy Morgan, since its inception in 2020. He has completed projects for the Australian Commonwealth Department of Education and the Victorian Department of Education.

Professor Ross Garnaut

Ross Garnaut is Emeritus Professor of Business and Economics at the University of Melbourne and Emeritus Professor of Economics at The Australian National University. He is a Distinguished Fellow of the Economics Society of Australia; a Distinguished Life Member of the Australian Association of Agricultural and Resource Economics; a Fellow of the Australian Academy of Social Sciences; an Honorary Professor of the Chinese Academy of Social Sciences; Commander of the Order of Australia for Services to Climate Change and Energy (2017); and Officer of the Order of Australia for services to education and international relations (1992).

Professor Garnaut was the most senior economic policy official in the Papua New Guinea Department of Treasury and Finance in the years straddling independence in 1975; Economic Adviser to Australian Prime Minister Bob Hawke; Australian Ambassador to China; Distinguished Professor of Economics and long-time Head of the Department of Economics in the Australian National University's Research School of Pacific and Asian Studies; Professorial Research Fellow at the Melbourne Institute; Chair of The Australian Centre for International Agricultural Research; Chair of the International Food Policy Research Institute; author of well-known reports to government including *Australia and the Northeast Asian Ascendancy* (to Prime Minister and Foreign Minister, 1989), *Review of the Wool Industry* (1991), *Review of Federal State Financial Relations* (1993), *Garnaut Climate Change Review* (to Prime Minister and all state and territory heads of government, 2008) and *Australia in the Global Response to Climate Change* (to Prime Minister and Multi-party Parliamentary Committee on Climate Change, 2011).

AUTHOR BIOGRAPHIES

Professor Guay Lim

Guay Lim is a Professorial Research Fellow at the Melbourne Institute and Adjunct Professor in the Department of Economics, University of Melbourne. Her research interest lies in the application of macroeconomic forecasting and policy models to obtain insights about macroeconomic issues particularly around inclusive growth and business-cycle stabilisation. Her papers have been published in major international journals, including the *Journal of International Economics*, *Journal of Economic Dynamics and Control*, *Journal of Banking and Finance*, *Journal of Business and Economic Statistics*, *Journal of Applied Econometrics*, and *Regional Studies*. Her (co-authored) paper about housing affordability, published in the *Economic Record*, was awarded best paper in 2018. Her most recent research is concerned with Ramsey fiscal policies, growth and the labour share of national income.

Professor Lim has been a chief investigator on a number of ARC grants. Projects investigated include: worker flows and labour market policy in Australia; consumption and household financial wealth over the long run; the economic performance of the states and national economic policy; financial market behaviour and macro-prudential policy. She is currently a member of the CAMA Shadow Board and the Advisory Board of the Australasian Macroeconomics Society. She is also an active member of the Economic Society of Australia (ESA) serving as an expert economist on the National (ESA) Economic Panel and as the Editor of Economic Papers.

Professor Lim heads Macro@MI, the team that is responsible for the analysis of the state of the Australian macroeconomy, including the computation of various indicators of economic activity. The team produces monthly forecasts and annual reviews of the Australian economy (published in the March issue of the *Australian Economic Review*). She has extensive experience working with public and private institutions and Macro@MI have delivered numerous reports. Examples include reports on housing cycles, e-payments and economic activity, and an index of shareholder confidence.

Dr Steeve Marchand

Steeve Marchand is a Research Fellow at the Melbourne Institute. He is an applied economist specialising in labour and public economics. Prior to joining the Melbourne Institute, he received his PhD in economics from Université Laval and undertook a post-doctoral fellowship at the University of California, Berkeley.

Dr Marchand's projects focus on questions addressing youth disadvantage, training opportunities for young adults and the evolution of labour market needs in Australia. He also has expertise in addressing how imprisonment and correctional policies affect employment and recidivism after release. More generally, Dr Marchand has extensive experience using surveys or administrative data to study labour market, education and crime-related outcomes. He uses applied econometric methods to evaluate the effects of public policies and programs related to these topics.

Dr Marchand is working on projects funded through partnerships and grants with the Paul Ramsay Foundation, the Lord Mayor's Charitable Foundation, and the Victorian Department of Premier and Cabinet. He is also affiliated with The Life Course Centre.

Dr Susan Méndez

Susan Méndez is a Senior Research Fellow in the Health and Healthcare Research Program at the Melbourne Institute. She joined the Melbourne Institute after completing a PhD in management and economics at the University of Zurich. Trained as an economist, Dr Méndez has a special interest in competition policy and the organisation and regulation of markets, particularly health-care markets.

In her research, Dr Méndez explores how the design of institutions influences the behaviour of and interactions between doctors, patients and funding agencies (government and private health insurance). In her work, she conducts state-of-the-art statistical and econometric analysis using confidential and large datasets from survey and administrative sources.

Dr Méndez has acquired deep industry knowledge of the structures of health care in Australia, for example, pharmaceutical markets, private health insurance, the public-private financing mix, and the effect of competition in the market for non-GP specialist services on fee variation and out-of-pocket costs. Her work has been presented at leading national and international conferences and has been published in leading health economics journals.

Through her work, Dr Méndez also strives to foster informed discussion on domestic public policy through submissions to major inquiries and active engagement with government, private industry and community groups. She has provided research services to the Australian Department of Health on improving the distribution of doctors through the new Rural Primary Care Stream, as well as the Victorian Department of Education and Training, and The World Bank.

Professor John P. de New

John P. de New (formerly Haisken-De New) has been a Professorial Fellow at the Melbourne Institute since 2011. His research focuses on financial wellbeing, health, labour market and education outcomes, and subjective wellbeing/ indicators. Together with Professor Guyonne Kalb, he is the co-coordinator of the Melbourne Institute Labour Markets and Employment research team. He leads the Financial Wellbeing research group at the Melbourne Institute in cooperation with the Commonwealth Bank of Australia and the Auckland Savings Bank in co-developing and analysing the Melbourne Institute Financial Wellbeing Scales, which are based not only on bank records but also on survey data. He has carried out additional engagement research projects for the Victorian Department of Education and Training, and the ASIC. He has been the data review editor for the *Australian Economic Review* since 2016.

Professor de New has published in many top-ranking journals including *American Economic Review*, *Review of Economics and Statistics*, *Journal of Human Resources*, *Journal of Economic Behavior & Organization*, *Economic Journal*, *Journal of Health Economics*, *Social Science and Medicine*, *Journal of Population Economics*, *Economic Record*, and *Labour Economics*. He has received two Discovery grants from the ARC for examining the role of (a) microeconomic expectations and economic outcomes (DP130103755) and (b) economic stress, non-cognitive skill development and life outcomes (DP190102765). He currently teaches microeconometrics for honours and master students. In addition, he has taught at the PhD level at the Faculty of Business and Economics at the University of Melbourne. His previous leadership positions at the Melbourne Institute include Deputy Director and PhD Coordinator. In addition, for the Faculty of Business and Economics, University of Melbourne, he was Associate Dean (Research) and Associate Dean (Research Training).

Prior to arriving in Australia, Professor de New was a fully tenured Beamter auf Lebenszeit W3 Professor of Economics and holder of the Chair 'Economic Policy: Competition Theory and Policy' at Ruhr University Bochum, Germany. He has held full-time research positions at the RWI Essen, DIW Berlin and The World Bank (Washington, DC). He received his doctorate in economics (Dr.oec.publ.) in 1995 at the Ludwig-Maximilians-University of Munich, Germany, his MA in economics at the University of Toronto, Canada in 1988 and his BA (Hons) in economics at Carleton University, Ottawa, Canada in 1987.

Associate Professor Viet Nguyen

Viet Nguyen is a Principal Research Fellow at the Melbourne Institute, which he joined after completing his PhD in economics at the University of Leeds in 2011. His main research interest is in modelling linkages among economies and financial markets to understand how major economic shocks spread through the global economy. Through his engagement work at the Melbourne Institute, Associate Professor Nguyen has also carried out research into how consumers form economic expectations and the implications for their saving and consumption behaviours. This line of research aims to improve modelling of the household sector in current macroeconomic models. He also has extensive research expertise in indicators of economic activity. His research has been published in international journals such as *Journal of Monetary Economics*, *Journal of Applied Econometrics*, *Journal of Economic Behaviours and Organization*, and *Journal of Financial Markets*.

At the Melbourne Institute, Associate Professor Nguyen is responsible for producing key reports of the Westpac-Melbourne Institute Consumer Attitude, Sentiment and Expectations (CASIE) Survey, namely the *Westpac-Melbourne Institute Consumer Sentiment*, *Consumer Unemployment Expectations* and *House Price Expectations* reports. He also produces the monthly *Melbourne Institute State Leading Indexes of Economic Activity* report which tracks the level of economic activity in major states. He has worked in various consulting projects for both public and private institutions such as the Reserve Bank of Australia, the Department of Treasury and Finance, the Department of Health and Social Services, the Victorian Auditor General's Office, Westpac, PEXA, and MasterCard. With his expertise in consumer surveys, Associate Professor Nguyen has also written for *The Conversation*, explaining the values of consumer surveys in understanding consumer behaviours as well as in monitoring activity in the consumer sector.

Professor Ragan Petrie

Ragan Petrie has been a Professorial Fellow at the Melbourne Institute since 2018. She uses a behavioural approach to study issues in the fields of public and labour economics and the economics of education. Most of her research uses field experiments, often designed in partnership with the nonprofit sector, industry and government, to collect new data, uncover new insights on human behaviour, and inform sector practices and economic policy. Her approach is to combine appropriate analytical methods to understand the causal impacts of policies and programs on the decisions that people make and their life outcomes. She has worked on topics such as motives for charitable giving, gender differences in bargaining and competition, discrimination, social media and the impact of the economic preferences of children on educational outcomes.

Professor Petrie's research has been published in top economic journals and funded by the US National Science Foundation, the Science of Philanthropy Initiative and the Bernard and Audre Rapoport Foundation. She has been co-editor of *Experimental Economics* since 2019 and has served as a Board Member of the Committee on the Status of Women in the Economics Profession at the American Economics Association. Media coverage of her research includes articles in the *New York Times*, the *Wall Street Journal*, the *Chronicle of Philanthropy* and the *Australian Financial Review*.

Professor Petrie received her PhD in economics from the University of Wisconsin-Madison. She has a master's degree in Public and International Affairs from University of Pittsburgh and a bachelor's degree in French from the University of Illinois. She is a Full Professor in the Department of Economics at Texas A&M University where she also holds a University Presidential Impact Fellow, a Cornerstone Faculty Fellow in Liberal Arts, and the Elton Lewis Faculty Fellowship in Liberal Arts.

Professor Petrie has been on the steering committee of the TTPN survey, in partnership with Roy Morgan, since its inception in 2020.

AUTHOR BIOGRAPHIES

Dr Tim Robinson

Tim Robinson is a Senior Research Fellow at the Melbourne Institute whose research interests lie in the use of empirical macroeconomic models to inform public policy, and understanding the limitations and relationships between differing modelling approaches. Much of his work is on modelling the Australian economy. His papers have been published in international journals, including the *European Economic Review*, *Journal of Money, Credit and Banking*, and *Journal of Monetary Economics*, and *Australia's Economic Record*. His current research is concerned with evaluating macroprudential policies, nowcasting the Australian economy and causal machine learning. He was a chief investigator on an ARC grant studying macroprudential policies.

Dr Robinson has been a member of the Expert Panel on Macroeconomic Modelling at the Australian Treasury, and prior to joining the Melbourne Institute worked for 14 years at the Reserve Bank of Australia in a variety of roles, including managing the modelling team and as a manager of the section responsible for monitoring and nowcasting the business and trade sectors.

Dr Robinson has contributed to engagement reports for the Victoria Auditor General's department and PEXA and the macroeconomic team's annual review of the Australian economy. He produces the Westpac-Melbourne Institute Leading Index of Economic Activity, and the Melbourne Institute *Phases of the Australian Business Cycle* and *Nowcasts of the Australian Economy* reports. He teaches Modelling the Australian Macroeconomy to honours and graduate students and is the Melbourne Institute coordinator of the joint PhD in Economics program with the Department of Economics.

Dr Rajeev Samarage

Rajeev Samarage is the Data & Analytics Program Director and a Senior Research Fellow in data and analytics at the Melbourne Institute. He has extensive experience in cutting-edge data analytics methods and the application of a range of data visualisation techniques to convert data to a format that audiences can better engage with. He brings to the Institute skills and best practices in data analytics to facilitate multi-disciplinary research, and translation of research evidence into policy and practice change. These skills are evidenced by his design of a sector-first training program for junior data analysts in adopting a platform-agnostic data analytics approach while understanding the limitations of the data utilised. Dr Samarage has also led multiple initiatives towards regulatory compliance in Australia and the United States.

Prior to joining the Melbourne Institute, Dr Samarage spent five years working in a medical imaging technology start-up where he led research and development efforts across the United States and Australia. In this role, Dr Samarage and his team developed methodologies underlying the company's core software products, ensuring their clinical relevance through pre-clinical and clinical studies.

Dr Samarage also led the project to stand up the Melbourne Institute Data Lab, a secure data enclave that enables collaboration on research to inform Australian economic and social policy using highly sensitive data assets from Australian government and proprietary sources. On projects relating to data sharing and data governance, Dr Samarage has consulted on the *Data Availability and Transparency Act* and its accreditation schemes for the Office of the National Data Commissioner, the integration of administrative data within primary data collections such as the Australian Census, and the ethical use of artificial intelligence.

Dr Samarage has led multiple initiatives for improving the use of data visualisation across the Melbourne Institute, including for the TTPN survey. He is also an investigator on projects funded by the Australia Research Data Commons on data integration and data access and an investigator on a project funded by the ARC that quantifies the legacy of historical frontier violence on communities today.

Dr Samarage holds a PhD in biomedical engineering from Monash University. His work on imaging in the fields of embryology and pulmonary systems led to an Outstanding Paper Award and a special editorial in the prestigious journal *Developmental Cell*. He was also the recipient of the Dean's Award for Research Engagement and Partnership for his work as a senior lead in the Breaking Down Barriers project to establish a shared data environment that enables better research and collaboration on poverty and disadvantage in Australia.

Professor Anthony Scott

Anthony Scott leads health economics research at the Melbourne Institute. He has a PhD in economics from the University of Aberdeen, is an elected Fellow of the Academy of the Social Sciences in Australia, immediate Past President of the Australian Health Economics Society, and was a Board Director of the International Health Economics Association (2015–2021). He has been an ARC Future Fellow and NHMRC Principal Research Fellow.

Professor Scott holds visiting positions at the University of Aberdeen, the Melbourne School of Population and Global Health, and has been a Visiting Scientist at Harvard School of Public Health and Monash University Centre for Health Economics. He is an associate editor of *Health Economics* and *Social Science and Medicine*.

His research interests focus on the behaviour of physicians, the health workforce, incentives and performance, primary care, and hospitals. He has consulted for and provided advice to the World Bank, the Independent Hospital Pricing Authority, the Productivity Commission, Medibank Private, and Commonwealth and state departments of health. He established and led the Medicine in Australia: Balancing Employment and Life (MABEL) panel survey of 10,000 physicians which ran from 2008 to 2018, and is a Research Lead Investigator on the NHMRC Partnership Centre on Health System Sustainability.



Associate Professor Sam Tsiaplias

Sam Tsiaplias is a Principal Research Fellow at the Melbourne Institute. His research focus is in the area of applied macroeconomics, including: consumer inflation, cost of living and household financial conditions; housing markets and housing affordability; and the analysis of economic and financial linkages. His research has been published in leading journals such as *Journal of Business & Economic Statistics*, *Journal of Applied Econometrics*, *International Journal of Forecasting*, and *Journal of Economic Dynamics & Control*. He has held senior roles in the areas of policy analysis for KPMG and PwC and he has extensive experience in undertaking policy analysis for government and the private sector. He currently serves on the editorial board of the *Australian Economic Review*.

Associate Professor Tsiaplias has undertaken analysis of housing markets and household affordability for PEXA and the COAG Reform Council. His co-authored paper on Australian housing markets published in the *Economic Record* received the journal's best paper award in 2018. He has also undertaken research into how income and spending shocks affect household propensities to be financially stressed, and has worked with the Commonwealth Bank of Australia on the development of new measures of financial wellbeing.

At the Melbourne Institute, Associate Professor Tsiaplias is responsible for producing the Melbourne Institute Monthly Inflation Gauge and Cost of Living Index and the Melbourne Institute Survey of Consumer Inflationary and Wage Expectations. The Inflation Gauge serves as a monthly measure of price and cost-of-living changes as they affect Australian households and is widely cited in the Australian media. *The Consumer Inflationary and Wage Expectations* report provides monthly information on the inflationary and wage expectations of Australians.

Professor Mark Wooden

Mark Wooden is a Professorial Fellow at the Melbourne Institute. Prior to joining the Institute in 2000, he was Acting Director of the National Institute of Flinders University, Adelaide, where he had been employed for 18 years.

Professor Wooden is the author (or co-author) of four books, over 25 book chapters and more than 200 academic journal articles. Much of his research has focused on contemporary trends and developments in Australian labour markets. He is arguably Australia's leading researcher on trends in non-standard forms of employment and the impacts of these forms of employment on workers, as measured, for example, by job satisfaction, psychological wellbeing and wages. His research interests, however, are wide-ranging and also include important contributions on changing working time patterns and its impacts, causes and correlates of subjective wellbeing, the influence of parental joblessness on later life outcomes of children, and disadvantage faced by sexual minorities. The breadth of his research interests is reflected in a publication record that spans the breadth of the social sciences, including (among others) economics, industrial relations, sociology, psychology, family studies, public health and survey methods.

Professor Wooden is currently a principal investigator on an ARC research grant investigating the links between non-standard forms of employment and fertility. He is also a member of an international research team that, with funding from the US National Institutes of Health, is examining the socio-economic impacts of COVID-19 mitigation policies.

Of most significance, Professor Wooden is also Director of the Household, Income and Labour Dynamics in Australia (HILDA) Survey project, Australia's first large-scale household panel survey and one of Australia's largest research projects in the social sciences. Funded by the Australian government, the first wave was conducted in 2001 with sample members re-interviewed every year. At the end of 2021 there were 20 annual waves providing 305,143 observations from 33,347 unique persons. Furthermore, the data set had spawned well over 1,500 research studies published in academic journals and countless other conference presentations, working papers, student dissertations and reports (often by or for government).

In 2010 Professor Wooden was elected a Fellow of the Academy of Social Sciences in Australia.

Dr Ou Yang

Ou Yang is a Senior Research Fellow at the Melbourne Institute whose research has concentrated on applied econometrics with a strong focus on health and health-care applications. Trained as an applied econometrician with a research interest in health economics applications, his research has been published in leading economics and health policy journals. Recently he was awarded 'Rising Star Runner-up' by the Australian Health Economics Society, in recognition of the significant impact his research has made nationally and internationally.

In addition to his strong academic skills, Dr Yang has extensive policy consultancy and engagement experience. During previous employment as Senior Statistical Consultant at the Victorian Department of Health (formerly the Victorian Department of Health and Human Services) and his continuing engagement with government agencies and private sector organisations at the Melbourne Institute, he has acquired extensive experience and expertise in understanding policy needs and translating analytical results to the policy context to inform policy-makers and the Australian public. Dr Yang has also established a valuable network with senior government officials, government agencies, senior executives in the private sector, and the media. Not only has his recent research on Australia's health system made important contributions to the academic community, it has also drawn significant attention from the media and policy communities.

Dr Yang has been selected as a convener for the International Health Economics Association Early Career Researcher Special Interest Group in 2022 and 2023. Domestically, he was the local organiser of the 41st Annual Australian Health Economics Society Conference in 2019, organised the 8th and 10th Annual Health Economics Workshop of The University of Melbourne Health Economics Group, and moderated the Breakfast Roundtable, titled 'Socioeconomic Status: How Is It Linked to Hospital Utilization?', at the 2018 Outlook Conference. He served on the Melbourne Institute Seminars, Professional Development and Social Committee in 2019–2021.

AUTHOR BIOGRAPHIES

Professor Yuting Zhang

Yuting Zhang is a Professor of Health Economics at the Melbourne Institute. She obtained her PhD in health economics and her MSc in health policy and management from Harvard University.

Professor Zhang develops and evaluates novel strategies to improve health insurance design, health system productivity and population health. Her work uses advanced economic modelling and quantitative analyses of large data sets to study the impact of health policy and the choices of individuals. These empirical studies are motivated by two overarching goals: first, to design studies to identify causal relationships between health policy/interventions and health outcomes rather than mere correlations; and second, to provide guidance on how health policies can be designed to achieve efficiency and high quality of care in the health-care system.

Professor Zhang's research has been published in prestigious medicine, health policy and economics journals such as the *New England Journal of Medicine*. She has been interviewed regularly for television or radio broadcasts, magazines and newspapers, and her work has appeared in many international media outlets, including the *New York Times*, the *Wall Street Journal* and US National Public Radio.

Professor Zhang has led several large-scale projects with funding from the US National Academies of Science, Engineering, and Medicine, the US National Institutes of Health, the Agency for Health Care Research and Quality, the ARC, and the Australian National Health Medical Research Council. She has received multiple international awards including the Australian-American Health Policy Fellowship, and Excellence in Mental Health Policy and Economics Research.

She serves on advisory boards and editorial boards, and as associate editor on several leading international journals including *The Lancet* and the *JAMA* series. She has served as an advisor to several international government agencies including the US Centers for Medicare and Medicaid Services, and in Australia, the Victorian Department of Health and Human Services.



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