

Budget
Blueprint 2021

The roaring twenties



Contents

- 4** Summary
- 5** Ideas
- 10** From averting disaster to unleashing our potential
- 14** Sparking the next boom
- 19** Igniting the next boom
- 26** Powering the next boom
- 31** Nurturing the next boom

About this paper

This paper forms part of our Budget Blueprint series. The Australian Federal Budget is a major annual event. It's an opportunity for the Government of the day to set out its vision for Australia's future. With this document, Blueprint does the same. In it, we offer our assessment of the position Australia finds itself in—a valuable context-setting exercise a week out from the Budget. And we suggest the priorities we believe are most worthy of public support in the coming year and beyond. The list is not exhaustive. Nor is it fully costed. But it contains ideas we believe would serve Australians well.

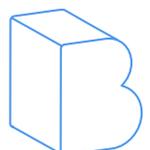
Acknowledgements

Thank you to the various experts who have been consulted on the development of this work. In particular, to Blueprint Institute's Research Committee for their technical advice. The views expressed are those of the authors alone.

Attribution

This report may be cited as: Beal, E., D'Hotman, D., Hamilton, S., Hawcroft, A., Heeney, L., Lamont, K., Steinert, J. Budget Blueprint 2021: The roaring twenties. Blueprint Institute; 2021.

All material published or otherwise created by Blueprint Institute is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.



About the authors

Emma Beal Researcher

Emma has a Bachelor of Advanced Finance and Economics (First Class Honours) from the University of Queensland. As part of her Honours, she investigated the commercial viability of large-scale battery energy arbitrage in the Australian market. In her studies, she was awarded one of six international Women in Business Scholarships by Zonta Club for demonstrating outstanding potential within the field. Emma previously worked for the QIC's Global Infrastructure team and in Deloitte's Energy Financial Advisory team.

Daniel D'Hotman Director of Research & Operations

Daniel is a Rhodes Scholar and medical doctor currently completing his PhD at the University of Oxford. With a strong interest in business and innovation, Daniel was awarded one of two undergraduate scholarships in the Asia-Pacific by the Boston Consulting Group, undertaking health systems and private equity projects in Sweden. Daniel has published a variety of academic papers, with one of these articles selected amongst the 'Best in Philosophy' collection for 2019 by Oxford University Press.

Steven Hamilton Chief Economist

Steven is an Assistant Professor of Economics at The George Washington University in Washington, DC, and a former economist at the Australian Treasury. He is a tax economist by training, and uses data to learn how people respond to policy changes, with a view to designing better policy. Steven holds a PhD in economics and public policy, and an MA in economics, from the University of Michigan, and a Bachelor of Economics with First Class Honours and Bachelor of Business Management from the University of Queensland.

Aurora Hawcroft Researcher

Aurora holds a Bachelor of Arts from the Paris Institute of Political Studies (Sciences Po Paris) and a Bachelor of Economics from the University of Sydney. During her studies, Aurora focused on political economy and innovation policy for which she was awarded Dean's list, Academic Merit, and Faculty awards. Aurora previously worked for the United States Studies Centre's Innovation and Entrepreneurship program. She will pursue a Msc in Social Science of the Internet at the Oxford Internet Institute in the coming academic year.

Luke Heeney Researcher

Luke holds a Bachelor of Advanced Finance and Economics (First Class Honours) from the University of Queensland. Luke previously worked at Grattan Institute in both their energy and health programs, where he modelled wind farm developments and published on aged care reform. Luke has also worked at Macquarie Capital, the Reserve Bank of Australia, and QIC. During his Honours, Luke developed a new method to optimise and compare the value of developments in Renewable Energy Zones.

Katelyn Lamont Summer Research Scholar

Katelyn has a Bachelor of Laws (First Class Honours) and Bachelor of Economics from the University of Queensland. Katelyn has worked as a casual academic at the University of Queensland's School of Economics, and as a Research Assistant at the TC Beirne School of Law. As part of her Honours degree, Katelyn completed research in financial product regulation under the guidance of the Australian Law Reform Commission. Katelyn has also worked in the legal team at Hatch and as a paralegal at King & Wood Mallesons.

Josh Steinert Researcher

Josh recently graduated from the University of Oxford with a degree in Politics, Philosophy, and Economics (PPE). There he specialised in Political Theory and Ethics, with a particular focus on the limits of traditional social contract theory. He is currently studying an MSc in Resource Economics at the Bartlett School, part of University College London. His current focus is upon risk management in natural resource projects.

Summary

This decade could go one of two ways. It could be like the last one—marred by political instability, a few epic policy failures, and a stagnant economy. Or it could be like the last twenties in much of Western society—a decade of economic prosperity with a distinct cultural edge.

Our relatively unscathed emergence from the pandemic is miraculous. We acted swiftly but also with fortitude to save tens of thousands of lives. And our economic supports were difficult to fault under the circumstances. We stand today among the strongest economies on Earth. Employment has returned to its pre-crisis level. All signs point to a robust recovery. And the Treasurer's rejection of austerity is a relief, charting a smooth path back to normal.

But normal isn't good enough. Our economy was barely growing as the crisis struck. Investment, productivity, and wages were all languid. When Chinese demand is keeping the place humming along, it's easy to understand resting on our laurels. But we weren't booming in the lead-up to the crisis. So what's our excuse?

This funk won't solve itself. It requires action. It's not like there aren't good options. All of the craft we've accumulated over the years. All of the terrible policies we've known about but done nothing about. All of the emerging threats we've been perpetually putting off until tomorrow. We already know lots of the answers. There's so much low-hanging fruit.

The decade we have is up to us. Just as the last roaring twenties—in the shadow of World War I and the Spanish Flu pandemic—were an era of rapid economic and cultural change, these twenties can be roaring too.

This Budget Blueprint offers ideas for how we could pop the cork, with four policy areas showing tremendous potential to open a new golden era:

Sparking the next boom

We punch above our weight in science, technology, and the arts, but we're no global hub of innovation and creativity. We need smarter policies to spark the next boom. And we must make sure a future sudden catastrophe doesn't put it at risk.

Igniting the next boom

As we emerge from the pandemic with record public debt, the focus should be on raising revenue in the way that best enables paying it down. That means raising more revenue more efficiently, and shrinking public debt as a share of the economy via rapid economic growth.

Powering the next boom

Australia is increasingly isolated on climate action. If we don't increase our ambition soon, we will feel the heat, diplomatically and economically, as well as physically. We should also position ourselves to take advantage of the new opportunities a net-zero economy promises.

Nurturing the next boom

Our early learning system is anti-productivity. Early learning is not affordable for many families, creates disincentives for parental work, and harms childhood development. Wholesale reform is needed to nurture young minds and unleash a new wave of economic growth.

Ideas

Sparking the next boom

We punch above our weight in science, technology, and the arts, but we're no global hub of innovation and creativity. We need smarter policies to spark the next boom. And to make sure a future sudden catastrophe doesn't put it at risk.

Become the mRNA leader in the Asia-Pacific.

mRNA capacity will be critical to developing boosters against future variants of COVID-19, protecting against future pandemics, and pursuing new and novel medical therapies.

Boost R&D tax incentives and create an Australian Innovation Agency.

To boost R&D, the Government should abolish minimum spending requirements, expand the definition of R&D, and launch an Australian Innovation Agency that supports start-ups.

Establish an Arts Future Fund.

The arts sector took a massive hit during the pandemic. A \$3 billion endowment would be managed by the Future Fund, with earnings invested back into Australian creative industries through annual grants.

Establish the Research Institute for Sudden Catastrophes (RISC).

Akin to the Productivity Commission, RISC would provide independent advice to policymakers on how to minimise and insure against future catastrophic risks.

Igniting the next boom

As we emerge from the pandemic with record public debt, the focus should be on raising revenue in the way that best enables paying it down. That means raising more revenue more efficiently, and shrinking public debt as a share of the economy via rapid economic growth.

Introduce a \$3,000 standard deduction.

Blueprint's [standard deduction plan](#) would remove the need for 80% of Australians to claim tax deductions, paving the way to eliminating 7–9 million tax returns, and cutting taxes by \$400–600 on average.

End LMITO and keep Stage 3 tax cuts.

Stage 3 must be viewed as one part of a three-part package, and Australia's top rate cuts in far too low. LMITO was always meant to be temporary; we can't afford to entrench this complex and inefficient add-on.

Introduce JobMatcher unemployment insurance.

Blueprint's [JobMatcher](#) provides an additional, time-limited unemployment benefit equal to 70% of a newly unemployed person's prior wage for six months. It's real unemployment insurance.

Expand the JobMaker hiring credit.

The Government should expand the JobMaker hiring credit to cover all workers, not just young people. And the payment should be increased by 50% to \$300 to turbocharge the jobs recovery.

Reduce the corporate tax rate and make full expensing permanent.

Applying a 25% corporate tax rate to all companies, and making the current temporary expensing permanent (with some tweaks) would put a rocket under investment, jobs, and wages.

Powering the next boom

Australia is increasingly isolated on climate action. If we don't increase our ambition soon, we will feel the heat, diplomatically and economically, as well as physically. We should also position ourselves to take advantage of the new opportunities a net-zero economy promises.

Increase funding to the ERF.

Funding the ERF enables the Government to purchase abatement at relatively low cost. It is the highest-value emissions reduction option we currently have, so we should lean more heavily on it.

Implement the Coal-Generation Phasedown Mechanism.

Blueprint's [CPM](#) would manage an orderly exit of coal-fired generation from the National Electricity Market, enabling investors to plan new supply, minimising price spikes and reliability issues.

Triple green R&D spending.

Australia's R&D budget should be radically increased to bring us in line with international peers, providing targeted support for soil carbon sequestration, clean hydrogen, and other technologies required to reach net-zero.

EV charging infrastructure.

The Government should nurture the development of an EV ecosystem through support for investment in charging infrastructure, not EV subsidies.

Forge an adaptation and diversification plan for fossil fuel regions.

The Government should start planning for the inevitable future of fossil-fuel regions. Targeted infrastructure spending and labour market support programs are essential.

Nurturing the next boom

Our early learning system is anti-productivity. Early learning is not affordable for many families, creates disincentives for parental work, and harms childhood development. Wholesale reform is needed to unleash a new wave of economic growth.

Introduce universal kindy for ages 3–5.

Early learning starts with early school. Bringing forward the transition from childcare to school to age three would level the playing field for all children. Having this be free and a social default is critical to broad take-up.

Create a streamlined, untied, and means-tested payment for those with children under three.

Universal kindy from age three reduces the childcare envelope. But we should streamline the complex web of payments to families into one simple, means-tested form of support.

Make childcare costs (broadly defined) tax deductible.

On top of a new streamlined payment, tax-deductible childcare would offset the tax wedge between in-home and formal care. Parents can then make the choice that's right for them.

**From averting
disaster to unleashing
our potential**

The Australian economy is in surprisingly good shape. And we should give credit where credit's due. At the beginning of the crisis, the RBA and Treasury predicted unprecedented increases in unemployment, public spending, and public debt. Yet the worst failed to materialise.

While public spending is higher than before the pandemic, emergency fiscal support helped avoid drastic increases in unemployment and broader economic disaster. At historically low interest rates, our path to pay down this debt must be through growth, not austerity—as the Treasurer has rightly pointed out. This budget is an opportunity to lay the groundwork for a new decade of dynamism, creativity, and prosperity. The roaring twenties.

Recovery is only the beginning

At the end of 2020, Australia was outperforming just about every other advanced nation (see Figure 1). And the OECD projects robust growth as we emerge from the immediate crisis through to the end of 2021. In December, the OECD predicted the Australian economy would grow just 3.2% in 2021; now, it believes the economy will grow at [4.5%](#), followed by a further 3.1% in 2022. Setting aside concerns about the vaccine rollout and the emergence of new variants, the outlook for Australia is brighter than most.

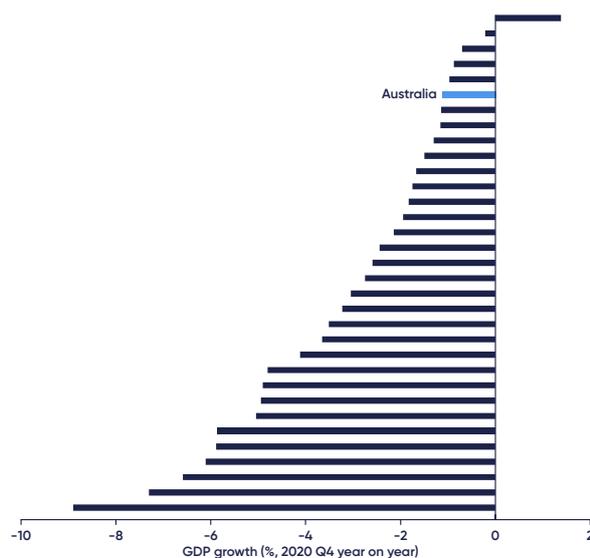


Figure 1 Economic contraction by the end of 2020
Source [OECD](#)

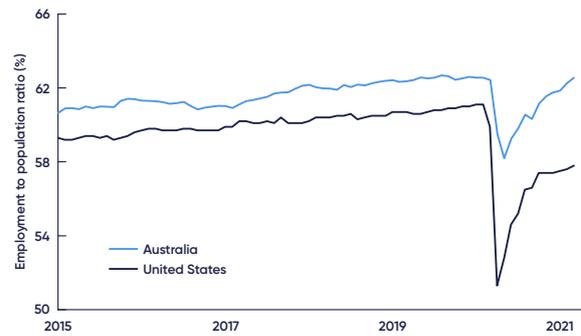


Figure 2 Employment to population ratio (monthly, seasonally adjusted), 2015-2021

Source [ABS, US Bureau of Labor Statistics](#)

The latest [unemployment figures](#) back this up (see Figure 2). The RBA predicted the unemployment rate would peak at 10%; in fact, it only hit 7.5%, and is already down below 5.6%. A comparison with the US, as shown in Figure 2, presents a stark picture. Our sound pandemic management bought us radically fewer job losses at the peak. But it has also bought us a radically faster jobs recovery, with employment already back to its pre-pandemic level. Last year, many doomsayers scoffed at the prospect of a V-shaped recovery. Well, that certainly looks like a V to us.

But we shouldn't get cocky. The surge in India, and the resultant barring of entrants from there, is a stark reminder of the risks we face. Often you don't know a full-blown outbreak is underway until it's too late. Victorians know that pain all too well. But our swiss-cheese hotel quarantine system and long-delayed vaccine rollout (see Figures 3a and 3b) expose us to far more risk than is necessary. We can't reopen the border until we're fully vaccinated, and yet keeping the border closed costs us [tens of billions](#) a year. The Government must redouble its efforts to source additional vaccine supplies, and tackle vaccine hesitancy with every weapon in its arsenal. The pandemic may not be done with us yet.

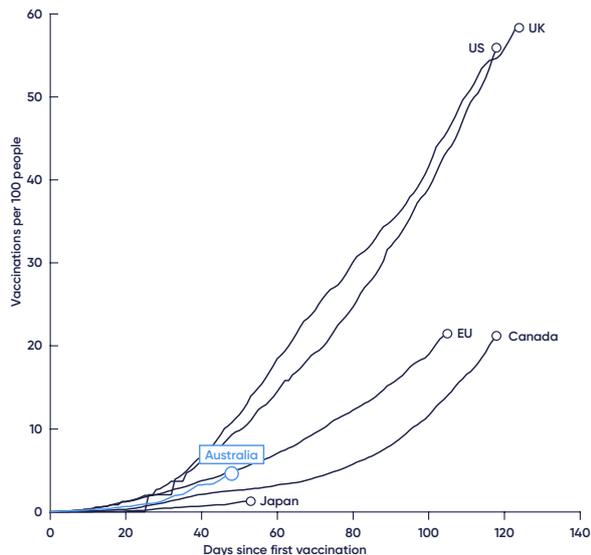


Figure 3a The number of vaccinations in Australia and comparable countries, showing vaccinations against the days since the world's first vaccination

Source [Our World in Data](#), Media reports of first vaccination date

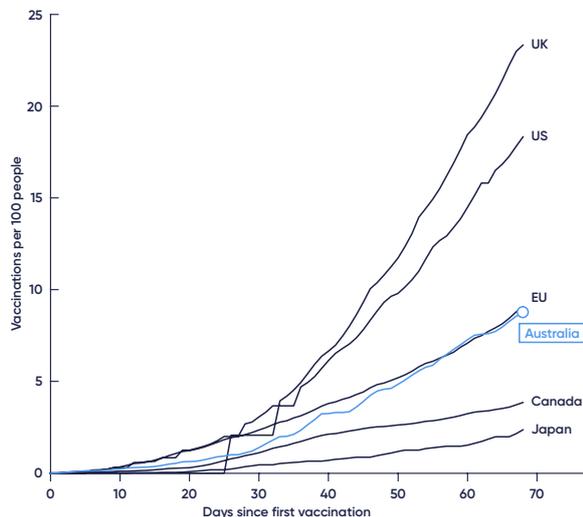


Figure 3b The pace of vaccinations in Australia and comparable countries, showing Australia's position compared to where other countries were after the same number of days since their first vaccination

Source [Our World in Data](#), Media reports of first vaccination date

But even if we continue to manage things well, getting our economy back to its pre-crisis state won't be nearly enough. Biden's slogan—Build Back Better—should apply here, too. In 2019, GDP per capita grew just 0.7%, and since 2013, it's averaged just 0.9%. But during the preceding half-century, it averaged a full 2%. Productivity has barely moved in the past two decades after growing rapidly during the 90s (see Figure 4). Wages have grown even more slowly than the economy (see Figure 5). Investment has been falling as a share of the economy for almost a decade, and is now at a two-decade low (see Figure 6). Not great.

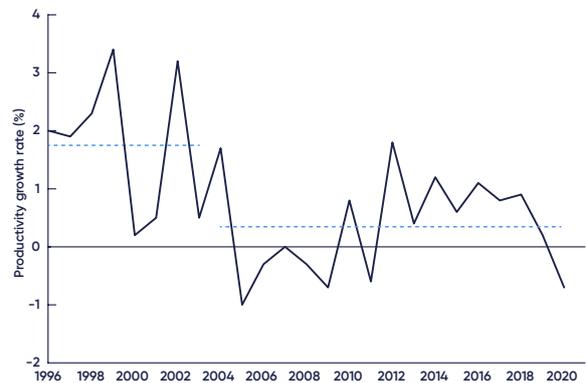


Figure 4 Growth in multifactor productivity, 1996–2020

Source [ABS](#)

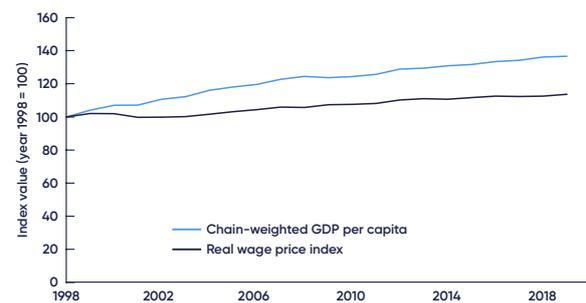


Figure 5 GDP per capita and wage growth, 1998–2019

Source [ABS](#), [ABS](#), [ABS](#)

Note Wage price index converted to real terms using CPI.

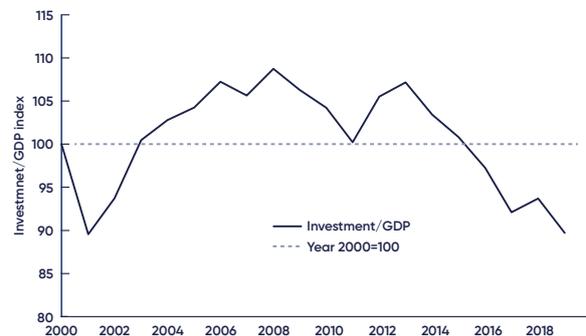


Figure 6 Investment to GDP index (base year = 2000), 2000–2019

Source [Productivity Commission](#)

The debt!

While we shouldn't fixate on public debt, we shouldn't forget about it, either. The Government was right to spend big to support the economy at the height of the crisis—notwithstanding some profligacy in policies like JobKeeper. And it's right to continue to spend big to undergird the recovery. Austerity in the name of reducing public debt would be a disaster. On that, the Treasurer's pre-Budget messaging has been pitch-perfect.

But at some point, the party has to end. Since the Global Financial Crisis, we've seen a ratcheting up of public debt over time (see Figure 7). We

had a sizable stock going into the crisis, and now it's ballooned further. At this stage, it's nowhere near unsustainable. But there is a limit. Over the past decade, Governments of both stripes have made significant new spending commitments, and yet have maintained the post-GST-level cap on government receipts of [23.9%](#) of GDP. With massive spending pressures in health, aged care, and early learning, how long will we remain in this fiscal straitjacket? Our most critical tool for maintaining a sustainable budget—fiscal drag via bracket creep—will soon enough hit its limit.

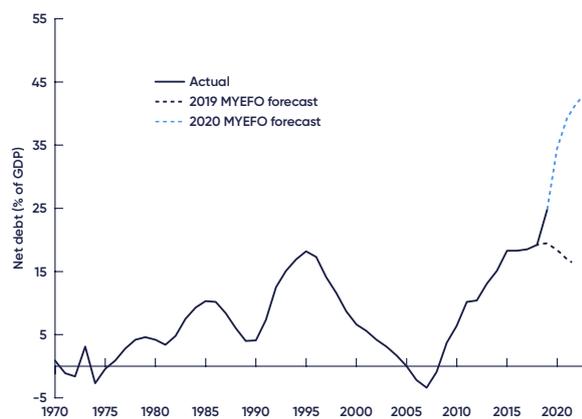


Figure 7 Australia's national debt, 1970-2023 (forecast)
Source [Budget 2020](#), [MYEFO 2019](#), [MYEFO 2020-21](#)

Starving the beast works better in theory than in practice. Those on the right of the political spectrum need to stop banging on about the size of government and start advocating for quality government. A group of smart libertarians in the US coined such an approach "[state capacity libertarianism](#)". We should recognise what we've agreed to publicly fund as a society. And then set about raising the revenue we need to pay for it in the lowest-cost way we can. With less costly taxes, we can keep rates constant and raise additional revenue. And achieve faster economic growth, which not only generates more tax revenue, but also helps shrink the debt as a share of the economy. Smarter, not lower, should be the mantra.

Reform is the way

All of this is the backdrop for a decade of major reform paralysis. The Rudd and Gillard Governments' experiences with the mining and carbon taxes, the Abbott Government's experience with the 2014 Budget, and the Shorten Opposition's experience with its franking credit and negative gearing cuts at the 2019 Federal Election have struck terror into the hearts of politicians across the political spectrum. They've gone into hiding. The wafer-thin parliamentary majorities that have characterised most of the parliaments over the past decade haven't helped. But, one way or another, they've got to snap out of it.

Our states are showing the Feds the way. The New South Wales Government is taking bold, reformist steps on stamp duty, road-user charging, and the energy transition. And the Victorian Government has announced a target—and a suite of policies to help achieve it—to halve its emissions in the coming decade. But the states can only do so much. It's past time for the Feds to step up.

Across Europe and the US, the roaring twenties was an era of rapid industrial, technological, cultural, and creative change. Jazz. Flappers. Art deco. Cars. Phones. Film. Radio. Celebrity. Women's suffrage. All blossomed in the shadow of World War I and the 1918 Spanish Flu pandemic. Today, we stand on the verge of another roaring twenties. It's right there. We just have to reach out and grab it. This Blueprint shows how.

Sparking the next boom

Australia punches above its weight in science, technology, and the arts. But we aren't exactly a global hub of innovation and creativity. Straightforward tax and labour-market reforms will certainly help make our economy more efficient and spur entrepreneurialism and dynamism. But we should be willing to take more risks with the public purse on long shots that could spark a revolution in ideas, and pave the way for the development of whole new industries. Indeed, governments are often better placed than other entities to bear those risks for the potential future betterment of Australian society.

But there are smart ways to do this, and not-so-smart ways. As a general principle, picking winners is a bad idea. Except, of course, if the winner is so blindingly obvious that not backing it would be a clear mistake. For less-clear endeavours, we should ensure independent, well-governed decision making and an open, competitive process for allocating government spending. All other things equal, we should leverage private market actors to achieve good outcomes, ensuring of course that their incentives are well aligned with the social good.

For too long, government support has focused on the hard industries of the past to generate economic growth. When people are paying you a lot of money right now to dig up rocks, it's hard to argue. But our preoccupation with a few traditional industries leaves us exposed to the winds of change that will inevitably sweep the world economy in the years ahead. We must diversify so as not to be buffeted by those winds. It's simply good, conservative risk management. This is particularly true of areas of critical sovereign importance, as so starkly demonstrated during the pandemic. But it's also true of innovation and creative endeavours.

In government decision making, this risk framing has been sorely lacking. Our view of the role of government must begin to be shaped by it. We have to develop a coherent view of the risks the Government should take off people's shoulders, as well as the insurance it should purchase to manage those risks. In an increasingly open and volatile world, we simply can't afford not to.

Become the mRNA leader of the Asia Pacific

mRNA vaccines, like those produced by Pfizer/BioNTech and Moderna, [work differently](#) from normal vaccines and other medical treatments. Instead of injecting small doses of live, weakened virus—or a piece of the virus's protein coat—mRNA vaccines provide direct instructions to the body's immune system. They're faster to produce and modify than traditional vaccines, making them well-placed to protect us against future pandemics. Excitingly, they hold [promise to solve](#) many of the world's most intractable medical issues—such as HIV and cancer.

But the focus today is on COVID-19. And Australia needs to vaccinate its population with great urgency. Evidence suggests mRNA vaccines are [more effective](#) and have [fewer side effects](#) than the AstraZeneca vaccine. mRNA vaccines also appear to be [more effective](#) against variants. So vaccinating Australians with mRNA doses, where possible, should be the goal.

Currently, only a handful of countries have the capacity to produce mRNA vaccines (see Figure 8). The [Australian Academy of Science](#) has called for the Government to invest in domestic mRNA vaccine manufacturing capacity. Due to the ongoing health and economic risks of an outbreak, significant funds should be committed to this goal. Establishing mRNA capacity may cost around [\\$300–500 million](#)—the Government could chip in one third of this cost, with the remainder of the bill being picked up by the states and private sector.

Of course it will take years to complete this process. In the meantime, the best way to get needles in arms is the Pfizer orders due for delivery later this year. But COVID-19 isn't going away—experts have [outlined](#) that an annual booster vaccine may be required. With the pandemic raging around the world, the threat of [vaccine nationalism](#) is unlikely to abate soon. Investing in domestic manufacturing capacity is an insurance policy to protect the nation in coming years.

Once all Australians are protected, we could export mRNA vaccines to our Asian neighbours.

And the benefits of a domestic mRNA manufacturing capacity go beyond COVID-19. Having this advanced and innovative industry onshore could birth synergies with Australia’s world-class biotechnology scene, enabling us

to play a leading role in creating novel medical therapies throughout the roaring twenties. It’s an industry of the future with undeniable potential. We should hop on board with urgency.

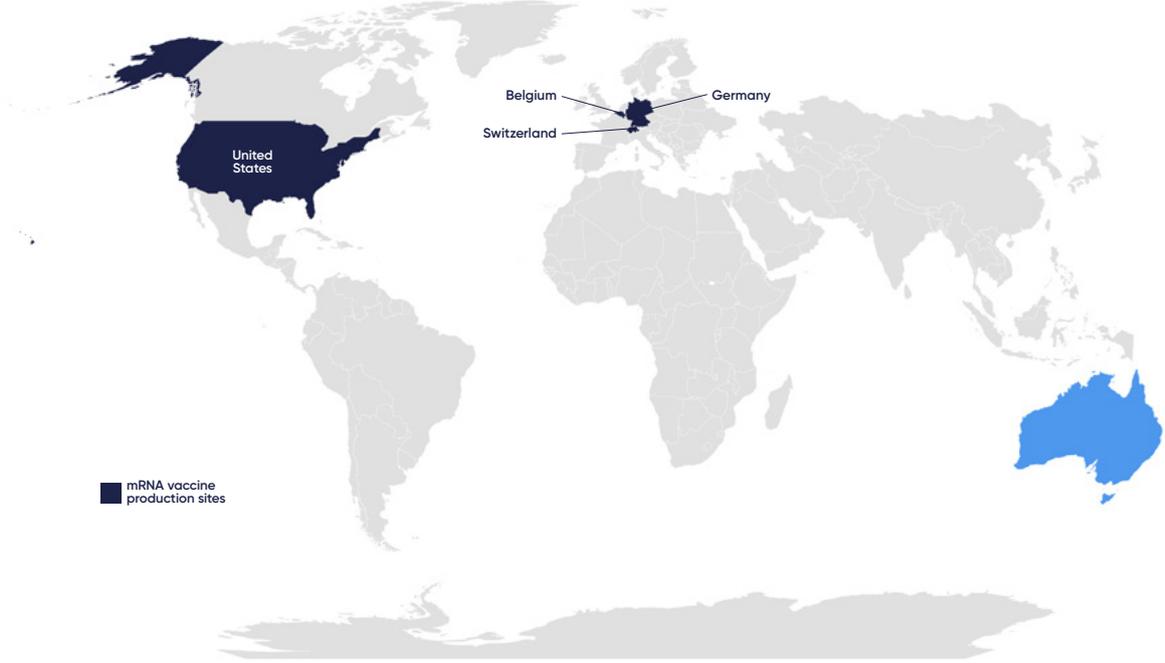


Figure 8 Countries with mRNA manufacturing capability
Source Media reports; Blueprint Institute analysis.
Note The locations outlined here are only those manufacturing sites that conduct the most technologically difficult stages of mRNA vaccine production—namely the isolation of DNA and subsequent production of mRNA and LNPs.

Boost R&D tax incentives and create an Australian Innovation Agency

R&D spending in Australia has declined significantly over the past decade, in contrast to many of our peers (see Figure 9). Of 16 potential incentives for R&D globally, only [tax credits](#) are available in Australia. And these have reduced in value over recent years. From 2014, R&D deductions were not allowed to exceed [\\$100 million](#). And from 2016, the tax offset incentive was reduced from 45% to 43.5% for the refundable tax offset, and from 40% to 38.5% for the non-refundable rate. By comparison, China has a deduction rate between 150% and 175% of R&D spending. In Denmark, the rate is 130%.

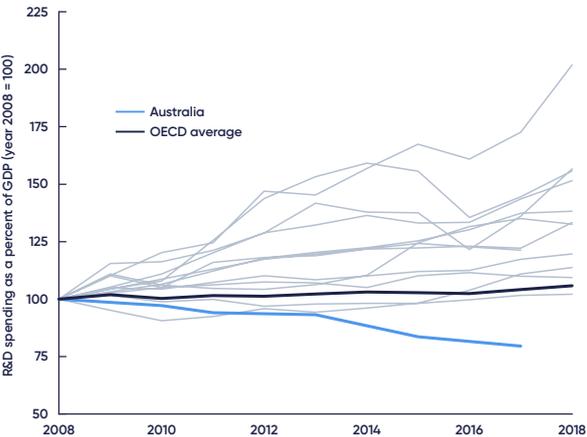


Figure 9 R&D spending across OECD countries, 2008–2018
Source [OECD](#)

Legislative changes after 1 July are expected to unlock an [additional \\$2 billion in business R&D support over the forward estimates](#). These will lift the R&D expenditure threshold from \$100 to \$150 million per year, boost R&D tax incentives for most businesses, and encourage businesses with higher turnovers to engage in higher-intensity R&D expenditure. But there's more we could and should do.

The Government should liberalise its rigid [definition of R&D](#) to unlock more private spending. The current definition discourages early-stage R&D where projects are less certain or resources more sparse. In a similar vein, the minimum spending requirement of \$20,000 should be abolished, as it creates barriers to entry for smaller firms to innovate. SMEs generate between [0.9 to 1.5 additional dollars](#) for every dollar of tax foregone, compared to just 0.3 to 1 dollar for larger firms. Every big firm started as a small firm.

The Government should also scrap the proposed 5% reduction in the R&D tax incentive for businesses with a turnover between \$20–\$50 million and an R&D intensity under 2%. [29%](#) of respondents across the Australian biotechnology industry have indicated that their R&D expenditure will likely decline due to the proposed reforms.

To foster new, innovative, and fast-growing firms, the Government should also establish an Australian Innovation Agency (AIA), based on the Israel Innovation Authority (IIA). The IIA is an independent, publicly funded agency that invests in early-stage entrepreneurs, established companies, academic groups, and global corporations. In 2019, it funded [1,650 R&D projects](#) at a total investment of AU \$750 million. Grants are repayable at a rate of 3–5% of royalties. The program also offers an alternative 4-year [grant scheme](#) that covers around one quarter of the cost of new employees.

The results of this tech-friendly environment are impressive. Israel produces [more tech startups](#) per capita than any other country. In 2020, Israeli start-ups raised [AU\\$13.5 billion](#) with more than [25](#) companies classified as 'unicorns'—

those startups valued over one billion dollars. In contrast, Australia only has [three unicorns](#), with start-ups raising just AU [\\$1.6 billion](#) of investment in 2020. This is despite our population being nearly three times greater than that of Israel. Australia should be more like Israel.

In Australia, the Government provides some support through a 20% non-refundable carry-forward [tax offset](#) for early investors—capped at \$200,000 per year—and a 10 year exemption on capital gains tax. But the AIA could drive greater start-up development and create new innovation. A fund proportional to that in Israel would see around \$2.5 billion invested each year. But a more modest annual investment could be considered initially.

Establish an Arts Future Fund

The arts sector took a big hit during the pandemic. [90%](#) of live entertainment companies were still receiving JobKeeper in Q1 of 2021. And 79,000 jobs were lost during the pandemic. To make matters worse, many parts of the sector were cut out of JobKeeper due to the exclusion of short-term casuals. At the same time, some parts of the sector, like movie production, have been well placed to capitalise on the pandemic. The Australian film industry saw a [three-fold](#) increase in productions in 2020, with Hollywood [productions](#) flocking to do business in COVID-free Australia. A [\\$250 million rescue package](#) in June 2020 was certainly welcome. But what we really need is significant, robust, and ongoing support for the arts in this country.

The pandemic is a unique social stimulus that could unleash a wave of creativity. That's part of what the roaring twenties was all about. A wave of economic and cultural growth that led to the invention of Jazz! Much of this creativity will be led by women: a [survey](#) of 13,000 artists across 184 institutions showed 72% of art school graduates are women, a leading indicator for the future gender make-up of the arts sector. And more than half of grant recipients in the sector are women. So ongoing support for the arts has the potential to benefit women even more than men.

To help drive a wave of creation through the roaring twenties, a \$3 billion Arts Future Fund (AFF) should be established, with net investment returns providing ongoing support to the arts. To fund the body, the Government should initially issue \$3 billion of 15-year debt at an interest rate of around 2%. The capital would then be managed by the Future Fund, which over 10 years has generated an annual return of around 9%. In net terms, this would generate around \$200 million a year to fund grants to the arts sector, broadly defined. With the investment earnings offsetting the cost of debt and grant issuance, the Fund would be budget-neutral.

The Government should set out specific terms of performance and establish an independent board and transparent process for allocating grants. The AFF would last for 15 years, with five-yearly reviews to assess performance against the charter. In 2036, a decision could be made to renew the fund pending borrowing costs, economic conditions, and return on investment. In this way, the Fund would be ring-fenced from government interference. Australia's largest philanthropic trust, the \$3 billion Paul Ramsay Foundation, offers a precedent for a fund of this size.

Establish a Research Institute for Sudden Catastrophes (RISC)

COVID-19 has been labelled a 'black swan' event—one that is unexpected, rare, and difficult to prepare for. But this is false. Scientific experts, [Nobel laureates](#), and [Bill Gates](#) have been warning of the inevitability of a global pandemic for decades. The current Treasury Secretary, Steven Kennedy, outlined the macroeconomic effects of a new [influenza pandemic](#) in 2006. Despite these warnings, Australia was unprepared for COVID-19.

Even more extreme pandemics could be on the horizon—the WHO signaled COVID-19 is '[not necessarily the big one](#)'. And it's inevitable Australia will face other catastrophes in the future. The bushfires of last summer offer a devastating example of [future](#) extreme weather events, which will be exacerbated by a warming atmosphere. Leading technologists such as [Elon](#)

[Musk](#) have outlined the risks associated with artificial general intelligence and autonomous weapons. Even unlikely risks, such as [asteroid strikes](#), warrant our consideration. What would a conflict in the Taiwan Strait mean for Australia?

The Government should invest \$50 million a year in a new public institute dedicated to studying and planning for low-probability catastrophic events. We call this the Research Institute for Sudden Catastrophes (RISC). In the vein of the Productivity Commission, RISC will provide independent advice to policymakers to better prepare the country for these events. Like insurance, but against catastrophic risks.

Catastrophes of focus could include future pandemics, natural disasters, artificial intelligence, extreme impacts of climate change, asteroid strikes, conflicts, and financial crises. RISC should analyse how these events could impact Australia's economy, society, and place in the world. And it should work with departments to build risk management into policy making. In addition to identifying threats and 'war-gaming' hypothetical scenarios, RISC should conduct rigorous cost-benefit analyses that appropriately weigh the benefit of avoiding catastrophic risks against the cost of mitigation.

Igniting the next boom

Our tax system is more or less as it was after the introduction of the GST two decades ago. We've done a bit of tinkering here and there, but nothing really meaningful. We still collect the same rate of GST on the same basket of goods. We still have the same top income tax rate. We still have the same corporate tax rate. Our tax system remains as complex as ever. Distortions abound. We tried to introduce whole new tax bases in the carbon and mining taxes—with merit, at least in theory—but they were summarily rescinded. Tax reform is hard going.

But, at some point, we need to get out of our rut. Tinkering isn't going to cut it with \$1 trillion in public debt, and fast-growing demands on the public purse in health, the NDIS, and aged care, among others. We are going to need to raise more revenue in the years ahead. That puts increased emphasis on doing so in a way that protects growth and our future prosperity. We need to strip complexity out of the system. We need to broaden our bases. We need fewer avoidance margins. We need stronger enforcement. We need to increase our focus on horizontal equity as a yardstick for fairness. And we need to convince the public that it's worth it.

But our tax system isn't all—the other side of the ledger is just as important. There are all sorts of government touchpoints in our lives. So many of them are designed without any degree of ambition or sophistication. Our welfare system is a good example. Crudely simple, and yet a compliance nightmare for recipients and the small businesses flooded with spurious job applications. We need to get smarter in how we design fiscal policy. We need to push for more sophisticated policies where doing so reduces their negative impacts on people's lives. We need to up our ambition.

Introduce a \$3,000 standard deduction

Each year, tax agents extract [\\$1.9 billion](#) from the [70%](#) of individuals who use their services. The main reason for this is the prevalence of tax deductions, which can't be pre-filled by the ATO. These deductions cost us around \$6 billion a

year in compliance costs alone. Vague, complex, and generous criteria mean tax deductions end up subsidising inefficient consumption. And many people game the system. But even for the honest taxpayer, the rules are difficult to interpret and apply. This also makes them expensive to enforce—\$4 billion gets sucked up by the ATO's operations each year.

The Government should introduce an optional [\\$3,000 standard deduction](#), which would liberate 80% of Australian taxpayers from itemising their deductions. This would pave the way to eliminating 7–9 million tax returns. Those individuals with more than \$3,000 of deductions could still choose to itemise—so no one would be worse off. This would offer a tax cut for those who take it of \$400–\$1,000 on average.

At a cost of \$5 billion, the policy would save around the same amount in administrative, compliance, and tax preparation costs. It would also provide a progressive tax cut. Lower-income taxpayers typically claim fewer deductions, so they are more likely to take up the standard deduction, and the benefit is a larger proportion of their income. It would also improve gender equity. As a proportion of their income, women and men receive around the same benefit at low and middle incomes. At higher-income levels, women benefit more on average (see Figure 10).

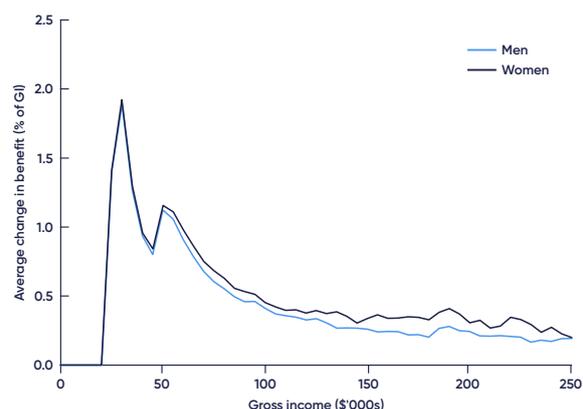


Figure 10 Average tax benefit of deductions today as a percentage of pre-deduction income

Source [ATO](#), Blueprint Institute analysis

End LMITO and keep Stage 3 tax cuts

Personal income tax is the bedrock of the Government's tax revenue base. While it's an important means of redistributing income, too high a rate penalises work. It's for this reason the Government has embarked on its three-stage series of income tax cuts (see Table 1). The aim is to shift the tax burden away from work, by moving to a lower, flatter tax structure. At the height of the pandemic, Stage 2 was brought forward, and the Low and Middle Income Tax Offset (LMITO) was extended, providing tax relief when it was needed most.

Unfortunately, the interaction between LMITO and Stage 2 has created a tax schedule with chaotic marginal tax rates, including an increase for the 700,000 Australians earning between \$90,000 and \$120,000 where the LMITO is phased out (see Figure 11a). This generates a [disincentive](#) to earn taxable income, generating \$300 million less in consumption and saving, and around \$200 million less in tax revenue. We should address this by ending LMITO, as originally planned. It was always meant to be temporary. While extending it during COVID-19 made sense, we shouldn't entrench this complex and inefficient add-on as a permanent part of our tax schedule. A standard deduction would offset at least some of the lost tax benefits for the average low- and middle-income taxpayer (see Figure 11b).

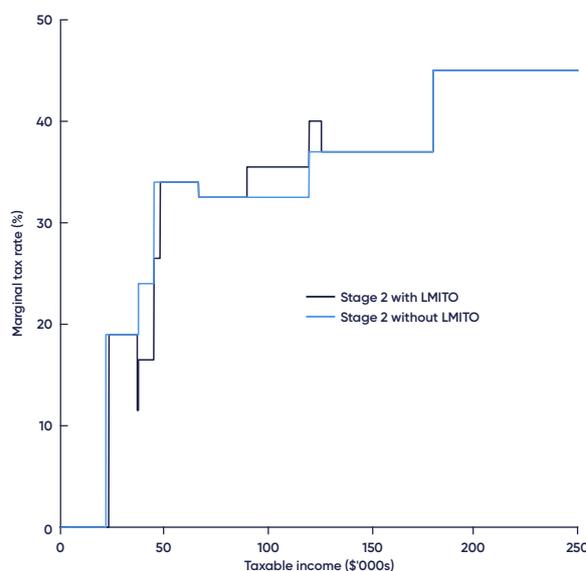


Figure 11a Current marginal income tax schedule with and without LMITO

Source [ATO](#), Blueprint Institute analysis

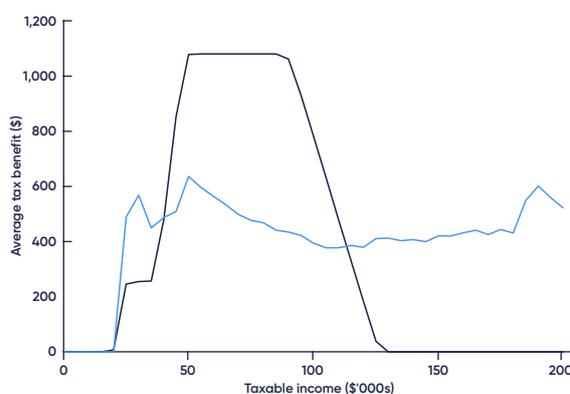


Figure 11b Tax benefit under LMITO vs \$3,000 standard deduction

Source [ATO](#), Blueprint Institute analysis

Stage 1	2018/19	<ul style="list-style-type: none"> • Low and Middle Income Tax Offset (end date brought from 2022/23 to 2021/22) • Increase in the 32.5% tax bracket upper threshold from \$87,000 to \$90,000
Stage 2	Brought forward from 2022/23 to 2020/21	<ul style="list-style-type: none"> • Increase in the maximum Low Income Tax Offset to \$700 • Increase in the 19% tax bracket upper threshold from \$37,000 to \$45,000 • Increase in the 32.5% tax bracket upper threshold from \$90,000 to \$120,000
Stage 3	2024/25	<ul style="list-style-type: none"> • Elimination of the 37% tax bracket • 30% rate applied for incomes between \$45,000 and \$200,000 • Increase in the 45% tax bracket lower threshold from \$180,000 to \$200,000

Table 1 Stage 1–3 income tax reforms

The Stage 3 cuts should continue as planned. When viewed in isolation, it may appear that Stage 3 only benefits high-income earners and reduces the progressivity of our tax schedule. But, as a package, Stages 1–3 represent a general shift away from the heavy taxation of labour, addressing the unchecked bracket creep that has eroded work incentives over time (see Figure 12a). Stage 3 also addresses the fact that our highest marginal tax rate (which itself is quite high) kicks in at a relatively low level by global standards (see Figure 12b).

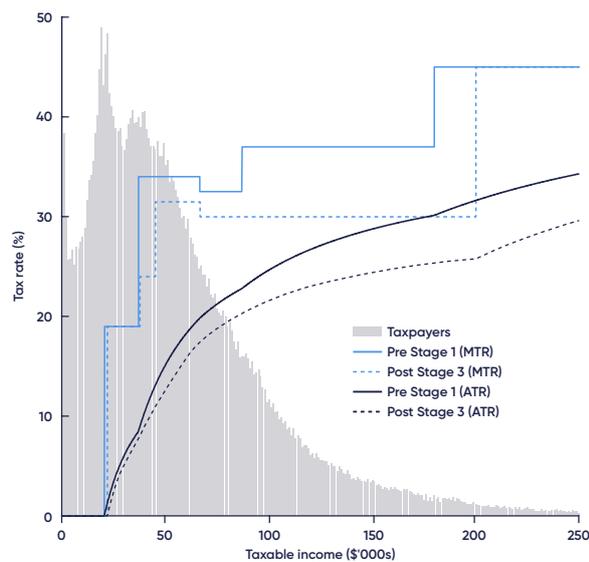


Figure 12a Marginal income tax schedule before and after Stage 1–3 income tax reforms

Source [ATO](#)

Note The taxpayer distribution at a taxable income of \$0 exceeds the y-axis. MTR refers to the marginal tax rate, while ATR refers to the average tax rate.

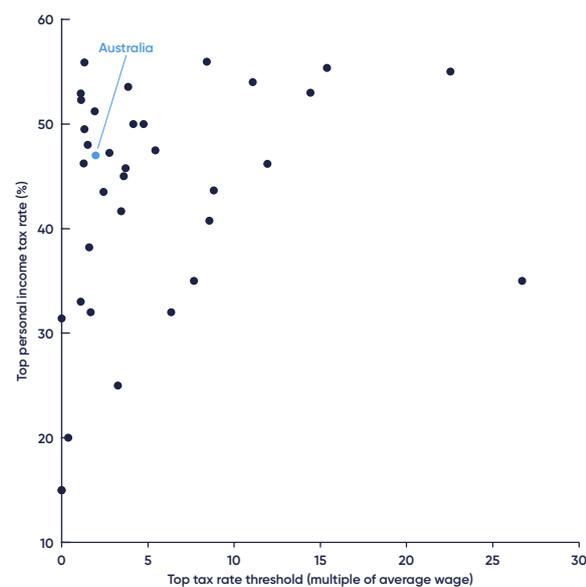


Figure 12b OECD top marginal tax rate and threshold, 2020

Source [OECD](#)

Introduce JobMatcher unemployment insurance

Australia doesn't have true unemployment insurance. Not really. Instead what we have is a universal, flat, and very low rate of unemployment benefit. We lump together the short- and long-term unemployed to create a one-size-fits-all approach that suits nobody well and leaves the Government hamstrung to trade off living standards and work incentives.

This is in stark contrast to other advanced nations. All other OECD countries, other than the UK, Ireland, and New Zealand, offer a high, fairly generous, and time-limited initial payment, usually a portion of the former wage, that reverts to a lower rate at a later date. The initial high rate helps people weather the temporary income shock of sudden unemployment and provides them ample time and opportunity to search for a job that's right for them and their employer.

On the other hand, Australians experiencing short-term unemployment currently receive the lowest unemployment benefit relative to the average wage in the [OECD](#), while support for the longer-term unemployed is nearer the average (see Figure 13). The Government could get the right workers into the right jobs by introducing a generous, time-limited unemployment payment we call [JobMatcher](#). JobMatcher would pay newly unemployed people 70% of their previous wage for six months, providing more time for people to find the [right job](#) for them, rather than just the first one that comes along. After this six-month period, unemployed Australians would continue to be supported by the JobSeeker payment.

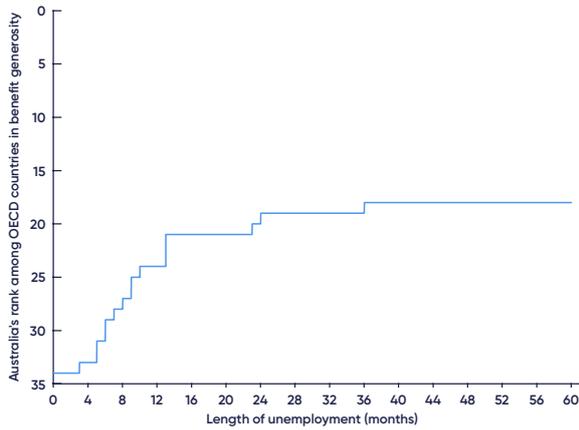


Figure 13 Australia's rank among OECD countries, in terms of the unemployment benefit as a percentage of the average wage, by length of unemployment

Source [OECD](#)

Note This replicates the relative support nations provide to unemployed people; Australia is joint lowest in short-term benefits, before arriving at the middle of the pack for long-term support.

The policy would be budget neutral and paid for as true insurance. The Government would charge workers an annual 'JobMatcher Premium'—about 1% of their income—which would fully fund the scheme (see Figure 14). Importantly, a higher initial payment would boost job-match quality, [productivity](#), [worker retention](#), [innovation](#), and [wages](#) as we soar into the roaring twenties.

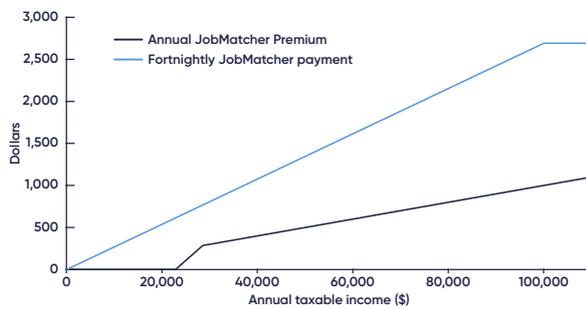


Figure 14 JobMatcher Premium and payments at different income levels

Source Blueprint Institute analysis

Note The phase-in uses the same range as the Medicare levy, beginning at \$22,801 and finishing at \$28,501.

Expand the JobMaker hiring credit

On February 1, the Government introduced the JobMaker hiring credit to encourage businesses to employ young Australians. The credit has two tiers: a \$200-a-week subsidy for new employees aged 16–29, and a \$100-a-week subsidy for those aged 30–35. The problem with JobMaker is it is an age-specific policy when it should really be age-neutral. This restriction seems to have been driven by budgetary concerns, but given half a million additional people remain on JobSeeker, it's worth spending big to keep driving the recovery.

A majority of Australians experiencing unemployment are aged 35 and over (see Figure 15). JobMaker's design penalises middle-aged and elderly Australians by introducing distortive hiring incentives that favour younger workers. And if they don't reenter the workforce now, they may never work again. The age requirement should be scrapped, and the incentive increased to \$300 per new employee, per week. This should help drive the continued recovery of the labour market, minimising the scarring effect of unemployment for those put out of work during the pandemic.



Figure 15 Distribution of JobSeeker and Youth Allowance recipients by age, March 2021

Source [Department of Social Services](#)

Reduce the corporate tax rate and make full expensing permanent

Ultimately, global capital can flow to wherever the after-tax rate of return is highest. And yet we aren't even close to competitive with our peers—only two have higher rates—and the [gap](#) has widened over time (see Figures 16 and 17). While other countries have raced to the bottom, we've stayed out of it. To the loss of investment, jobs, and wages. The UK and US have signalled an end to this race to the bottom, raising their rates to 25% and 28%—still lower than our current rate. And we don't have the advantage of being a major regional hub of corporate activity as they do.

Australia's current system of corporate taxation is complex. We have a headline rate of 30% for the largest companies. But those with less than \$50 million in turnover face a 25% rate. This has two obvious distortive effects. First, it generates an incentive for firms with revenues just above the threshold to move below. This forms a constraint on their ability to generate additional revenue. It also generates an incentive for firms to break up into smaller entities that can each be below the threshold.

Layered onto this two-tiered structure is an imputation system, which fully refunds corporate taxes at the personal level—meaning the corporate tax rate is effectively 0% for domestic investors. But, of course, the marginal investor is foreign, so it's the headline rate that really matters.

The corporate tax structure should be flattened and reduced to 25%. Our current 30% tax rate [hampers](#) investment, and a 1% decrease in the tax rate could increase capital investment by around [5%](#). Moreover, corporate tax cuts can increase labour demand and, in turn, that [increased labour demand](#) can lead to higher wages. Lowering our rate to 25% would encourage investment by matching the UK's planned 25% tax rate.

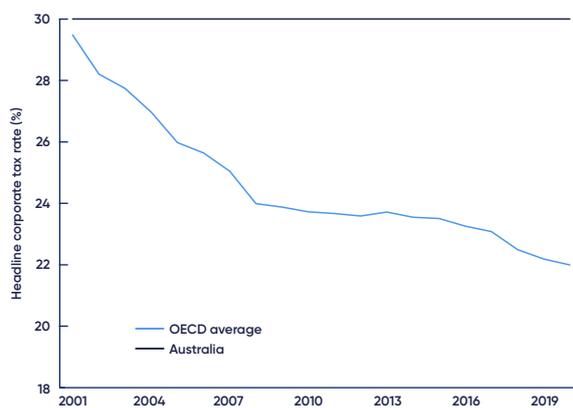


Figure 16 Corporate tax rate differential between Australia and OECD average, 2001–2020

Source [OECD](#)

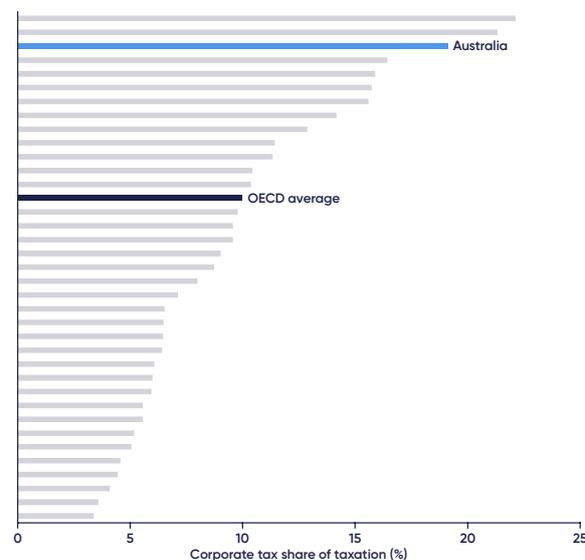


Figure 17 OECD corporate tax as a share of taxation, 2018

Source [OECD](#)

The phrase “time is money” has real bite in the world of business investment. Full expensing allows businesses to write off the cost of an investment in the year they make the purchase, allowing them to receive the tax benefits now, rather than years down the track. Full expensing can increase business investment by up to [18%](#).

The Government should make full expensing a permanent feature of the corporate tax system. But to make the system neutral with respect to investment, this should also be paired with the elimination of the interest deduction and the uplifting of losses at the long-term government bond rate. This system, known as a [cash-flow tax](#), is a simpler corporate tax that avoids distorting investment decisions.

The Business Council of Australia (BCA) has

advocated a [20% investment allowance](#). This would allow a business that purchases a \$100,000 asset to deduct \$120,000 from assessable income, effectively subsidising capital investment. The UK's temporary "[super-deduction](#)" allows businesses to deduct 130% of an investment cost from income. Such a deduction would be in line with Australia's Investment Tax Break introduced during the GFC, which was found to generate [new investment](#). The Government could consider a temporary 20% investment allowance in line with the BCA proposal. This makes sense during a downturn, but we should avoid making it permanent.

Powering the next boom

Net-zero by 2050 is inevitable. The international pace of decarbonisation is accelerating. We can't afford to be left behind. To get there, we need a plan. The first step is recognising the cost carbon emissions impose on us. The skeptics are right when they say that, as a small fraction of global emissions, shutting Australia down completely would barely move the needle. But they overlook other, far greater costs. Failure to decarbonise would spell catastrophe for the Australian economy.

To acknowledge this cost, the Government should explicitly embed it into policy. Most countries have already done so. The EU now prices carbon, so every economic decision factors in its harm. The UK has set a significant emission reduction target of [74%](#) below 2005 levels by 2035. The US has pledged [50%](#) by 2030. But countries with net-zero commitments aren't stopping at domestic decarbonisation—trading partners are also in their crosshairs. If domestic producers have to bear the cost of net-zero, why should foreign exporters be allowed to use unpriced emissions as a competitive advantage?

And if you don't face up to the costs of climate change, you risk missing out on the opportunities it offers. The path to net-zero will reshape the world economic order. Countries with wealth built on fossil fuels stand to lose. And those with technological or natural endowments in renewable energy stand to gain. Australia has profited for decades off the back of our abundant fossil fuel reserves. That will come to an end soon. But just as we found ourselves the lucky country before, remarkably, here we are again, better placed than almost any other country to capitalise on the green revolution. We are a flat, empty, sunny, and windy country, with well-developed ports ready to ship renewable energy to Asia. Let's not miss out.

Increase funding to the Emissions Reduction Fund

Getting to net-zero will be costly. But let's not make it more expensive than it needs to be. The key to low-cost decarbonisation is economically efficient policy design. The most efficient way

to reduce emissions is to let market participants decide among themselves which abatement is cheapest. This can be done at no cost to the budget by imposing a price on emissions. While we don't have an economy-wide carbon price, we do have the next-best thing.

The Government could go around picking winners to achieve abatement. Or it could let candidates come to it and compete for those government funds. That's exactly how the Emissions Reduction Fund works. In effect, it's a carbon price. Ultimately, somebody has to pay for emissions reductions. The ERF isn't magic—it just imposes the cost on taxpayers rather than the producers and consumers of carbon emissions.

But the ERF's effectiveness has stagnated as its funding has dried up. In the first three [ERF auctions](#), an average of 48 million tonnes of carbon abatement were purchased. In the last three, the average has plunged to five million. A carbon price of at least [\\$50—reaching at least \\$65 by 2030](#)—is necessary if we are to achieve net-zero by 2050. With current funding, the ERF pays [\\$16](#) per tonne of abatement, which constrains its impact to small-scale endeavours. More funding would revive the ERF by unlocking another phase of efficient emissions reductions.

The recently announced [Climate Solutions Fund](#) aims to purchase abatement at an average of \$20 per tonne—only 25% more than the current price—for 100 million tonnes of additional abatement. The cost of abatement is uncertain, but it rises the more of it you do. The \$2 billion pledged this decade fails to match the scale of the task at hand. Or the commitments our trading partners are making to decarbonise. According to the [Oxford Smith School](#), just 2% of Australia's COVID-19 recovery spending could be classified as green. For comparison, green spending comprised 25% of the US' recovery package and 17% in the UK. We need to pick up the pace on decarbonisation so we don't fall further behind.

To effect meaningful emissions reductions, the ERF will need to offer a higher price. A fivefold increase in current funding to \$10 billion by

2030 would allow the ERF to continue to fund emissions reductions once the easy options have been exhausted and our abatement task gets harder. At an average price of \$40 per tonne, it would enable 250 million tonnes of abatement by 2030; at an average price of \$80 per tonne, 125 million tonnes. That would get us well on our way to meeting our Paris target.

Implement the Coal-Generation Phasedown Mechanism

Coal-fired generation is the single largest source of Australia’s emissions. It accounts for more than 90% of the electricity sector’s emissions. Electricity is also the lowest-hanging fruit in Australia’s decarbonisation challenge, since its emissions can be reduced relatively cheaply and on a large scale. In fact, they’re often reduced for a profit these days. Private companies are building ever more wind and solar, and the owners of coal-fired power stations are witnessing growing losses. Rapid uptake of solar and wind has [driven](#) power prices to record lows, eroding the profits of coal-fired generators that lack the flexibility to remain competitive in a renewables-dominated grid.

The fate of coal-fired generation is already sealed. The only questions are when and how generator closures will occur. Uncertainty over the answers impedes the investments required for the grid to transition reliably. But careful policy design could allow coal plant operators to bow out of the market gracefully. And doing so goes hand-in-hand with emissions reductions.

The Federal Government should coordinate an orderly phasedown of coal-fired generation. Blueprint’s recent [report](#) outlines a Coal-Generation Phasedown Mechanism (CPM) to achieve just that. The mechanism incorporates elements of the ERF and Safeguard Mechanism, and would be managed by the Clean Energy Regulator.

The CPM would establish emissions targets—dated 2026, 2028, and beyond 2030—for the coal-fired electricity sector. They would be used to phase down coal-fired generation to below 50% of current emissions by 2030. This would be achieved through the allocation of emissions

contracts via auction, equal in volume and expiration to each of the emissions targets. The targets could easily be tightened if needed. A worked example of the impact of the CPM is outlined below (see Figure 18).

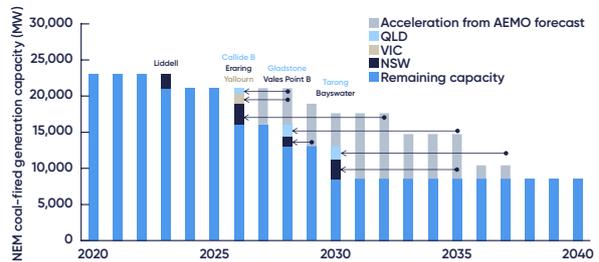


Figure 18 A worked example of the CPM and associated capacity reduction in coal-fired generation.

Source Blueprint Institute Analysis

Who would pay for it? A phasedown of coal-fired generation will impose costs on someone. The Government could fully compensate auction participants for the loss of their expected future profits. Such a model has been adopted in Germany. At the other extreme, the Government could charge operators for the right to emit. The funds raised could then be used to support those communities directly affected by coal-fired plant closures. A funding allocation between the two extremes is also possible. Ultimately, that’s a political question.

Triple green R&D spending

Australia is rich with scientists and entrepreneurs who drive innovation in clean technology. The Government’s plan to decarbonise through technology will require important breakthroughs in hard-to-abate sectors. An increase in funding for clean energy R&D will help us slash emissions and reach net-zero faster.

Australia’s clean energy research spending is moving in the wrong direction (see Figure 19). Despite Australia’s plan to reach net-zero through technological advancement, public R&D in energy technology (as a share of GDP) decreased by 80% between 2013 and 2018. Since 2018, the Government has pledged to refinance ARENA—but Australia spends only one third that of the UK and US per capita on energy R&D.

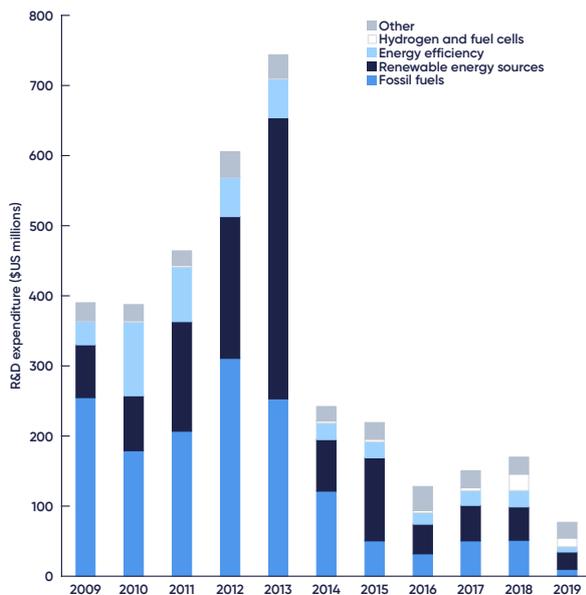


Figure 19 Australian public energy R&D by spend, by energy type, 2009 to 2019

Source [IEA](#)

On this, Australia is an international outlier. Our policy is technology *not* taxes. Much of the rest of the world leverages both technology *and* taxes. You might sensibly think this means Australia is investing more in technology, since we have ruled out the other option. And yet we are not—our peers are putting far more money into clean energy research (see Figure 20). The Government’s recent commitments to refinance ARENA and support hydrogen projects fail to correct this imbalance. Australia should triple its R&D spend. This would bring us in line with the IEA average, relative to GDP.

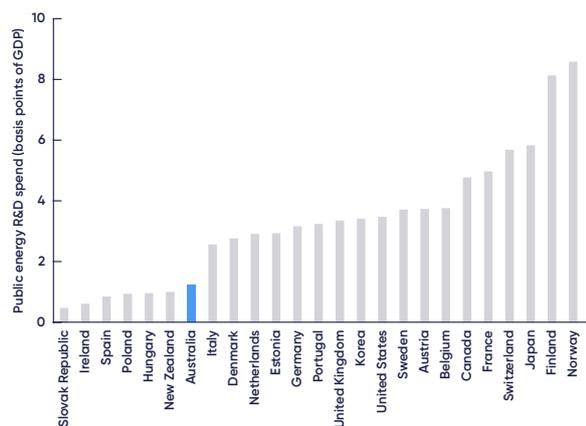


Figure 20 Public energy R&D spend across the OECD, 2018

Source [IEA](#)

Australia spends [1.9% of GDP](#) on defence, and nobody blinks an eye. Our main ally, the United States, spends [over 28 times](#) more than we do

in dollar terms. In any conflict, our contribution would be dwarfed by that of our larger ally, but we accept defence spending as ‘doing our bit’. If we refused to spend on defence, and hoped instead to rely entirely on the US, we could well be left out in the cold. Climate change is no different. Dragging the chain on R&D harms our international reputation and diminishes our influence among our allies. Contributing to the global effort buys us a seat at the table.

EV charging infrastructure

Just [0.6%](#) of new cars sold in Australia in 2019 were EVs—one of the lowest rates among developed nations. One reason for our low EV uptake is our failure to price carbon. The average Australian car emits around 2.4 tonnes of CO₂ [per year](#). At a carbon price of \$40 per tonne, that translates to an average annual carbon cost of around \$100. Given the average age of Australian vehicles of around [10 years](#), that translates to a \$1,000 carbon cost over the lifetime of the average vehicle. This cost would be straightforward to incorporate into the cost of driving via a 10-cent increase in the current rate of fuel excise of [42.7](#) cents per litre, adding around \$5 to the cost of the average tank of fuel.

But the carbon price isn’t the only factor. Were an EV to be powered by renewable energy, it would save this \$1,000 cost. But the cost differential for EVs is far greater than that. The Volkswagen ID.3, an electric alternative to the brand’s traditional Golf, is set to cost around [\\$45,000](#) when it arrives in Australia. That would make it the cheapest EV in Australia. The Golf, on the other hand, starts from around \$30,000. That’s a lot lower. And while EVs have lower maintenance and running costs, these don’t yet come close to bridging the gap.

The trouble is, EVs remain expensive. To make them more attractive, some have called for subsidies, and indeed the Victorian Government is offering a \$3,000 [subsidy](#) for up to 4,000 EV purchases. Based on the average car, this implies a cost of carbon of around \$120 per tonne over a 10-year period. The ERF, on the other hand, currently pays just \$16 per tonne. Is there a clearer demonstration of our lack of a coherent emissions reduction framework than two Australian governments simultaneously

paying \$16 per tonne and \$120 per tonne for abatement? Ultimately, EV uptake will be driven by cost, and that cost will be driven down primarily by foreign demand. The cost of lithium-ion batteries has fallen by [89%](#) in the decade to 2020, for example. At little more than 1% of global sales, Australia won't move that needle.

But there's a lower-cost alternative that could make a meaningful difference to EV take-up: an investment in charging infrastructure. Carmakers' EV offerings are far more limited in Australia than in other markets. Scale matters a lot for product offerings. One potential reason for this is Australia's paltry EV charging infrastructure (see Figure 21). As a vast country, our numbers need to be higher than our peers, not lower. Providing it efficiently would require coordination between carmakers, which might be difficult for a range of reasons. So the Government should lead it by establishing a new [electric vehicle charging infrastructure investment fund](#), which would co-invest in the infrastructure needed to support the electrification of the transport sector.

How much should the Government commit? If we were to match the [UK's](#) per-capita spend on EV charging infrastructure, the Federal Government would contribute at least \$875 million through to 2030. Of course Australia has more than double the road mass of the UK. But an initial commitment at least as large would get us driving in the right direction.

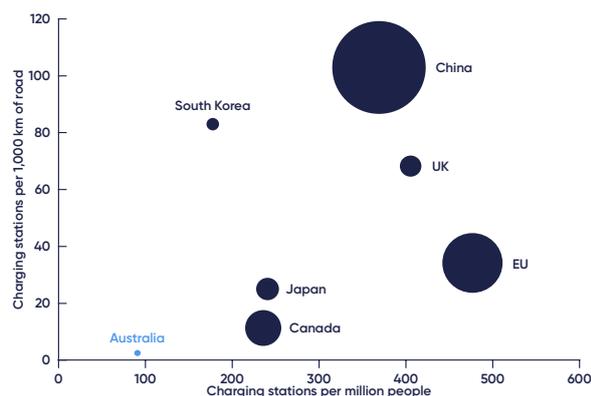


Figure 21 Total EV charging stations

Source Data has been collated from numerous sources to determine the number of public charging stations in each country. Countries included are those highlighted in the [IEA Report: Global EV Outlook 2020](#). The most up to date data for Australia has been collected from the [Australian Electric Vehicle Council](#). Population Data is taken from the World Bank. Road length data is from the [CIA](#).

Forge an adaptation and diversification plan for fossil fuel regions

Coal mining and coal-fired electricity generation are critical parts of regional economies. Coal mining plays an important part in putting food on the table for many regional Australians. The sector accounts for around [10%](#) of Australia's GDP and returned [\\$6 billion](#) in royalties to the Australian people in 2019. As of December, 39,000 people were directly employed by the industry, with at least a further 6,400 employed by coal-fired electricity generators. Though timelines may vary by sector, and depend on dynamic global policy settings, jobs in these industries will not survive as the world shifts to a net-zero future.

We know that decarbonisation will be costly. And it's in no one's interest to prop up industries that will inevitably fail. But the costs of structural decarbonisation should not be borne solely by the communities that rely on emissions-intensive industries. The Government has a responsibility to ensure the cost of decarbonisation does not fall disproportionately on the shoulders of regional Australians.

The Government should dedicate significant resources to supporting regional Australians during the transition. The first step is to be honest with coal communities about their future. But we owe people more than honesty—we owe them an effective policy response. Effective adaptation will require a suite of complementary policies that unleashes the productive potential of our regions and provides support to workers. Developing these policies should be a top priority for the Government.

Nurturing the next boom

The policy debate around early learning has failed in correctly framing it as an economic problem. It's certainly been sold as economics. But mischaracterisations abound. You often hear people talk about the "three Ps": population, participation, and productivity. Well, that's a nice three-word slogan. But it's also a myth. Population, in and of itself, does nothing to raise per-capita GDP. And any economist worth their salt will tell you that participation is not an economic benefit, but rather a cost—drawing a person away from another activity of value to them. Now, there are, in fact, three Ps. But they are: productivity, productivity, and productivity. In the long run, prosperity is all about productivity. So, too, is early learning.

Another furphy is the claimed economic impact of childcare subsidies. Many studies claim a massive GDP boost from childcare. But, in doing so, many of these studies commit a basic double-counting error. If I pay my neighbour \$50 to mow my lawn, and she pays me \$50 to mow hers, GDP goes up by \$100. But nothing has really changed. Home care, predominantly by mothers, is tremendously valuable to our society. But because mothers aren't explicitly paid for that care—instead being paid in the form of avoided formal childcare costs—that work is often undervalued. And so it is in estimates of the GDP impact of childcare.

Once you take away the significant value of the mother's care for her child, the true economic impact of greater formal childcare is far lower than sometimes claimed. There is, of course, still a big benefit. But it isn't 'participation', per se. So we should all stop using that word. The real benefit is, you guessed it: productivity. Having a stay-at-home mum instead do something she's better at. Leveraging the economies of scale of formal childcare. And the child may benefit from interaction with a trained specialist. These are all productivity enhancements from the most powerful and fundamental economic force: specialisation.

When you think about the problem, correctly, in this way, you start to see more clearly the various impediments to a well-functioning childcare

system. The goal should never be to maximise workforce participation. Such a goal certainly has no basis in economics. Our focus should instead be to determine and dismantle the barriers to women making the choice that's right for them. If, absent those barriers, they choose not to participate in the formal workforce, then that choice should not be penalised. We should respect everyone's right to choose.

Now, of course, a person's choices are never free of outside influences—like social norms. But those intangible forces are difficult for government policy to precisely neutralise. How can we be sure just how much any given woman's choice is governed by these forces? That leads us to the moral quandary of whether 'social engineering' should be a goal of government policy. That is, should policy 'lean against' a woman's choice, even after having dismantled all the tangible barriers to her making it in an unbiased way? We believe it shouldn't. But the alternative is a perfectly legitimate value judgment. Instead, our policy goal is to achieve tangible neutrality.

Introduce universal kindly for ages 3–5

The first five years of life lay down crucial foundations for a child's future skills development and learning. Neural connections formed during this time are the bedrock upon which all later learning is built. Children who receive some form of early childhood education or care are [less likely](#) to be developmentally vulnerable. And children who attend preschool—formal education from age three to five—are [less likely](#) to have behavioural and learning difficulties, registering higher academic achievements by age 16.

These effects have significant economic ramifications. British children who attend preschool earn at least [AU\\$54,000](#) more over their lifetime than those who do not. [Evidence](#) from the US suggests lifetime benefits are even higher with high-quality, comprehensive early education programs from birth to age five. Such programs have a massive 13.7% annual rate of return over the child's life, compared to 7–10% annual returns for preschool programs

servicing three to four year olds. Early childhood education spending has one of the highest rates of return of any potential public investment, with [every dollar](#) invested returning two dollars to the economy.

At age three, just 15% of Australian children are in pre-primary education, compared to an OECD average of 69% (see Figure 22). Those children that do access pre-primary education only do so for one year. This begins too late—at age four. Even counting all early learning programs as formal education (which in some cases is a stretch!), there are only [13 years](#) in which over 90% of Australians are in some sort of formal education—over a year less than the OECD average. Children in top-performing countries, such as France, Germany, Ireland, and Israel, spend 15 years in education. In Nordic countries, it's 16 years.

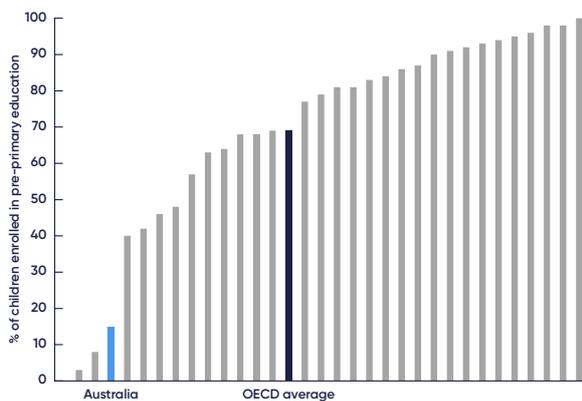


Figure 22 Percentage of children enrolled in pre-primary education at age three, across the OECD, 2020

Source [OECD](#)

Note Pre-primary education refers to what the OECD classifies as education where children improve their use of language and social skills, start to develop logical and reasoning skills, and talk through their thought processes. They are also introduced to alphabetical and mathematical concepts.

This means many Australian children start behind. And they stay there. [One in five](#) 5-year-olds are not developmentally ready when they start school, with children from low- and middle-income families disproportionately represented. This limited participation in early childhood education carries through to educational attainment later on. Across the OECD, Australian children rank 23rd in [mathematics](#), 12th in [science](#), and 11th in [reading](#). The OECD's *Program for International Student Assessment*, which tests educational attainment at age 15, shows

a secular decline in performance for Australian children across all subjects since 2000 (See Figure 23).

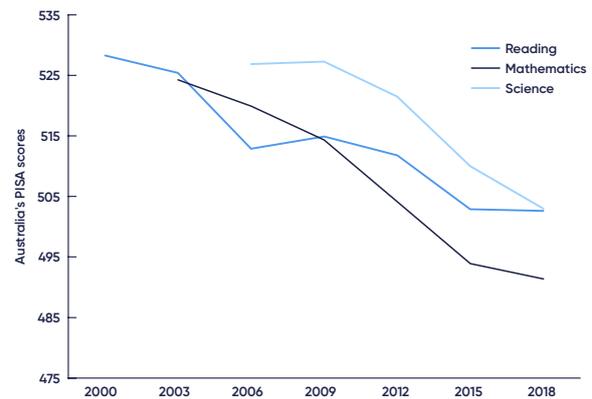


Figure 23 Australia's OECD PISA Scores since they were introduced in 2000

Source [OECD](#)

To ensure Australian children get the best start in life, and that our economy booms in the coming decade and beyond, the Government should introduce universal kindy from ages 3–5. It would also radically limit the time a primary carer who chooses to look after their own child would need to spend outside the workforce. There exists no other productivity-enhancing reform that should be a higher priority.

The ideal system would integrate K3–4 within the existing state education systems, as many US localities do with universal public pre-K. Schools are ideal for a range of practical reasons. It's convenient for parents with older kids at the same school. The transition from kindy to school is less disruptive. It would align incentives for care provision through the crucial 3–5 developmental window, with state governments responsible for the lot. And school teachers are best placed to deliver a curriculum catered to the neural development of 3–5-year-olds.

But, many states—notably New South Wales—already deliver kindy through private childcare centres. So a transition to school-based care may be initially disruptive. Moreover, the establishment of universal K3–4 would require a significant overhaul of federal-state funding arrangements, which would be subject to intense negotiations. While some federal childcare subsidies would be eliminated, new federal funding would need to be provided,

likely via the existing school funding system. It's not straightforward. But when the US is moving ahead of us on social policy, it's clear we need to act. Universal K3–4 should be a non-negotiable feature of any major early learning reform.

Create a streamlined, untied, and means-tested payment for those with children under three

Among the strongest misstatements in the debate around formal childcare is that it's expensive. The thing is, it's not formal childcare that's expensive, per se. It's young children who are expensive. Again, basic economics is critical. It's true that if you put your child in formal care, you must pay for it. But caring for your own child is expensive too, in that you pay in lost wages. And yet, our childcare subsidy provides support to only a subset of parents who face the high costs of childcare. The horizontal inequity of the current system is striking. This also, of course, generates very high effective marginal tax rates, as the subsidy is withdrawn when taking on additional days of work, distorting choices.

Whilst universal kindy will go a long way to mitigating the costs of raising a child older than three, affordability concerns would remain for low- and middle-income families with younger children. From 2011 to 2017, the average cost per week of childcare after subsidies increased by around [50%](#)—or \$2,600 a year. The out-of-pocket costs of childcare now constitute [24%](#) of an Australian couple's average wage. This is well above the OECD average of 17% and more than double the cost in Denmark or Japan. Such are the perils of tying government funding to a single kind of provider, with providers generally commanding local monopolies where people work or live. That means a large share of the subsidy is captured in higher prices, boosting provider profits.

The Government currently spends around \$40 billion a year on family payments (e.g., FTB A and B, childcare subsidies, paid parental leave, etc.). To reduce out-of-pocket costs, the Government has announced an [increase](#) to the maximum available Child Care Subsidy from 85% to 95% for low-income families with two or more children

under the age of five. If constrained to the existing system, these measures are welcome. But the existing system is the problem. Raising childcare subsidies further raises the spectre of throwing good money after bad. What we need instead is wholesale reform.

To that end, the Government should introduce a streamlined, untied, and means-tested family payment that can be used however a family chooses. This means they could choose to care for their own child, hire a nanny, participate in a co-op (which many parents [prefer](#)), or choose formal care. The affordability problem isn't specific to formal childcare, so government support shouldn't be either. Financial support should enable parents to make the choice that suits them. This would also put significant competitive pressure on private childcare providers, which would raise standards and reduce fees. Competition is great.

The precise details are to be determined. But a few are important to stipulate. The payment would flow to the primary carer. And it would not depend on their spouse's income. It could be a function of primary-carer income, and phase out slowly beyond a reasonably high level. It would increase with the number of children. It would subsume all current family payments, even taking the place of the current parental leave payment. You can think of it, if you like, as a three-year paid parental leave system, but one that is untied to the decision to work. The \$40 billion we currently spend on family payments could fund a very generous payment. It shouldn't be tied to childcare costs because parents should be exposed to them when making their decision—shielding people from relative prices only distorts their decision.

The decision of whether to engage in work or in-home care would be neutralised. There would, of course, be an income effect, as economists call it. Economists do not consider income effects, as opposed to substitution effects, to be harmful to economic welfare. If some parents who currently work choose instead to take time off, that's perfectly fine. In fact, it's great. The current system prevents them from doing what they really want. That's bad. The

key is that some things we consume, like movie tickets, are included in GDP. While other things, like spending time with our kids, are not. This is why a narrow focus on GDP is a very poor lens through which to view policy. What we should really care about is allowing people to fulfil their desires conditional on their means to do so.

This issue came to the fore in the US recently, when Republican Senator Mitt Romney [proposed](#) a cash payment to be provided to parents each month, totalling AU\$5,400 per child each year up to the age of six, and AU\$3,900 for each child aged 6-17. These benefits would provide financial stability for families of limited means, phasing out for households with incomes of AU\$260,000 for single filers and AU\$520,000 for partners who file together. Critically, it would be untied to work, which raised the hackles of some commentators worried about disincentives to work. Others rightly pointed out that these income effects are not, in fact, an economic downside, but rather the product of people making decisions that are right for them. They're good! Again, any childcare policy with the objective of maximising workforce participation has no basis in economics.

Regulation is also worth a look. Strict [regulations](#) surrounding staff qualifications and low staff-to-child ratios are well intentioned. But the costs of training and employing workers is simply borne by the Government—and, of course, parents. With the introduction of universal kindy from age three, the Government could examine opportunities to reduce regulation of these early learning centres. Children under three don't require gold-plated early learning services. They need daycare. Regulatory reduction would enable greater flexibility for providers to offer models that suit different parents. And it would lower costs.

Make childcare costs (broadly defined) tax deductible

If our goal is to dismantle the barriers preventing parents making the choice that's right for them—as opposed to forcing choices on them—then the role of taxes cannot be overlooked. When a mother looks after her own child in the home, she

is both consumer and producer. And she's taxed as neither. When she puts her child in formal childcare, however, she pays tax on her own earnings, and the person caring for her child pays tax on their own earnings too. This double tax wedge can be enormous—60% on average, but up to 80% for high-income families. With the tax wedge so large, there's no doubt parental choices are distorted in favour of home care.

When combined with the means-tested nature of our childcare benefit, the disincentives are weighed even more heavily against productive parents returning to formal employment. Under the Child Care Subsidy (CCS), families on the lowest incomes receive an [85% subsidy](#). The rate tapers down to [20%](#) for families earning up to \$353,680 per year, and any family with a combined income over this threshold receives nothing at all. Whilst the Government has [announced](#) the \$10,560 cap on the subsidy will be removed for those earning between \$189,390 and \$353,680, it does not address the employment disincentive entirely.

We know that parental work is [significantly responsive](#) to changes to the cost and reward of paying for childcare. [45%](#) of women in Australia say that they would work more if childcare was more affordable. When a secondary earner (or a single parent) returns to work or increases their hours, the [financial return may be negligible](#) or non-existent. The effective marginal tax rate on secondary earners can approach [100%](#), particularly when work exceeds three days a week. Women, of course, bear the brunt of this burden. Parents who stay at home for longer periods erode their [human capital](#). And the longer a person is out of the workforce, the [less likely](#) it is that they will be able to find a job. If that's their choice, then so be it. But the system shouldn't force them into it. Again, the goal should be neutrality.

Making childcare costs [tax-deductible](#) would mitigate employment disincentives for parents. The tax wedge is in fact far more for mothers on higher incomes. And yet the productivity gains from choosing formal work over in-home care are greatest for these higher-income women. This has nothing whatsoever to do

with inequality (that's dealt with by the means-testing of the new streamlined family payment), and everything to do with incentives. It's a mistake to conflate the two.

The Government could classify childcare costs as a legitimate, work-related tax deduction, so that childcare is treated like any other expense necessary to generate income—which, of course, it is. Australia's loose deductible expense rules enable people to reduce their tax burden by buying computer monitors or cars they don't really need. It's frankly bizarre that we don't afford childcare the same. While this policy will reduce tax revenue, its benefits—greater choice, affordable childcare, empowered parents, and higher productivity—greatly outweigh its costs.

References

- ACECQA. n.d. "Supporting materials." Webpage. ACECQA. Accessed May 3, 2021. <https://www.acecqa.gov.au/resources/supporting-materials#changes>
- AEMO. 2021. "Mild summer delivers near record low Q1 electricity demand and wholesale prices." Media Release. April 28, 2021. <https://aemo.com.au/newsroom/media-release/qed-q1-2021>
- Auerbach, Alan J., Michal P. Devereux, Michael Keen, John Vella. 2017. "Destination-Based Cash Flow Taxation." Oxford Legal studies Research Paper No. 14/2017. Said Business School WP 2017-09. Oxford University Centre for Business Taxation WP 17/01. <https://dx.doi.org/10.2139/ssrn.2908158>
- Aus Biotech. 2019. R&D Tax Incentive: Additionality and spillovers for the life sciences industry. Melbourne: AusBiotech. <https://www.ausbiotech.org/documents/item/606>
- Australian Academy of Science. 2021. "Australian Government urged to invest in updated vaccine manufacturing capability." Science.org. February 23, 2021. <https://www.science.org.au/news-and-events/news-and-media-releases/aust-government-urged-invest-updated-vaccine-manufacturing-capability>
- Australian Bureau of Statistics. 2018. "9309.0 - Motor Vehicle Census, Australia, 31 Jan 2018." July 27, 2018. <https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/9309.0Main+Features131%20Jan%202018?OpenDocument>
- Australian Bureau of Statistics. 2018. "Childhood Education and Care, Australia." April 23, 2018. <https://www.abs.gov.au/statistics/people/education/childhood-education-and-care-australia/latest-release>
- Australian Bureau of Statistics. 2018. "Labour Account Australia, Annual Balanced: Subdivision, Division and Total All Industries." December 11, 2018. http://stat.data.abs.gov.au/Index.aspx?DataSetCode=ABS_LABOUR_ACCT
- Australian Bureau of Statistics. 2020. "Australian National Accounts: National Income, Expenditure and Product." March 3, 2021. <https://www.abs.gov.au/statistics/economy/national-accounts/australian-national-accounts-national-income-expenditure-and-product/latest-release#data-download>
- Australian Bureau of Statistics. 2020. "Estimates of Industry Multifactor Productivity." November 30, 2020. <https://www.abs.gov.au/statistics/industry/industry-overview/estimates-industry-multifactor-productivity/latest-release#analysis-of-results>
- Australian Bureau of Statistics. 2021. "Average Weekly Earnings, Australia." February 25, 2021. <https://www.abs.gov.au/statistics/labour/earnings-and-work-hours/average-weekly-earnings-australia/latest-release>
- Australian Bureau of Statistics. 2021. "Consumer Price Index, Australia." April 28, 2021. <https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/consumer-price-index-australia/latest-release#data-download>
- Australian Bureau of Statistics. 2021. "Labour Force, Australia." April 15, 2021. <https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia/latest-release>
- Australian Bureau of Statistics. 2021. "Migration, Australia." April 23, 2021. <https://www.abs.gov.au/statistics/people/population/migration-australia/latest-release#data-download>
- Australian Bureau of Statistics. 2021. "Wage Price Index, Australia." February 24, 2021. <https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/wage-price-index-australia/latest-release#using-price-indexes>
- Australian Department of Infrastructure, Transport, Regional Development and Communications. 2020. "\$250 million JobMaker plan to restart Australia's creative economy." Arts.gov. June 25, 2020. <https://www.arts.gov.au/departmental-news/250-million-jobmaker-plan-restart-australias-creative-economy>
- Australian Government. 2021. "Vehicle emissions." Green Vehicle Guide. Accessed May 3, 2021. <https://www.green-vehicleguide.gov.au/pages/Information/VehicleEmissions>
- Australian Institute of Health and Welfare. 2020. "Australia's children." Report. Cat. no. CWS 69. Canberra: AIHW. <https://www.aihw.gov.au/getmedia/6af928d6-692e-4449-b915-cf2ca946982f/aihw-cws-69-print-report.pdf.aspx?inline=true>
- Australian Taxation Office. 2020. "Snapshot - Table 4, Taxation Statistics 2017-18." Australian Government Data. July 16, 2020. https://data.gov.au/data/dataset/taxation-statistics-2017-18/resource/54952043-7fc2-463a-b189-9cf84779e961?inner_span=True
- Australian Taxation Office. 2020. "Snapshot - Table 5, Taxation Statistics 2017-18." Australian Government Data. July 17, 2020. <https://data.gov.au/data/dataset/taxation-statistics-2017-18/resource/37e6a189-3410-440d-9d91-1e98d01c1732>
- Australian Taxation Office. 2020. "The discount method of calculating your capital gain." July 1, 2020. <https://www.ato.gov.au/General/Capital-gains-tax/Working-out-your-capital-gain-or-loss/Working-out-your-capital-gain/The-discount-method-of-calculating-your-capital-gain/>
- Australian Taxation Office. 2020. "Trends and latest findings, Random Enquiry Program." October 19, 2020. https://www.ato.gov.au/About-ATO/Research-and-statistics/In-detail/Tax-gap/individuals-not-in-business-income-tax-gap/?page=2#Findings_from_the_random_enquiry_program
- Australian Taxation Office. 2021. "Excise duty rates for fuel and petroleum products." February 26, 2021. <https://www.ato.gov.au/business/excise-on-fuel-and-petroleum-products/lodging,-paying-and-rates---excisable-fuel/excise-duty-rates-for-fuel-and-petroleum-products/>
- Australian Taxation Office. n.d. "Individual Sample File". Accessed March 2018. <https://www.ato.gov.au/About-ATO/Research-and-statistics/In-detail/Taxation-statistics/Taxation-statistics-2017-18/?anchor=Individualsamplefiles#Individualsamplefiles>
- Australian Treasury. 2020. Budget 2020-21 Budget Overview. Canberra: Commonwealth of Australia. https://budget.gov.au/2020-21/content/download/glossy_overview.pdf
- Australian Treasury. n.d. "Tax Incentives for early stage investors." Webpage. Treasury. Accessed May 3, 2021. <https://treasury.gov.au/national-innovation-and-science-agenda/tax-incentives-for-early-stage-investors>
- Barrett, Tom., Emma Beal, Daniel D'Hotman, Steven Hamilton, Aurora Hawcroft. Josh Steinert. 2021. JobMatcher: Real unemployment insurance. Blueprint Institute. https://www.blueprintinstitute.org.au/jobmatcher_real_unemployment_insurance

- Beal, Emma., Daniel D'Hotman, Steven Hamilton, Luke Heeneey, Josh Steinert. 2020. Phasing down gracefully: Halving electricity emissions this decade. Blueprint Institute. https://www.blueprintinstitute.org.au/powering_the_next_boom_part_1_phasing_down_gracefully
- Beal, Emma., Daniel D'Hotman, Steven Hamilton, Luke Heeneey, Katelyn Lamont. 2021. Bye-bye tax returns: A standard deduction for lower, simpler, and fairer taxes. Blueprint Institute. https://www.blueprintinstitute.org.au/bye_bye_tax_returns
- Business Council of Australia. 2021. Budget Submission 2021-22. Melbourne: Business Council of Australia. https://d3n8a8pro7vhm.cloudfront.net/bca/pages/5857/attachments/original/1615934011/BCA_Budget_Submission_2021-22_FINAL.pdf?1615934011
- Cattan, Sarah., Claire Crawford, Lorraine Dearden. 2014. "The economic effects of pre-school education and quality." IFS Report R99. Institute for Fiscal Studies. <https://www.ifs.org.uk/uploads/publications/comms/R99.pdf>
- CB Insights. n.d. "The Complete List of Unicorn Companies." Accessed May 3, 2021. <https://www.cbinsights.com/research-unicorn-companies>
- Centrelink. 2021. "Your income can affect it." Webpage. Services Australia. February 24, 2021. <https://www.servicesaustralia.gov.au/individuals/services/centrelink/child-care-subsidy/how-much-you-can-get/your-income-can-affect-it>
- Chesterton, Andrew. 2019. "Volkswagen's ID.3 to be Australia's cheapest electric car: Golf-sized EV could cost \$45,000." Cars Guide. September 10, 2019. <https://www.carsguide.com.au/car-news/volkswagens-id3-to-be-australias-cheapest-electric-car-golf-sized-ev-could-cost-45000-76073>
- CIA. n.d. "About the World Factbook." Webpage. CIA. <https://www.cia.gov/the-world-factbook/about/>
- Clean Energy Regulator. 2020. "Auction March 2020." September 17, 2020. <http://www.cleanenergyregulator.gov.au/ERF/auctions-results/march-2020>
- Clean Energy Regulator. 2021. "Auction April 2021." April 23, 2021. <http://www.cleanenergyregulator.gov.au/ERF/auctions-results/april-2021>
- Climate Change Committee. 2020. "Climate change is getting worse but it is no worse than we predicted." May 4, 2020. <https://www.theccc.org.uk/2020/05/04/climate-change-is-getting-worse-but-it-is-no-worse-than-we-predicted/>
- Cowen, Tyler. 2020. "What libertarianism has become and will become – State Capacity Libertarianism." Marginal Revolution. January 1, 2020. <https://marginalrevolution.com/marginalrevolution/2020/01/what-libertarianism-has-become-and-will-become-state-capacity-libertarianism.html>
- Deloitte. n.d. "The Israeli Technological Eco-system." Deloitte. https://www2.deloitte.com/il/en/pages/innovation/article/the_israeli_technological_eco-system.html
- Department for Business, Energy & Industrial Strategy. 2021. "UK enshrines new Target in law to slash emissions by 78% by 2035." Press release. April 20, 2021. <https://www.gov.uk/government/news/uk-enshrines-new-target-in-law-to-slash-emissions-by-78-by-2035>
- Department of Agriculture, Water and the Environment. 2019. "Climate Solutions Package." Accessed May 3, 2021. <https://www.environment.gov.au/system/files/resources/bb29bc9f-8b96-4b10-84a0-46b7d36d5b8e/files/climate-solutions-package.pdf>
- Department of Industry, Science, Energy and Resources. 2020. "Resources and Energy Quarterly." December 2020. <https://publications.industry.gov.au/publications/resourcesandenergyquarterlydecember2020/documents/Resources-and-Energy-Quarterly-Dec-2020.pdf>
- Department of Social Services. 2021. "JobSeeker Payment and Youth Allowance recipients - monthly profile." Australian Government Data. April 16, 2021. <https://data.gov.au/data/dataset/jobseeker-payment-and-youth-allowance-recipients-monthly-profile>
- Dixon, Rosalind., Richard Holden, Melissa Vogt. 2019. (Un) Taxing Child-care. Sydney: UNSW. [http://research.economics.unsw.edu.au/richardholden/assets/untaxing-child-care-\(web\).pdf](http://research.economics.unsw.edu.au/richardholden/assets/untaxing-child-care-(web).pdf)
- Eaton, Lynn. 2021. "Covid-19: WHO warns against "vaccine nationalism" or face further virus mutations." BMJ. (2021) 372: n292. <https://doi.org/10.1136/bmj.n292>
- Electric Vehicle Council. Website. <https://electricvehicle-council.com.au/>
- Ernst & Young. 2020. "Australia issues 2020-21 Federal Budget." EY Tax News Update. October 7, 2020. https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/tax/tax-alerts-pdf/ey-australia-issues-2020-21-federal-budget.pdf?download
- Ernst & Young. 2020. Worldwide R&D Incentives Reference Guide. https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/tax/guides/ey-2020-randd-book-low-res-24-sept-2020.pdf?download
- Farooq, Ammar., Adriana D. Kugler, Umberto Muratori. 2020. "Do unemployment insurance benefits improve match quality? Evidence from recent U.S. recessions." Working Paper 27574, National Bureau of Economic Research. https://www.nber.org/system/files/working_papers/w27574/w27574.pdf
- FRED. 2021. "Employment-Population Ration." Webpage. FRED. April 2 2021. <https://fred.stlouisfed.org/series/EMRATIO>
- Frydenberg, The Hon Josh, and Senator the Hon Simon Birmingham. 2020. Mid-Year Economic and Fiscal Outlook. Statement. Canberra: Commonwealth of Australia. <https://budget.gov.au/2020-21/content/myefo/download/myefo-2020-21.pdf>
- Frydenberg, The Hon Josh. 2019. "2019-20 Mid-Year Economic and Fiscal Outlook." Media Release. December 16, 2019. <https://ministers.treasury.gov.au/ministers/josh-frydenberg-2018/media-releases/2019-20-mid-year-economic-and-fiscal-outlook>
- Frydenberg, The Hon Josh. 2021 "Making child care more affordable and boosting workforce participation." Media Release. May 2, 2021. <https://joshfrydenberg.com.au/latest-news/26561/>
- Gates, Bill. 2015. "The next outbreak? We're not ready." Ted Talk. YouTube. April 4, 2015. <https://doi.org/10.1001/jama.1988.03410050104039>
- Global Recovery Observatory. "Global Recovery Observatory." Webpage. <https://recovery.smithschool.ox.ac.uk/tracking/>

- Gong, Xiaodong., Robert Breunig, Anthony King. 2012. "Partnered Women's Labour Supply and Child Care Costs in Australia: Measurement Error and the Child-Care Price" *Economic Record* 88, no. 1: 51-69. <https://doi.org/10.1111/j.1475-4932.2012.00797.x>
- Hamilton, Steven and Holden, Richard. 2021. "\$20 billion and counting: the economic hit from vaccination delays is a very big deal." *The Sydney Morning Herald*. April 20, 2021. <https://www.smh.com.au/national/20-billion-and-counting-the-economic-hit-from-vaccination-delays-is-a-very-big-deal-20210419-p57kes.html>
- Hamilton, Steven. 2019. "The budget's dirty secret is the hikes in tax rates you're not meant to know about." *The Conversation*. April 23, 2019. <https://theconversation.com/the-budgets-dirty-secret-is-the-hikes-in-tax-rates-youre-not-meant-to-know-about-115457>
- Heckman Equation. n.d. "13% ROI Research Toolkit." Web-page. Accessed May 3, 2021. <https://heckmanequation.org/resource/13-roi-toolbox/>
- Henze, Victoria. 2020. "Battery Pack Prices Cited Below \$100/kWh for the First Time in 2020, While Market Average Sits at \$137/kWh." *Bloomberg NEF*. December 16, 2020. <https://about.bnef.com/blog/battery-pack-prices-cited-below-100-kwh-for-the-first-time-in-2020-while-market-average-sits-at-137-kwh/>
- HM Treasury. n.d. "Budget 2021 – Super-deduction." Fact-sheet. Accessed May 3, 2021. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/967202/Super_deduction_factsheet.pdf
- IEA. 2020. "Energy Technology RD&D Budgets 2020." *Statistics Report*. IEA. October 2020. <https://www.iea.org/reports/energy-technology-rdd-budgets-2020>
- IEA. 2020. "Global EV Outlook 2020." *Report*. June 2020. <https://www.iea.org/reports/global-ev-outlook-2020>
- IEA. 2021. "Energy technology RD&D." *Database*. IEA. February 9, 2021. <https://www.iea.org/subscribe-to-data-services/energy-technology-rdd>
- Immigration Canada. 2021. "Canada Faces Huge Challenge to Meet 2021 Immigration Target: Report." *Immigration.ca*. February 20, 2021. <https://www.immigration.ca/canada-faces-huge-challenge-to-meet-2021-immigration-target-report>
- Infrastructure and Projects Authority and HM Treasury. 2018. "Charging Infrastructure Investment Fund." *Policy Paper*. July 23, 2018. <https://www.gov.uk/government/publications/charging-infrastructure-investment-fund>
- Innovation and Science Australia. 2017. *Australia 2030: prosperity through innovation*. Canberra: Commonwealth of Australia. https://www.industry.gov.au/sites/default/files/May%202018/document/pdf/australia-2030-prosperity-through-innovation-full-report.pdf?acsf_files_redirect
- Inspector-General of Taxation. 2018. *The Future of the Tax Profession*. Canberra: Commonwealth of Australia. <https://www.igt.gov.au/news-and-publications/reports-reviews/future-tax-profession>
- Israel Innovation Authority. 2020. *2019 Innovation Report*. https://innovationisrael.org.il/en/sites/default/files/Israel%20Innovation%20Authority-2019%20Innovation%20Report_eng.pdf
- Israel Innovation Authority. n.d. "The Israel Innovation Authority." *Innovation Israel*. Accessed May 3, 2021. <https://innovationisrael.org.il/en/contentpage/israel-innovation-authority>
- Katella, Kathy. 2021. "Comparing the COVID-19 Vaccines: How Are They Different? *Yale Medicine*. April 24, 2021. <https://www.yalemedicine.org/news/covid-19-vaccine-comparison>
- Kennedy, Steven., Jim Thomson and Petar Vujanovic. 2006. *A primer on the macroeconomic effects of an influenza pandemic*. Treasury Working Paper, Australian Treasury. <https://treasury.gov.au/publication/2006-01-a-primer-on-the-macroeconomic-effects-of-an-influenza-pandemic>
- Komaroff, Anthony. 2020. "Why are mRNA vaccines so exciting?" *Harvard Health Blog*. December 10, 2020. <https://www.health.harvard.edu/blog/why-are-mrna-vaccines-so-exciting-2020121021599>
- KPMG. 2021. "Record year for Australian startups with US\$1.6 billion VC invested." February 2, 2021. <https://home.kpmg/au/en/home/media/press-releases/2021/02/record-year-for-australian-startups-venture-pulse-survey-2-feb-2021.html>
- Lamb, Stephen., Suyan Huo, Anne Walstab, Andrew Wade, Quentin Maire, Esther Doecke, Jen Jackson, Zoran Endekov. 2020. "Educational opportunity in Australia 2020: Who succeeds and who misses out." *Report*. Centre for International Research on Education Systems, Victoria University for the Mitchell Institute, Melbourne. <https://www.vu.edu.au/sites/default/files/educational-opportunity-in-australia-2020.pdf>
- Leerberg, Joshua. 1988. "Medical Science, Infectious Disease, and the Unity of Humankind." *JAMA*. 260(5): 684-685. <https://doi.org/10.1001/jama.1988.03410050104039>
- Lise, Jeremy., Costas Meghir, Jean-Marc Robin. 2016. "Matching, sorting and wages." *Review of Economic Dynamics* 19 (January): 63-87. <https://doi.org/10.1016/j.red.2015.11.004>
- Live Performance Australia. 2021. "LPA calls for targeted JobSaver action as snap lockdowns, border closures and audience restrictions smash industry recovery." *Media Release*. February 22, 2021. <https://liveperformance.com.au/wp-content/uploads/2021/02/LPA-MR-LPA-calls-for-targeted-JobSaver-action-as-snap-lockdowns-border-closures-and-audience-restrictions-smash-industry-recovery-FINAL22February2021.pdf>
- London School of Economics. 2018. "What is a carbon price and why do we need one?" *London School of Economics Grantham Research Institute*. May 17, 2018. <https://www.lse.ac.uk/granthaminstitute/explainers/what-is-a-carbon-price-and-why-do-we-need-one/>
- Mahase, Elisabeth. 2021. "Covid-19: Booster dose will be needed in autumn to avoid winter surge, says government adviser." *BMJ*. (2021) 372:n664. <https://doi.org/10.1136/bmj.n664>
- Massola, James., and Emma Koehn. 2021. "Support grows in Morrison government for next-gen vaccines being made locally." *The Sydney Morning Herald*. April 18, 2021. <https://www.smh.com.au/politics/federal/support-grows-in-morrison-government-for-next-gen-vaccines-being-made-locally-20210415-p57jfk.html>

- Mclroy, Tom. 2020. "Blessed': COVID success boosts Australian film industry." Australian Financial Review. December 4, 2020. <https://www.afr.com/politics/federal/blessed-covid-success-boosts-australian-film-industry-20201204-p56km9>
- Minerals Council of Australia. n.d. "Coal: building Australia's future." Accessed May 3, 2021. <https://minerals.org.au/coal-building-australias-future>
- Moscarini, Giuseppe. 2005. "Job Matching and the Wage Distribution." *Econometrica* 73, no. 2: 481-516. <http://www.jstor.org/stable/3598795>
- National Health Service. 2021. "Side effects of the coronavirus vaccines." NHS inform. April 23, 2021. <https://www.nhsinform.scot/covid-19-vaccine-the-vaccines/side-effects-of-the-coronavirus-vaccines>
- Nichols, Austin., Josh Mitchell, Stephan Lindner. 2013. Consequences of Long-Term Unemployment. Urban Institute, Washington D.C. <https://www.urban.org/sites/default/files/publication/23921/412887-Consequences-of-Long-Term-Unemployment.PDF>
- OECD 2021, "Tax on corporate profits (indicator)." Webpage. OECD Data. Accessed May 3, 2021 <https://doi.org/10.1787/d30cc412-en>
- OECD and ILO. 2017. "2. Collaborative workplace innovation in the East Midlands, United Kingdom." In *Better Use of Skills in the Workplace: Why It Matters for Productivity and Local Jobs*. Paris: OECD Publishing. <https://doi.org/10.1787/9789264281394-en>
- OECD. 2016. *Education at a Glance*. Paris: OECD Publishing. <https://doi.org/10.1787/19991487>
- OECD. 2020. "2. Value-added taxes – Main features and implementation issues." In *Consumption Tax Trends 2020*. Paris: OECD Publishing. <https://doi.org/10.1787/152def2d-en>
- OECD. 2021. "Mathematics performance (PISA)." Webpage. OECD Data. Accessed May 3, 2021. <https://doi.org/10.1787/04711c74-en>
- OECD. 2021. "Net childcare costs (indicator)." Webpage. OECD Data. Accessed May 3, 2021. <https://doi.org/10.1787/e328a9ee-en>
- OECD. 2021. "Reading performance (PISA) (indicator)." Webpage. OECD Data. Accessed May 3, 2021. <https://doi.org/10.1787/79913c69-en>
- OECD. 2021. "Science performance (PISA) (indicator)." Webpage. OECD Data. Accessed May 3, 2021. <https://doi.org/10.1787/91952204-en>
- OECD. 2021. "Tax on goods and services (indicator)." Webpage. OECD Data. Accessed on May 3, 2021. <https://doi.org/10.1787/40b85101-en>
- OECD. 2021. *OECD Economic Outlook, Interim Report March 2021*. Paris: OECD Publishing. <https://doi.org/10.1787/34bfd999-en>
- OECD. n.d. "Gross domestic product (GDP)." Webpage. OECD.Stat. Accessed May 3, 2021. <https://stats.oecd.org/index.aspx?queryid=60702>
- OECD. n.d. "Net replacement rate in unemployment." Webpage. OECD.Stat. Accessed May 3, 2021. <https://stats.oecd.org/Index.aspx?DataSetCode=NRR>
- OECD. OECD Tax Database. Website. Accessed May 3, 2021. <https://www.oecd.org/tax/tax-policy/tax-database/>
- OECD. OECD.Stat. Website. Accessed May 3, 2021. <https://stats.oecd.org/#>
- Ohrn, Eric. 2018. "The Effect of Corporate Taxation on Investment and Financial Policy: Evidence from the DPAD." *American Economic Journal* 10, no. 2: 272-301. <https://doi.org/10.1257/pol.20150378>
- Ohrn, Eric. 2019. "The Effect of Tax Incentives on U.S. Manufacturing: Evidence from State Accelerated Depreciation Policies." *Journal of Public Economics* 180, (December):104084. <https://doi.org/10.1016/j.jpubeco.2019.104084>
- Oury Clark. n.d. "R&D Tax Relief." Oury Clark Quick Guides. Accessed May 3, 2021. <https://www.ouryclark.com/site-assets/pdf/quick-guides/corporation-tax/OC-Quick-Guide-Australia-v-UK-R-and-D.pdf>
- Pardi, Norbert., Michael J. Hogan, Frederick W. Porter, Drew Weissman. 2018. "mRNA vaccines – a new era in vaccinology." *Nature Reviews Drug Discovery* 17: 261-279. <https://doi.org/10.1038/nrd.2017.243>
- Phillips, Nicky. 2021. "The coronavirus is here to stay – here's what that means." *Nature*. February 16, 2021. <https://www.nature.com/articles/d41586-021-00396-2>
- Pricewaterhouse Coopers. 2019. "A Smart Investment for a Smarter Australia: Economic analysis of universal early childhood education in the year before school in Australia." The Front Project. <https://www.thefrontproject.org.au/images/downloads/ECO%20ANALYSIS%20Full%20Report.pdf>
- Productivity Commission. 2014. *Childcare and Early Childhood Learning. Inquiry Report No. 73*. Canberra: Commonwealth of Australia. <https://www.pc.gov.au/inquiries/completed/childcare/report/childcare-volume1.pdf>
- Productivity Commission. 2019. *PC Productivity Bulletin. May 2019*. Canberra: Commonwealth of Australia. <https://www.pc.gov.au/research/ongoing/productivity-insights/2019/productivity-bulletin-2019.pdf>
- Productivity Commission. 2020. *PC Productivity Insights: Recent Productivity Trends*. Canberra: Commonwealth of Australia. <https://www.pc.gov.au/research/ongoing/productivity-insights/recent-productivity-trends/productivity-insights-2020-productivity-trends.pdf>
- Reserve Bank of Australia. 2020. *Statement on Monetary Policy*. Sydney: Reserve Bank of Australia. <https://www.rba.gov.au/publications/smp/2020/may/pdf/state-ment-on-monetary-policy-2020-05.pdf>
- Reserve Bank of Australia. 2021. "Chart Pack: Business Sector." April 7, 2021. <https://www.rba.gov.au/chart-pack/business-sector.html>
- Ritchie, Hannah., Esteban Ortiz-Osina, Diana Beltekian, Edouard Mathieu, Joe Hasell, Bobbie Macdonald, Charlie Giattino, Cameron Appel, Max Roser. 2021. "Coronavirus (COVID-19 Vaccinations)." *Our World in Data*. Accessed May 3, 2021. <https://ourworldindata.org/covid-vaccinations>
- Rodgers, David., and Jonathan Hambur. 2018. "The GFC Investment Tax break." *Research Discussion Paper RDP 2018-07*. <https://www.rba.gov.au/publications/rdp/2018/pdf/rdp2018-07.pdf>
- Romm, Tony. 2017. "Elon Musk: Artificial Intelligence Is a Fundamental Risk to Human Civilization." Interview by Jeremy Hobson. wbur. July 18, 2017. Audio. <https://www.wbur.org/hereandnow/2017/07/18/elon-musk-artificial-intelligence>

Rose, Trevor., Mathias Sinning, Robert Breunig. 2021. "How do statutory and effective corporate tax rates affect location decisions of firms and a country's industry structure?" Report, Tax and Transfer Policy Institute. https://taxpolicy.crawford.anu.edu.au/sites/default/files/uploads/tax-studies_crawford_anu_edu_au/2021-04/paper_1_-_corporate_taxes_and_firm_location_decisions_draft_bb9_tr6_ms2_ks1_ps.pdf

Screen Australia. n.d. "Upcoming Productions." Accessed May 3, 2021. <https://www.afr.com/politics/federal/blessed-covid-success-boosts-australian-film-industry-20201204-p56km9>

Serrato, Juan Carlos Suarez., Owen Zidar. 2016. "Who Benefits from State Corporate Tax Cuts? A Local Labor Markets Approach with Heterogeneous Firms". American Economic Review 106, no. 9:2582-2624. <https://doi.org/10.1257/aer.20141702>

Solar Victoria. n.d. "Zero Emissions Vehicle (ZEV) Subsidy." Accessed May 3, 2021. <https://www.solar.vic.gov.au/zero-emissions-vehicle-subsidy>

Start-up Nation Central. n.d. "Start-Up Nation Finder." Accessed May 3, 2021. <https://finder.startupnationcentral.org/>

Stockholm International Peace Research Institute. 2019 "Military expenditure (% of GDP) – Australia." The World Bank Data. Accessed May 3, 2021. <https://data.worldbank.org/indicator/MS.MIL.XPND.GD.ZS?locations=AU>

Stockholm International Peace Research Institute. 2019 "Military expenditure (current USD) – Australia." The World Bank Data. Accessed May 3, 2021. <https://data.worldbank.org/indicator/MS.MIL.XPND.CD?contextual=max-&end=2019&locations=AU&start=2019&view=bar>

Taggart, Brenda., Kathy Sylva, Edward Melhuish, Pam Sammons, Iram Siraj. 2015. "How pre-school influences children and young people's attainment and developmental outcomes over time." Research Brief. UK Department of Education. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/455670/RB455_Effective_pre-school_primary_and_secondary_education_project.pdf.pdf

Tatsiramos, Konstantinos. 2004. "The Effect of unemployment insurance of Unemployment Duration and the Subsequent Employment Stability." IZA Discussion Paper No. 1163, Institute for the Study of Labour. <http://ftp.iza.org/dp1163.pdf>

Tech Aviv. n.d. "Israeli-founded Unicorns." Accessed May 3, 2021. <https://www.techaviv.com/unicorns>

The White House. 2021. "FACT SHEET: President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies." April 22, 2021. <https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/>

Varela, Peter., Robert Breunig, Kristen Sobek. 2020. The Taxation of savings in Australia: Theory, current practice and future policy directions. Tax and Transfer Policy Institute Policy Report No. 01-2020. Canberra: Tax and Transfer Policy Institute. https://taxpolicy.crawford.anu.edu.au/sites/default/files/uploads/taxstudies_crawford_anu_edu_au/2020-07/20271_anu_-_tspi_policy_report-ff2.pdf

Wood, Danielle., Kate Griffiths, and Owain Emslie. 2020. Cheaper childcare: A practical plan to boost female workforce participation. Grattan Institute. <https://grattan.edu.au/wp-content/uploads/2020/08/Cheaper-Child-care-Grattan-Institute-Report.pdf>

Blueprint Institute

