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Paying back Australia's COVID-19 debt

TTPI - Working Paper 10/2022
July 2022

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Abstract

The COVID-19 pandemic has seen a sudden and steep increase in Australia's public debt, as in most other countries. This report investigates and assesses ways in which Australia can bring its debt down to fiscally sustainable levels through the tax and transfer system. Scenarios are modelled over time frames of 33, 20 and 10 years, and over historically representative variations in interest rates and economic growth. Individual revenue raising policies are considered in the areas of: personal income tax, corporate income tax, Goods and Services Tax (GST), Capital Gains Tax (CGT), the age pension means test, inheritance tax and federal land tax. Each policy is assessed on its ability to pay down the debt in a manner that is economically efficient, equitable and simple. Overall, we find that the best option is a federal land tax on unimproved land value, set at a rate of 0.1% over a 33-year period. Three other policy options are recommended as alternatives: including the principal residence in the pension assets test, introducing an inheritance tax, and reducing the CGT exemption for the principal residence.

Keywords: COVID-19 debt, fiscal sustainability, tax system design, land tax

Paying back Australia's COVID-19 debt

Executive Summary

Australia's COVID-19 pandemic-enhanced public debt can be managed back to fiscally sustainable levels with a federal land tax set at 0.1% of unimproved value over 33 years.

The COVID-19 pandemic has had a massive impact on Australia's public debt.

Immediately prior to the pandemic, Australia's post-GFC public debt was high but levelling out at around 28% of GDP.

Two years of pandemic and pandemic-response spending has **Australia's public debt above 40% and rising**.

While low in global terms, Australia's public debt today is higher than at any time since the period immediately following WW2.

Both independent and government modelling show the **current debt trajectory** to be **fiscally unsustainable** in the long term if policy does not change.

We consider the revenue raising requirements for managing debt back towards the low levels historically preferred in Australia. Federal government will also need to consider spending restraint as a way of managing debt. We do not consider reductions in expenditure.

This paper conducted modelling to examine **options for** bringing **debt** to levels considered **fiscally sustainable** by the Parliamentary Budget Office (**PBO**), based on historical precedents and government responses to that – about **30.1% of GDP**.

Time frames modelled were chosen to match those considered by the PBO and by the Treasury for its 2021 Intergenerational Report:
> **10 years**
> **20 years**
> **33 years**

The **revenue raising options** considered were not exhaustive but broad enough to provide essential background and data for any other options that might be considered:

> **Personal Income Tax**
> **Corporate Income Tax**
> **Goods and Services Tax (GST)**
> **Capital Gains Tax (CGT)**
> **Pensions means test**
> **Inheritance Tax**
> **Federal land Tax**

Modelling suggests **all revenue raising options are feasible over the medium to long term**, and most over the short term (barring unforeseeable shifts in international conditions).

While revenue raising options could be combined to address the debt, this paper suggests that a single dedicated revenue raising option is more politically feasible than any scattered combination.

A federal land tax of around 0.1% of unimproved value over the long term is the preferred option recommended by this paper. The OECD recently called for such reform in Australia.

Three other options – **including the principal residence in the pension assets test, an inheritance tax and reducing the CGT exemption for residence – are also recommended**, though there are reasons to prefer a simple land tax over any of these. These options are frequently raised in the context of long-overdue reform of Australia's tax system and a shift away from its over-dependence on income taxes.

The options of raising or broadening GST or decreasing the CGT discount for other assets are both reasonable policy responses but have shortcomings relative to our most preferred options.

Raising corporate or personal income taxes is not recommended. Australia's tax base is already too heavily reliant on income taxes. This heavy reliance on income taxes generates significant tax planning, lowers productivity and wage growth and is susceptible to shocks, in particular volatility in resource prices.

Recommendations and analysis of options with respect to the principles of tax and transfer policy design are summarised in Table 1 below (also on page 16 of the text).

Advocacy for a federal land tax of 0.1% of unimproved value over 33 years

Land tax conforms closely with the **core principles** of tax and transfer policy design – *efficiency, equity, simplicity* and *sustainability*.

The proposed land tax brings the principle of *horizontal equity* into sharp focus:
 - the **cost** of a federal land tax will be **borne** in particular **by older and wealthier** taxpayers
 - **older and wealthier** Australians have **benefitted** most from the government's expenditure on **responses to the pandemic**:
   - **health measures focussed** on **older Australians** most prone to symptoms of COVID-19
   - **economic measures** have **inflated asset prices**, to the **benefit** of the **older and wealthier**
 - **younger** and **working Australians** have borne and continue to **bear the brunt** of **COVID-19** related **costs** (despite the government attempting to mitigate the immediate burden on young people through programs such as JobKeeper):
   - **income** and **job loss**
   - **reduced** opportunities for **capital accumulation**
   - future **tax liabilities** and **reduced consumption** opportunities

The **purpose, level and duration** of the proposed federal **land tax** (set at 0.1% of unimproved land value for a minimum period of 33 years) is **clear and unequivocal**.

The application of a **federal land tax is not unprecedented**. The Commonwealth imposed a federal land tax in 1910 and removed it in 1952. (Its primary functions were i. to encourage the more efficient use of land, and ii. to serve as a quasi- wealth tax.)

Advocacy for land tax as an efficient, equitable, simple and sustainable alternative to stamp duty is widespread. **Implementing a federal land tax in response to COVID-19 accumulated debt will support more widespread acceptance of a long-overdue shift in the tax base from stamp duty to land tax on unimproved value**.

Table 1: Summary of policy discussion and recommendations

Policy change	Principles of tax and transfer policy design	Improves	Stays same	Makes worse	Overall assessment
Introduce land tax	Sustainability/adequacy	x			Preferred
	Efficiency	x			
	Equity	x			
	Simplicity		x		
Include principal residence in pension assets test	Sustainability/adequacy	x			Recommended
	Efficiency	x			
	Equity	x			
	Simplicity			x	
Introduce inheritance tax	Sustainability/adequacy	x			Recommended
	Efficiency	x			
	Equity	x			
	Simplicity			x	
Reduce CGT exemption for principal residence	Sustainability/adequacy	x			Recommended
	Efficiency	x			
	Equity	x			
	Simplicity			x	
Reduce CGT discount for other assets	Sustainability/adequacy	x			Reasonable
	Efficiency		x		
	Equity			x	
	Simplicity		x		
Increase GST rate	Sustainability/adequacy	x			Reasonable
	Efficiency		x		
	Equity			x	
	Simplicity		x		
Increase personal income tax rates	Sustainability/adequacy		x		Not recommended
	Efficiency			x	
	Equity			x	
	Simplicity		x		
Increase corporate income tax rates	Sustainability/adequacy		x		Not recommended
	Efficiency			x	
	Equity			x	
	Simplicity		x		

Introduction

The COVID-19 pandemic and government policy responses to it had major effects on the Australian and global economies. Policy responses in Australia were implemented to minimise severe health impacts while mitigating economic damage and offering financial assistance to those in need. These policies, of varying economic impact, have involved large increases in government spending on items such as healthcare and personal income and business support. The pandemic also led to modest reductions in government revenue, especially during the 2019-20 and 2020-21 financial years.

This combination of increased expenditure and reduced revenue have triggered a sudden and steep increase in public debt. Public debt was as low as 4% of GDP just prior to the GFC of 2008 and has been climbing since. Immediately prior to the pandemic it was around 28% of GDP and levelling out. Today it is around 43%. Treasury expects it to remain above 40% of GDP for the next decade, before falling back to 40% by 2032-33 (Australian Treasury 2022). While modest compared to many countries, this level of debt is unfamiliar to Australians, who must hark back to the post-World War II period to find public debt at such elevated levels.

This paper considers policy options for Australia to pay down its debt through increasing government revenue, assesses the relative merits of these options and makes policy recommendations. It makes these recommendations noting that the elevated debt levels are cause for concern, but do not as yet constitute a crisis. The financing costs of Australia's debt at current interest rates are manageable. Rising inflation and corresponding interest rate rises, which appear almost certain, will make it more expensive. Modelling from Treasury suggests that, left unaddressed by policy change, Australia's debt will become fiscally unsustainable.

Regardless of modelling, Australia will want to pay down this large and burdensome debt at some point. As a small open economy, our ability to carry large amounts of debt is lower than for countries with larger internal markets. Macroeconomic shocks could trigger markedly higher interest rates. Political discourse suggests that Australians prefer a society without large amounts of public debt.

Significantly, long-term debt and associated interest payments exacerbate intergenerational inequality, as future generations are asked to pay for past consumption. This runs contrary to the Australian sense of fairness.

In the 2022-23 Budget, the previous government outlined a medium-term fiscal strategy (Australian Treasury 2022). That strategy anticipated achieving a budget balance within a 10-year timeframe to stabilise public debt, before reducing it in the long term. It anticipated that COVID-19 related spending will decline and economic activity will continue to recover, enabling government to shift focus towards paying down its increased debt burden. This paper provides ideas for that shift in focus.

The paper's recommendations are consistent with widespread and longstanding calls for reform of Australia's tax and transfer system. A broad range of experts have identified tax reform as an opportunity for Australia to improve productivity and growth and to manage growing inequities. The increased public debt post-pandemic is both opportunity and stimulus for current and future governments to remedy these issues. This paper provides a rationale.

The paper

The paper comprises two parts and several appendices. Part A recounts and explains Australia's current debt situation, before discussing how and why public debt is paid down. It also details the criteria defining fiscal sustainability. It then considers the policy options available to the Australian government and makes recommendations.

Above other viable options, this paper advocates paying down Australia's large post-COVID public debt with a federal land tax set at 0.1% of GDP over 33 years. Part A presents the context and rationale for this recommendation.

Part B provides the detailed scenario modelling and analysis that underwrite the discussion of policy options in Part A. It quantifies under a range of scenarios how fiscal policy might change to meet the criteria of fiscal sustainability defined in Part A. It does not advocate for any specific time horizon or trajectory for interest rates and economic growth, but rather presents a range of outcomes and discusses policy mechanisms that might achieve fiscal sustainability under scenarios that correspond to scenarios developed and used by government agencies.

Readers can augment their understanding of the material presented in the main parts of this paper with the appendices. For readers unfamiliar with the circumstances of and debate about Australia's tax system, Appendix A provides an introduction. It considers the current state of tax policy in Australia, acknowledging both the widely accepted need for reform that predates the pandemic and the failure of successive governments to undertake such reform.

Appendix B backgrounds the sources of information on public debt used for modelling, primarily from Treasury and the Parliamentary Budget Office.

Appendix C gives a detailed numerical breakdown of the impact on the budget of COVID-19 and government's responses.

In Appendix D, Australia's post-pandemic economic situation is placed in an international context. The potential for global economic and political developments to impact on the modelling and recommendations of this paper are also considered.

Part A – Rationale and Recommendations

This first part of the paper examines the size of Australia's public debt and its determinants. It then addresses how governments pay down debt in practice, why fiscal sustainability is important and how it can be quantified. To examine how Australia could pay down its debt, the paper defines the criteria of 'fiscal sustainability' which we use.

Achieving long-term fiscal sustainability in Australia will almost certainly depend on increasing revenues even if it incorporates expenditure reductions. Most government programs are popular and cutting them is difficult. Well-documented cost pressures in disability services and aged care and likely spending increases in social services and childcare under the Labor government elected in May 2022 suggest that even keeping expenditure growth on past trajectories will be challenging.

Assuming the need to both sustain current government programs and pay down debt, the paper examines potential tax policy changes to achieve the required budget gains across the range of scenarios. The paper also considers one transfer policy change relating to the pension means test.[1]

The policy discussion and recommendations reflect the long-term modelling of the effects of policy change on budget aggregates included in Part B. Amongst many potential options for paying down debt, some are clearly preferable and conform closely to core principles of tax and transfer policy design. The paper recommends paying down Australia's debt with taxation that minimises economic damage and increases equity. A federal land tax set at 0.1% of GDP over 33 years is the most effective and principled means of achieving that end.

The debt and budget balance

This section examines the size of Australia's federal government debt and annual budget balance. It outlines historical trends and published projections for the future. It illustrates the magnitude of changes to the budget arising from the pandemic and the government's response.[2]

The ultimate consideration for a government managing public debt is the cost of servicing that debt over a given time period. This depends upon the size of the debt, interest rate conditions, economic growth and government policy. Each of these interrelated factors is influenced by other factors, making projection a challenging exercise. Nevertheless, contemporary and historical information enables projections into the medium and long terms by setting expected values for these determinants and simulating over a range of scenarios.[3] These projections are useful for both policy modelling and comparison of alternative policy scenarios.

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[1] A future companion piece to this paper might examine the degree to which various government programs would need to be reduced to ensure long-term fiscal sustainability. A starting point for this type of analysis is provided by Hussey and Wallace (2021).

[2] While the federal Budget is the focus of this paper, state and territory debt is also an important aspect of the ongoing impact of COVID-19 on Australia's finances. In January 2021, all states and territories except WA were expecting a major increase in debt and net financial liabilities, with Victoria the most strongly affected. Considering these debts and how they will be repaid is beyond the scope of this paper. See Carling (2021) for an overview of state and territory debt related to COVID-19.

[3] Public (or government) debt can be measured in different ways. 'Gross debt' is the total amount of government interest bearing liabilities before considering any financial assets. Other concepts such as 'net debt' incorporate some assets in the calculation. However, gross debt, net debt and other measures tend to follow similar trajectories (PBO 2021a). This paper uses gross debt for analysis unless otherwise specified.

The research focus of the scenario analysis conducted for this paper is to address the magnitude of policy reform required to meet Australia's increased debt obligations. The paper proposes and models specific policy changes that may accomplish this and assesses the relative effectiveness and desirability of each.

Public debt and interest payments

Figure 1 depicts debt-to-GDP and interest payments-to-GDP ratios, and the 10-year bond yield, from 1964-65 to 2019-20. This chart also includes a medium-term projection to 2030-31 and a further long-term projection out to 2054-55.[4] Clearly, debt has increased markedly since the onset of COVID-19. Prior to the pandemic gross debt stood at 28%, and by 2020-21 was at around 40% of GDP. In the 2020-21 Budget, the government projected debt to increase to over 50% of GDP in 2022-23 and remain above 50% for at least the next decade. The 2022-23 Budget revised this projection down, anticipating debt to drop to around 40% by 2032-33.[5]
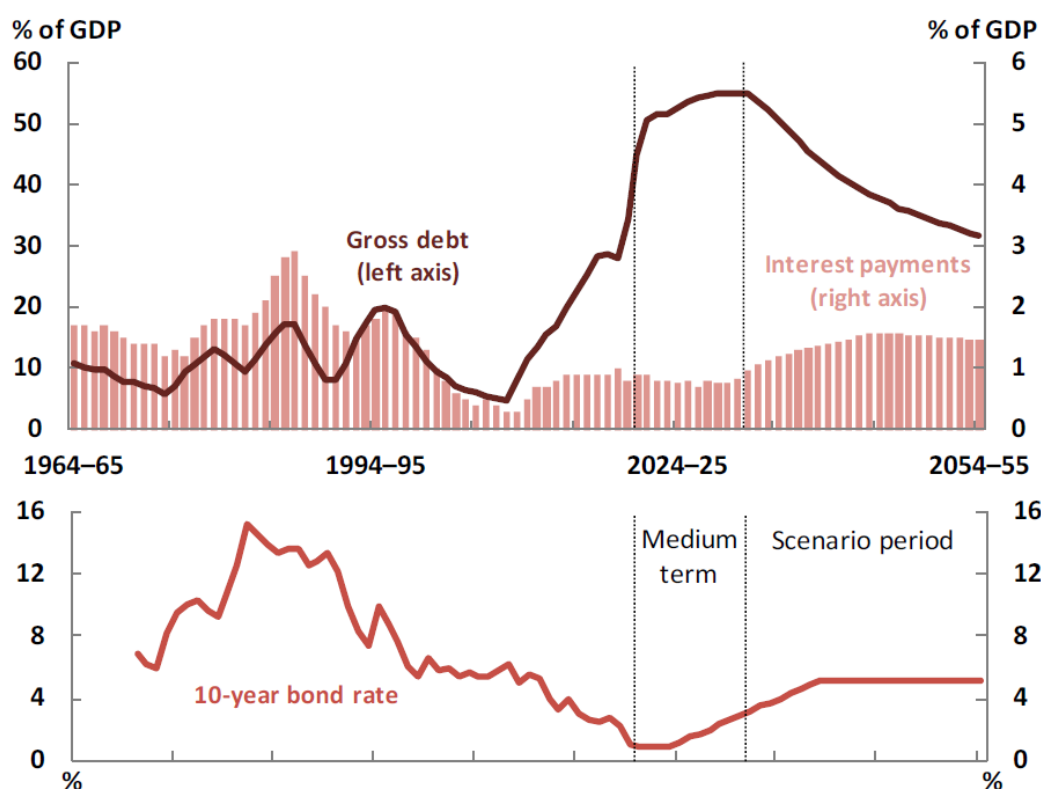

Figure 1: Historical and projected debt-to-GDP and 10-year bond rate (PBO 2021a)

Interest payments are the actual cost of servicing government debt. Their size is determined by the size of the debt and associated interest rates. Figure 1 suggests that if interest payments remain between 1% and 1.5% of GDP, the Parliamentary Budget Office (PBO) expects gross debt to fall over time in a sustainable manner. However, such low levels of interest payment are unusual historically and significantly lower than the peak of levels experienced in the 1980s. While the cost of servicing debt is currently suppressed by very low interest rates, this could change significantly if (when) interest rates rise. A potentially massive hike in the cost of servicing debt provides further impetus to pay down that debt in an expedient fashion.

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[4] Drawn respectively from the 2020-21 Budget and from PBO projections.
[5] We note that not all of the recent and projected increases in debt are due to COVID-19. There is a component relating to increases in ongoing spending that have been committed to in the past few years.

The budget balance

The government's budget balance each year determines the amount by which the national debt will grow (if in deficit) or decline (if the budget produces a surplus). Figure 2 depicts the historical and projected budget balance in terms of headline cash balance, for the same time periods as Figure 1, and again with interest payments split out. Viewing this chart alongside Figure 1 illustrates that the PBO (2021a) expects the gross debt-to-GDP ratio to decrease gradually over the long term even if the government adopts a fiscal policy of running relatively small deficits over this period.[6] The decrease is anticipated because of a presumption that GDP growth will outpace public debt growth. For GDP to achieve these growth figures, productivity growth will have to be higher in the future than it has been in the last 10 years.
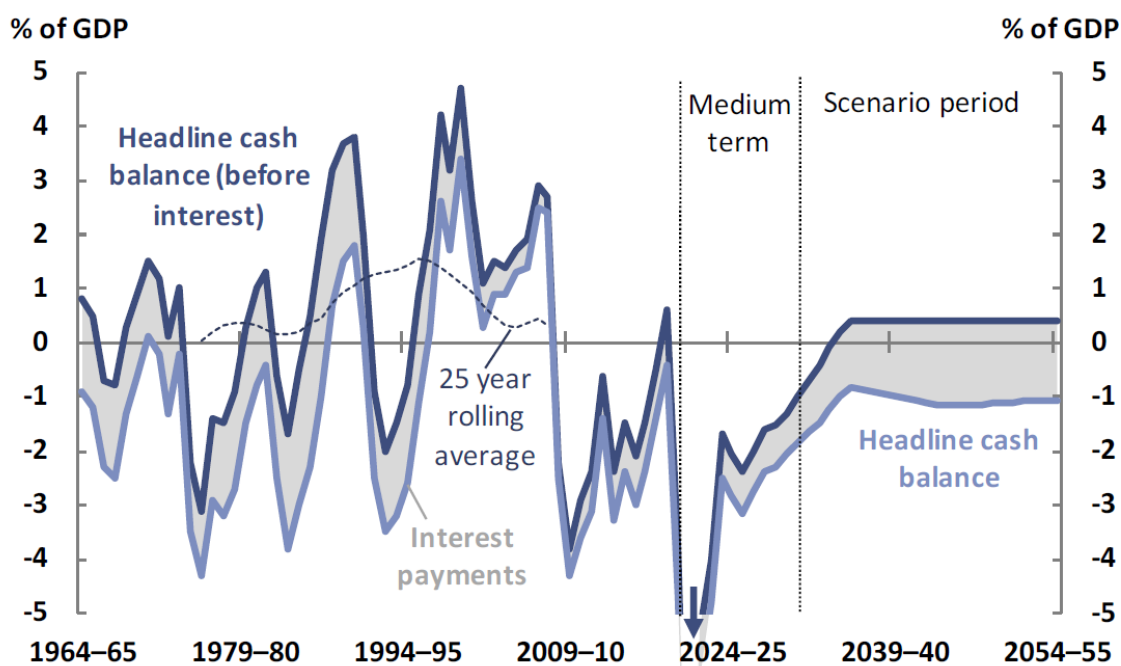

Figure 2: Historical and projected headline cash balance before interest and with interest payments (PBO 2021a)

The 2021 Intergenerational Report (IGR) estimated that the deficit of 7.8% of GDP in 2020-21 (in terms of underlying cash balance) would improve to 2.4% of GDP by 2024-25, again improve to 0.7% of GDP in 2036-37 and then widen to 2.3% of GDP by 2060-61 (Australian Treasury 2021a).[7] The projected long-term widening is mainly due to anticipated growth in spending on health, aged care and interest payments, while tax receipts are constrained by the tax-to-GDP cap.[8] The PBO figures are typically more positive than the IGR's as they include a presumed policy response to correct any

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[6] "The PBO improves transparency around fiscal and budget policy issues, provides confidential costing services to all parliamentarians, and publishes a report after every election that shows the fiscal implications of major parties' election commitments."
https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Budget_Office
[7] The Treasurer releases an IGR once every five years. "The report projects an outlook for the economy and the Australian Government's budget over the next 40 years. It examines the long-term sustainability of current policies and how demographic, technological and other structural trends may affect the economy and the budget." https://treasury.gov.au/publication/2021-intergenerational-report
[8] Note that 'underlying cash' and 'headline cash' are closely related measures of the budget balance, but that underlying cash does not include items such as asset sales and purchases. Headline cash therefore has a more direct impact on the level of gross debt.

debt blowout (as has occurred historically) while the IGR presumes the status quo of government policy will continue. See Appendix B for a detailed explanation.

The budget impact of COVID-19, clearly apparent in Figure 2, is the consequence of a significant increase in government expenses and a modest decline in revenue. The direct cost of the initial response to the pandemic was $299b (Australian Treasury 2020a), and despite the cessation of temporary measures, some costs are ongoing. The immediate economic response of programs such as JobKeeper, Boosting Cash Flow for Employers and the JobMaker Hiring Credit have ceased. Other large costs, in parts ongoing, have included increased expenditure on health, social security and welfare. Loss of revenue in 2019-20 was mainly in personal income tax, company tax and indirect tax. See Appendix C for a detailed breakdown of both government expenditure in response to COVID-19 and its impact on consolidated revenue.

How do governments pay down their debt?

Governments borrow money (and accumulate debt) by issuing bonds. These bonds require the government to pay interest annually to bondholders according to the coupon rate over the term length of the bond. The term length of Australian bonds can be as long as 30 years. At the end of the term, the principal is returned to the bondholder. Gross debt is equal to the face value of bonds on issue. While the term of a bond is fixed, public debt can effectively be paid back earlier if the government decides to buy back bonds (if the budget is in surplus), or later if the government refinances (reissues) the bonds. At the same time, an economy which is growing at a faster rate than gross debt reduces the gross debt-to-GDP ratio. When political figures use expressions such as "growing our way out of debt", it is to this that they refer.

Why should we care about fiscal sustainability?

At the time of writing, public debate about policy to repair the Australian budget post-COVID is only just beginning. Debate will intensify as the immediate pandemic response transitions into a sustained economic recovery. Previously many researchers and commentators have acknowledged the importance of this discussion (Colebatch 2021), while others have dismissed it, suggesting that the government can borrow at arbitrary levels indefinitely, as long as inflation remains stable (Hail 2021). Inflation is no longer stable.

Australia has "fiscal space" despite the recent debt increases, and no technical limit restricts the amount of debt the government can accumulate. However, higher debt and increased interest payments are cause for concern especially as anticipated interest rate rises bite, driving interest payments higher. The government will then need to either divert spending away from other public services, increase taxes, sell assets or increase debt (Ticha 2021). Refinancing can delay this imperative, but the debt still ultimately needs to be repaid, inequitably so if it is ultimately paid with increased taxes on future generations.

Refinancing debt from foreign lenders carries additional risks: the terms of borrowing could become less favourable, or debt could be used as an economic weapon. Foreign exchange risk also arises if the Australian government is forced to borrow in a foreign currency (Ticha 2021). Colebatch (2021) states that running larger deficits is not a problem if the expenditure builds the economy's capacity to pay back any debt. However, most government spending is typically consumption (transfer payments and healthcare) rather than investment.[9]

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[9] Some transfer payments and healthcare also have an investment component.

Fiscal sustainability is also important because it improves business and consumer confidence, allows the government to be confident about funding for desired spending measures in the future, and maintains a fiscal buffer for providing stimulus in the event of a downturn (PBO 2021a).

Measuring fiscal sustainability

A high level of public debt is undesirable, but can the threshold above which it is no longer "sustainable" be quantified? In practice, there are risks with largely unknown probabilities (interest and exchange rates, geopolitical developments, changing GDP and productivity levels, etc.) as debt increases rather than a hard limit on debt, so there is no exact answer. The key concern remains tied to the level of interest payments rather than the size of the debt itself. However, interest payments are contingent on the size of the debt, and if debt-to-GDP is increasing into the long term, then managing the debt is ultimately unsustainable.[10]

In their 2021 analysis of the long-term fiscal outlook, the PBO (2021a) used a simple rule of thumb to determine fiscal sustainability of Australia's public debt, under which the fiscal position was considered stable if the trajectory of projected gross debt-to-GDP had stabilised or was falling by 2054-55. This criterion was maintained for each of their modelled future scenarios (which vary interest rates, economic growth and the government's approach to budget balance). This paper adopts the approach taken by the PBO – that for the sake of fiscal sustainability, projected gross debt-to-GDP has stabilised or is falling by 2054-55.

In stark contrast to the PBO, which projects gross debt-to-GDP to fall by around 0.1 percentage points per annum from 2019-20 to 2054-55, the IGR projects that gross debt-to-GDP will rise by more than 0.2 percentage points per annum by 2054-55, an unsustainable outcome. The difference between these two accounts is policy: the PBO presumes government policy will be enacted to manage the budget balance, while the IGR presumes government policy will maintain the status quo. A comparison between the gross debt-to-GDP profiles based on IGR and PBO assumptions is depicted in Figure 3.

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[10] Several quantitative measures assess whether the trajectory of debt or deficits is sustainable, including 'fiscal gap', 'sustainable tax gap' and 'intertemporal budget gap'. Fiscal gap measures the extent government's expenditure is expected to exceed its revenue over a fixed time horizon. Sustainable tax gap measures tax increases required in relation to projected expenditure to keep debt-to-GDP constant over a fixed time horizon. Intertemporal budget gap measures the size of the structural change to the budget required to meet the intertemporal budget constraint, i.e. the condition that the present value of all future government receipts should exceed the present value of all future spending, including debt servicing costs. Each of these methods has limitations, as it is difficult to project the determinants of debt and to estimate the relationships between these determinants. Further, the extent of policy change required to achieve fiscal sustainability may be underestimated as policy changes may simultaneously impact GDP.

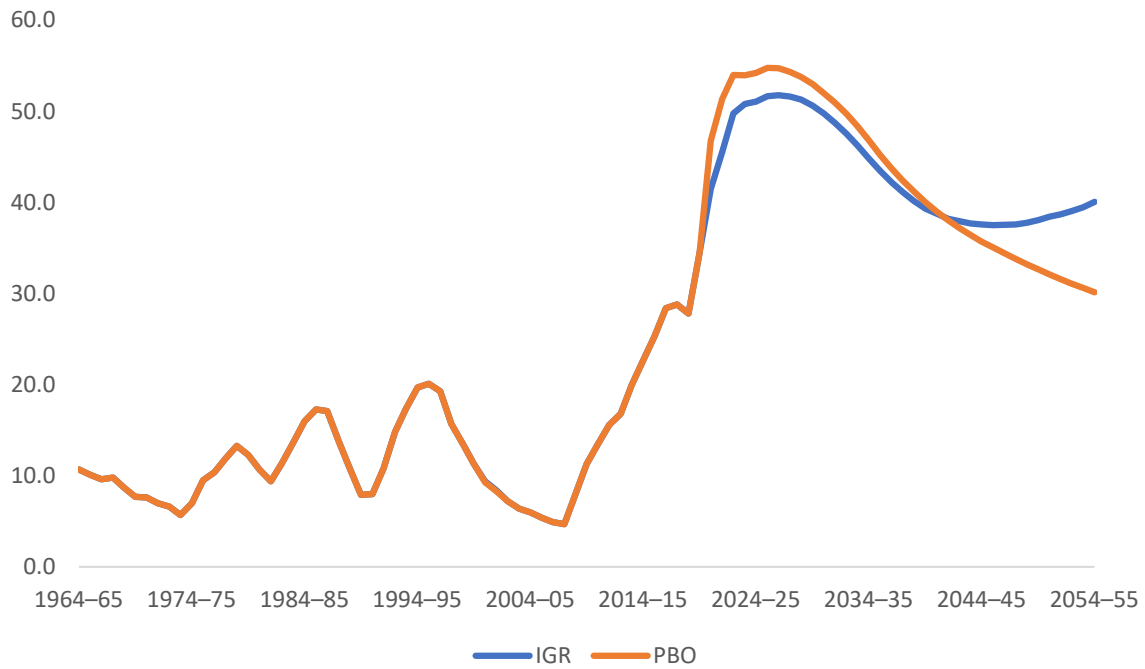*Figure 3: Gross debt from IGR vs PBO assumptions, 1964-65 to 2054-55 (% of GDP)*

This paper addresses the challenge apparent in the previous paragraph: identifying and evaluating the policy options that are presumed by the PBO modelling, to avoid the fiscal unsustainability otherwise apparent in the IGR modelling. The following section discusses those policy options and makes recommendations.

Policy discussion and recommendations

This section discusses using the following tax bases, modelled in Part B, to pay down Australia's public debt:[11]

Personal Income Tax
Corporate Income Tax
Goods and Services Tax (GST)
Capital Gains Tax (CGT)
Pensions – assets considered for the means test
Inheritance Tax
Land Tax

The modelling in Part B considers Australia's gross debt and budget balance under middle, upside and downside cases for interest rates and economic growth, over three time horizons (33 years, 20 years and 10 years), and models how each of the above tax bases might be applied to address that debt and balance the budget.

Paying down Australia's public debt can be achieved using any of the above tax bases within most of the time horizons considered. Similarly, smaller changes to several tax bases could be combined to pay down the debt.

The choice of time horizon over which to pay down the debt is subjective but only to a limited extent. While paying down the debt sooner lowers total interest payments and reduces long-term interest rate risk, it also introduces fiscal constraints which could have negative effects on the economy and on individual welfare. Paying down debt too quickly raises other risks, such as reduced economic growth, poor consumer confidence, and social stress. These risks are unjustified given the overall level of debt. This paper does not advocate for any one time horizon, but considers the 33-year and 20-year scenarios to be reasonably fiscally prudent and politically achievable.

When considered in terms of *efficiency, equity, simplicity and sustainability* – the core principles of tax and transfer system design (see Appendix A) – some policy options for paying off the debt are preferable to others. We consider a policy change to be beneficial if it moves the tax and transfer system closer to an ideal system for Australia with respect to these principles. In deciding on how suitable each option is, we do not consider details of implementation or political feasibility. We assess each option on its own rather than as part of a reform package, to clearly quantify what is required to pay back the COVID-19 debt for an individual tax.

With respect to the core principles of tax and transfer system design, the introduction of a federal land tax is the most preferable means to address Australia's post-pandemic public debt. Paying down Australia's debt with hikes to either personal or corporate income tax rates is a poor option that would worsen existing problems in the tax and transfer system. Income taxes are already overused in the Australian tax mix and their narrowness places them under stress: a smaller number of individuals and businesses are increasingly paying a larger proportion of tax (Davis, Akroyd, Pearl and Sainsbury 2019; Watkins 2022). Obliging them to carry even more weight is unwise.

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[11] Note that this list of policies, while broad, is not exhaustive. We have not considered changes to taxes on superannuation due to the abundance of existing literature on this topic. For example, a policy to replace the 15% flat tax on concessional contributions with a rate equal to the taxpayer's marginal rate minus 15% has been estimated by the PBO to raise $10.16b over four years as at 2015 (The Greens 2014). In our modelling framework, this amount of additional revenue would not be enough on its own to pay down Australia's COVID-19 debt.

Further, two consequences of higher personal or corporate income taxes stand counter to the goal of paying down debt. Higher income taxes reduce economic activity, in turn inhibiting Australia's ability to grow itself out of debt. Furthermore, as economic activity declines, so do taxation receipts. Anything that inhibits economic growth should be avoided.

Raising personal or corporate taxes also raise the likelihood taxpayers will modify their behaviour to minimise their tax obligations. Corporate and personal income are among the more mobile tax bases and consequently have higher elasticities than other, less mobile tax bases. The estimates of the required increase to income taxes to pay down the debt presented in part B of this paper are undoubtedly underestimates as they do not account for behavioural effects. Even without considering illegal tax avoidance and the cost of responding to it, a myriad of legal strategies allow companies and individuals to lower their tax burden. Higher effective tax rates incentivise individuals and entities to exert more effort in minimising taxes.   For wealthy individuals with ability to shift income through company or trust structures, the response to tax changes is very high (Breunig and Johnson 2018).

Raising income taxes implies other risks too. Australia's corporate income tax revenue is volatile as it relies heavily on the resource sector. If global resource prices fall from the highs of the last two decades, this paper's estimates of the increase in corporate tax required to repay the debt will be too low. If they fall significantly, modelling suggests that changes to corporate income tax alone will be insufficient to pay off the debt.

Most reviews of Australia's taxation system suggest moving away from corporate and personal income taxes towards less volatile taxes on less mobile tax bases with fewer opportunities for tax planning. We would advocate for lower personal and corporate income taxes, as part of a systemic tax and transfer reform that reweights the focus of revenue raising to other bases and realigns the increasing disconnect between the taxation of income and wealth.

All the other tax bases modelled here for their potential contribution to paying down Australia's debt – an increased GST, changes to capital gains taxation of housing or other assets, an inheritance tax, changes to pension asset tests or a land tax – are preferable to hiking income taxes. All have been proposed as part of deeper systemic reform of the system and all have lower economic costs than raising income taxes.

Of these options, four stand out as being particularly good tax policy: a land tax, an inheritance tax, applying capital gains taxation to housing or including housing in the age pension asset test. All four of these achieve important policy goals. They act to tax owner-occupied housing, which is currently untaxed, through different tools.

Taxing owner-occupied housing would better align the tax rate on different savings vehicles. It would also improve efficiency by increasing the use of taxes with low deadweight losses (and that are currently underused in Australia). It would also tax asset price increases that have resulted from government policies introduced during COVID-19, thereby placing the burden of paying for COVID-19 on those who have benefitted.

The best option is a federal land tax. Part B demonstrates how fiscally powerful a federal land tax is; at a very low rate it is an effective and capable mechanism for repaying the COVID-19 debt. A flat rate of only 0.1% will pay down the debt over the long term. Alternatively, a rate of around 0.2% could pay it down in 20 years.

While a federally administered land tax involves changes to current federal financial relations, the federal land tax that existed between 1910 and 1952 provides a precedent. There is no constitutional impediment.

A federal land tax offers other advantages. It will distribute gains in asset prices more equitably across the economy. It will result in lower house prices and increase market liquidity. A federal land tax could provide an opportunity, in a context of collaboration between states and national government, to remove state-level stamp duties, frequently identified as one of the costliest taxes in Australia in terms of economic efficiency.

A well-crafted inheritance tax also emerges from modelling as an instrument capable of addressing the COVID-19 debt, though one perhaps requiring more careful management than land tax. An inheritance tax can allow people to pass on most of their wealth while having positive effects on social equity, by inhibiting intergenerational compounding of Australia's age-wealth disparity, especially as age-associated public expenditure is increasing (Breunig 2021). An inheritance tax could be at a flat rate as used in Part B's modelling (where a tax set at 10% is shown to pay down the debt over the long term), or a progressive schedule.[12] However international experience shows the main downside of an inheritance tax is that it creates a strong impetus for aggressive tax planning. Given the extensive use of trusts amongst Australia's wealthy, an inheritance tax may fail to raise projected large amounts of revenue and its costs may end up falling primarily on the middle of the wealth distribution rather than the top. The reintroduction of an inheritance tax would also require additional legislation governing the taxation of inter vivos gifts.

Including all assets in the pension assets test will easily pay down the debt in the long term. Excluding the principal residence from the assets test (the current situation) encourages people to disproportionately invest in housing, exacerbating both housing affordability problems and existing inefficiency and inequity in the allocation of wealth.

Amongst other policies that contribute to the skewed treatment of savings, the CGT exemption for the principal residence stands foremost. Partially removing this exemption would also likely cover the cost of debt repayment with room to spare.[13] Data constraints limited our ability to model changes to the CGT treatment of owner-occupied housing to either a 50% of 100% reduction in the exemption for the principal residence.

Reducing the 50% CGT discount for other assets is another policy option, but less desirable than the four options discussed above.[14] Reducing the CGT discount while maintaining zero (owner-occupied housing) or low (superannuation) tax rates on other savings vehicles exacerbates the unequal treatment of savings income. Aligning tax rates on all types of savings is an important policy objective as discussed in Appendix A below. Part B models the removal of all exemptions and

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[12] Over a shorter timeframe, the rate of inheritance tax required climbs steeply. If inheritance tax were to pay down the debt over a 10-year period, this requires a very high tax rate (around 65%), impractical as it would exacerbate behavioural effects and raise much less revenue than expected.

[13] Also in practice, to fully equalise the CGT treatment of the principal residence and other assets, we would allow for tax deductions on debt associated with the principal residence, which we were unable to model due to data constraints. Despite a reduction in revenue due to this, we still expect that the pandemic debt could be paid down using CGT.

[14] The 50% CGT discount for other assets is intended to provide a simple way to tax only the real gains on a capital investment, removing the impact of inflation from nominal capital gains. Introduced in 1999, after a decade when inflation rates had averaged over 10%, it has been overly generous relative to inflation for more than 30 years. Correcting for this could involve ongoing calculation of the appropriate rate of discount or reversion to the previous regime which accounted for inflation directly.

discounts. In practice some discount to capital gains will be required to account for inflation. The modelling of zero discounts in Part B is illustrative rather than a reasonable policy solution. Data constraints limited our ability to model other changes to the CGT discount rate. Given this, it is unclear whether in practice reducing the CGT discount on other assets on its own would be sufficient to fully pay down the COVID-19 debt, which is another potential shortcoming of this policy option.

Increasing the GST rate, like reducing the CGT discount on other assets, is a potential approach to addressing COVID-19 debt but less desirable than our most preferred options. The GST rate should be raised and the base broadened to shift the burden of taxation from employment and business income to consumption. The improvements to economic efficiency are well documented (Freebairn 2015). However, in the context of paying down the COVID-19 debt, increasing the GST burden imposes higher taxes on those whose income comes from wages and salaries. Therefore, this shift should ideally be combined with either reducing personal or corporate taxes or increasing transfer payments. One benefit of increasing the GST is that it acts as a tax on the existing stock of wealth. However, it does this less directly than our four most preferred options and the efficiency costs are likely to be higher than a land tax or an inheritance tax. Overall, we would still consider a GST increase to be a beneficial change as long as it is eventually accompanied by income tax reductions.

From a tax reform point of view, even more preferable than introducing any of the above policies individually would be to take a step further and reduce personal and corporate income taxes, commensurately and simultaneously with the introduction of the above policy changes. From a political perspective, lowering income taxes in tandem with introducing a new tax may be more acceptable and feasible to implement. To do so will improve economic resource allocation, remove existing distortions to economic decision-making at the individual and corporate level, and provide greater reward for engaging in productive and innovative activities. Undertaking reform of the tax and transfer system in this way will not only pay down the debt and enhance economic productivity and growth, but also protect the economy and the budget against the potential for conditions worse than those considered in scenario modelling.

Introducing a land tax or introducing an inheritance tax or including the principal residence in the pension means test or partially removing the CGT exemption for the principal residence, will all enable Australia to pay down its COVID-19 debt in an efficient and equitable way, as will a combination of these methods. However, introducing one simple and distinct tax measure for the express purpose of paying down the pandemic-related debt is likely to be more feasible, politically. Other policy changes advocated elsewhere could equally contribute to the objective of fiscal sustainability. Broadening the base of the GST, improving the taxation of savings or introducing a carbon tax are other options not modelled in this paper (Breunig 2022).

A summary of this policy discussion, including the merits of each policy modelled with respect to the principles of tax and transfer policy design, and overall recommendations, is provided in Table 1.

Table 1: Summary of policy discussion and recommendations

Policy change	Principles of tax and transfer policy design	Improves	Stays same	Makes worse	Overall assessment
Introduce land tax	Sustainability/adequacy	x			Preferred
	Efficiency	x			
	Equity	x			
	Simplicity		x		
Include principal residence in pension assets test	Sustainability/adequacy	x			Recommended
	Efficiency	x			
	Equity	x			
	Simplicity			x	
Introduce inheritance tax	Sustainability/adequacy	x			Recommended
	Efficiency	x			
	Equity	x			
	Simplicity			x	
Reduce CGT exemption for principal residence	Sustainability/adequacy	x			Recommended
	Efficiency	x			
	Equity	x			
	Simplicity			x	
Reduce CGT discount for other assets	Sustainability/adequacy	x			Reasonable
	Efficiency		x		
	Equity			x	
	Simplicity		x		
Increase GST rate	Sustainability/adequacy	x			Reasonable
	Efficiency		x		
	Equity			x	
	Simplicity		x		
Increase personal income tax rates	Sustainability/adequacy		x		Not recommended
	Efficiency			x	
	Equity			x	
	Simplicity		x		
Increase corporate income tax rates	Sustainability/adequacy		x		Not recommended
	Efficiency			x	
	Equity			x	
	Simplicity		x		

Conclusion

The Australian tax and transfer system was in need of reform before COVID-19, due to problems not only with adequacy and sustainability but also with efficiency, equity and simplicity. The large increase in public debt due to the pandemic makes the need for reform even more pressing. The scenario and policy modelling undertaken for this paper make clear that reasonable changes to existing tax and transfer policies or introducing modest new taxes will achieve the goal of fiscal repair and provide leeway to insure against further shocks as an added benefit.

That there are options calls forth a discussion about "fairness" in paying down the COVID-19 induced debt. A core principle of equity in the tax system is the idea of "horizontal equity". This implies, for example, that taxpayers with similar abilities to pay tax should pay similar amounts. Another aspect of horizontal equity is the idea of "user pays". Those who use services more should pay more for them—this is a justification for toll roads and congestion charges.

Who are the beneficiaries of COVID-19 induced debt? Government responses to COVID-19 disproportionately benefited older Australians and Australians who own assets. Most of the reduced mortality generated by lockdowns and economic restrictions occurred at older ages. The benefits of surging house and other asset prices generated by government policy have accrued primarily to wealthier and typically older Australians.

It seems fair that those who benefited most should pay most for the induced debt. This suggests that older and asset-rich Australians do their part to pay down the debt and that the burden on younger people should be smaller. In terms of income and job loss and reduced opportunities for human capital accumulation, younger people were, and remain, victims of COVID-19 policy. Under current tax system settings, they will disproportionally bear the burden of future debt repayment.

One massive and growing weakness of the Australian tax system is that it does a good job of taxing income but a poor job of taxing wealth. *Taxable income* and *wealth* are increasingly disconnected. More and more well-off individuals and households have zero or near zero taxable incomes, but large amounts of tax-free income and housing wealth. Australia needs better and fairer ways to share the tax burden across both the income and wealth distributions.

This paper's preferred policies for paying off the COVID-19 debt have much to offer in terms of improving fairness: introducing a land tax or an inheritance tax, including the principal residence in the pension means test, or partially removing the CGT exemption for the principal residence. These policies all ensure fiscal sustainability in an efficient and equitable way.

Part B – Scenario and policy modelling

Australia is fortunate to have multiple solutions to pay down its COVID-19 debt. All have advantages and disadvantages—trade-offs are unavoidable. Properly considering those options demands first some measure of the size of policy change required, such that the debt can be brought down to a fiscally sustainable level in a desired time period. This quantity will depend on the interest rate (r) and economic growth (g), and a time horizon over which to pay down the debt.

Scenario modelling – methodology

We consider paths for Australia's gross debt and budget balance under middle (middle r, middle g), upside (low r, high g) and downside (high r, low g) cases for interest rates and economic growth, over three time horizons (33 years, 20 years and 10 years). Taken together, these nine scenarios provide the expected range of outcomes which meet certain fiscal sustainability criteria defined within each time horizon (summarised below in Table 2). Assumptions about the range of interest rate and economic growth conditions come from the PBO's (2021a) assessment based on historical data, with both quantities being permitted to vary by 0.6 percentage points higher or lower than in the middle scenario, starting in 2031-32.

Our fiscal sustainability criteria have different interpretations depending on the time horizon considered. Over the long term, we follow the PBO's (2021a) rule that the trajectory of gross debt should be broadly stable or falling by 2054-55. We therefore reproduce their fiscally sustainable gross debt outcomes for each 33-year scenario, under their assumption of historically expected budget policy. For shorter time horizons, we fix the gross debt target to be identical to the long-term middle scenario outcome. In other words, in the long run, we capture variation in what could be considered a fiscally sustainable target for gross debt, as in the PBO's analysis, whereas over shorter time periods, our focus is on the difference in budget behaviour required to achieve a specific "middle" level of debt. We do note that we could have required a less (or more) restrictive constraint over the shorter time periods – for example, our long-term downside scenario target is a higher level of gross debt that is nevertheless considered fiscally sustainable. However, we have opted to aim for a "comfortable" level of fiscal sustainability rather than a minimal one. By "comfortable", we mean an approach that proactively reduces the debt but still does not entail large sacrifice and would be politically acceptable. These are subjective criteria, but at a minimum our analysis provides a point of departure for those who might like to alter our assumptions or use different criteria for sustainability.

To perform our scenario analysis, we compare IGR (Australian Treasury 2021a) projections, which assume no change to fiscal policy over the long term, against PBO projections, which assume unspecified policy change to ensure fiscal sustainability. The IGR gives us the trajectory of gross debt under no policy change and the PBO gives us the fiscal sustainability targets. Following the scenario analysis, we model various ways in which current policy can change to meet the PBO targets. We need to be able to vary projections under different interest rate and economic growth conditions, also allowing for further variation in budget policy to meet the fiscal sustainability target within each time horizon. To model these variations, we use underlying data from the IGR and PBO, and supplementary information relating to budget balance from the 2021-22 Budget Review (Parliamentary Library 2021).

Our gross debt modelling largely relies on the following equation (PBO 2021a):

$$\frac{D_t}{GDP_t} = \frac{1+r_t}{1+g_t} \times \frac{D_{t-1}}{GDP_{t-1}} - \frac{B_t}{GDP_t},$$

where D_t is gross debt, r_t is the implied interest rate (total interest payments as a proportion of total debt), g_t is GDP growth and B_t is headline cash balance excluding interest at the end of year t. We can then calculate interest payments from gross debt:

$$I_t = r_t D_{t-1}.$$

Headline cash balance including interest is equal to headline cash balance excluding interest less interest payments. The annual difference between headline cash balance including interest under the assumption of fiscally sustainable policy change and no policy change represents the magnitude of policy change required in each year to achieve a fiscally sustainable level of gross debt at the end of the time horizon.

Scenario modelling – results

Here we provide the main results of our scenario analysis under variations in interest rates, economic growth and time horizon for paying down the debt. Table 2 summarises the fiscally sustainable gross debt targets that we establish for overall middle, upside and downside scenarios within each time horizon. We will assess how policy could change to achieve fiscal sustainability based on these targets.

Table 2: Gross debt targets for overall middle, upside and downside scenarios

	33-year scenarios Time horizon: 2022-23 to 2054-55	20-year scenarios Time horizon: 2022-23 to 2041-42	10-year scenarios Time horizon: 2022-23 to 2031-32
Middle case (middle r, middle g)	30.1% of GDP	30.1% of GDP	30.1% of GDP
Upside case (low r, high g)	21.8% of GDP	30.1% of GDP	30.1% of GDP
Downside case (high r, low g)	41.3% of GDP	30.1% of GDP	30.1% of GDP

Note: For the upside and downside cases, r and g are permitted to vary by 0.6 percentage points higher or lower than in the middle case, starting in 2031-32.

Figure 4, Figure 5 and Figure 6 depict fiscally sustainable gross debt trajectories for overall middle, upside and downside scenarios under the 33-year, 20-year and 10-year time horizons respectively. In each case, fiscal sustainability is evident as gross debt is either broadly stable or decreasing over the long term. For the 20-year and 10-year time horizons, gross debt between the scenarios converges in either 2041-42 or 2031-32, at the fixed level of 30.1% of GDP, reflecting that fiscal policy has been adjusted to meet this target within the given time horizon. Beyond the time horizon, we assume that fiscal policy reverts back to its pre-crisis behaviour expected under the long-run scenarios; that is, the more aggressive policy changes to meet the short-term debt targets are rolled back.
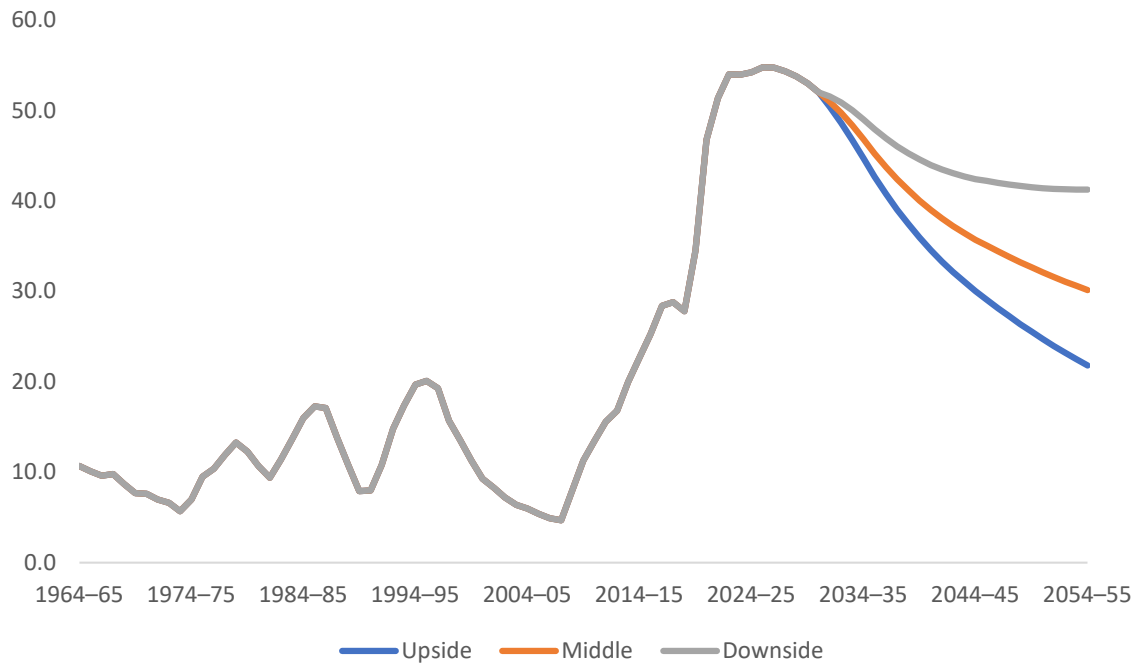
Figure 4: Gross debt for overall middle, upside and downside 33-year scenarios, 1964-65 to 2054-55 (% of GDP)
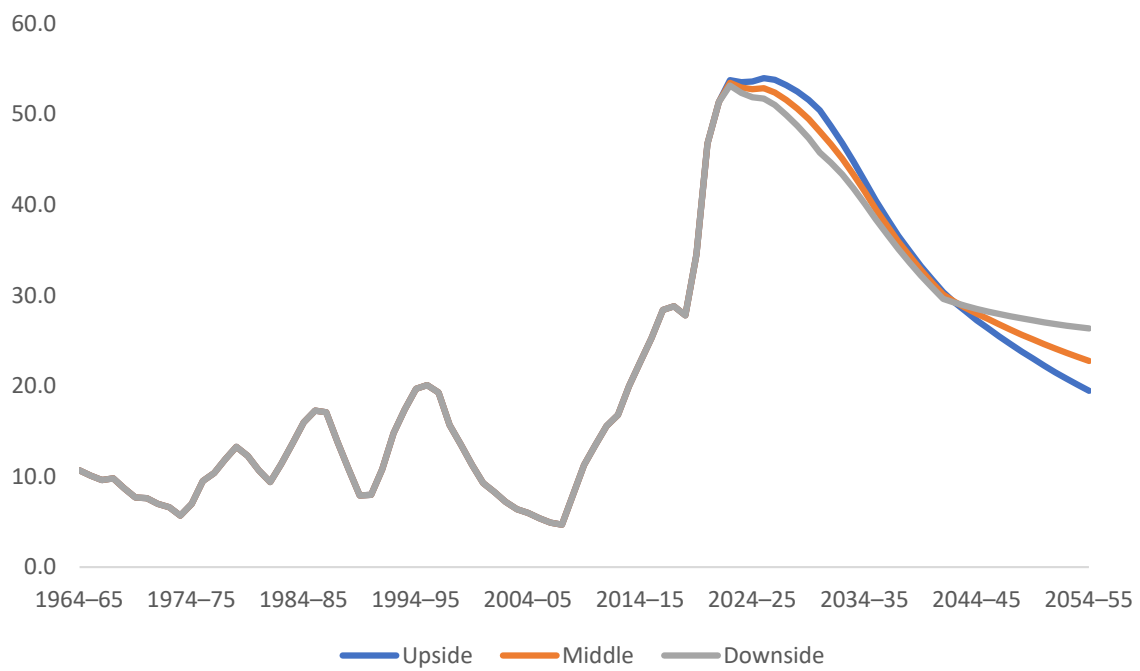

Figure 5: Gross debt for overall middle, upside and downside 20-year scenarios, 1964-65 to 2054-55 (% of GDP)
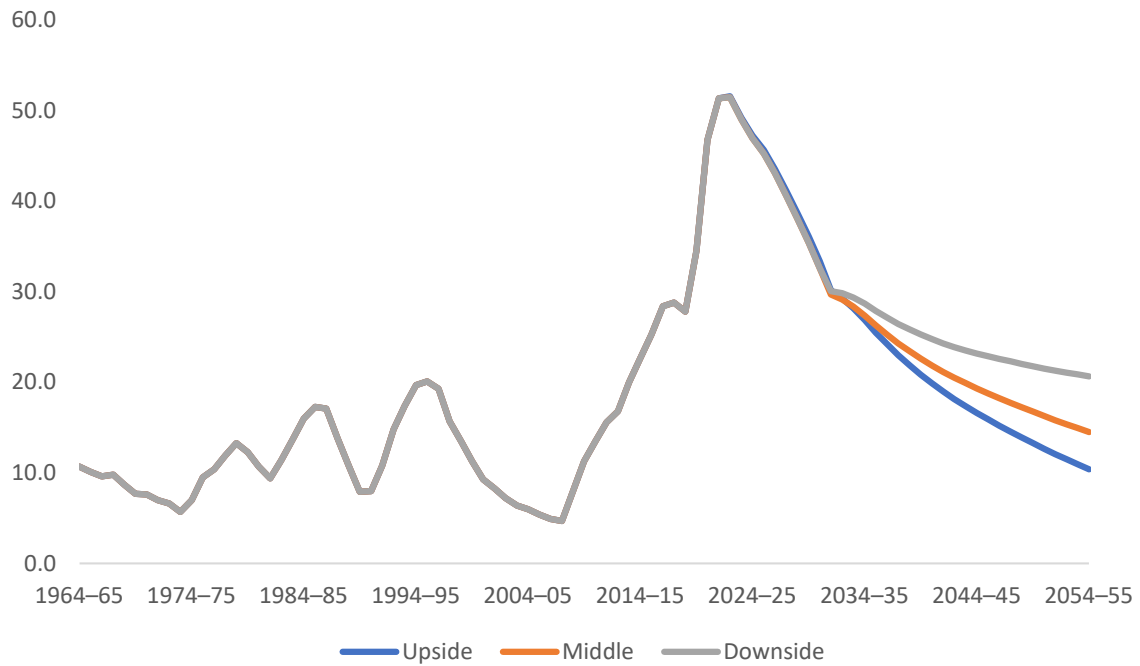
Figure 6: Gross debt for overall middle, upside and downside 10-year scenarios, 1964-65 to 2054-55 (% of GDP)

Figure 7, Figure 8 and Figure 9 depict the required change in headline cash balance including interest that generates the fiscally sustainable paths of gross debt above, under the 33-year, 20-year and 10-year time horizons respectively. These charts have been smoothed slightly for ease of interpretation to correct for variations between IGR and PBO data which occur because the IGR relies on 2021-22 Budget data whereas the PBO analysis relies on 2020-21 Budget data. These were volatile budget years and, despite smoothing, some of these short-term fluctuations still flow through to the charts.

Figure 7: Required change in headline cash balance for fiscal sustainability for overall middle, upside and downside 33-year scenarios, 1964-65 to 2054-55 (% of GDP)

Figure 8: Required change in headline cash balance for fiscal sustainability for overall middle, upside and downside 20-year scenarios, 1964-65 to 2054-55 (% of GDP)
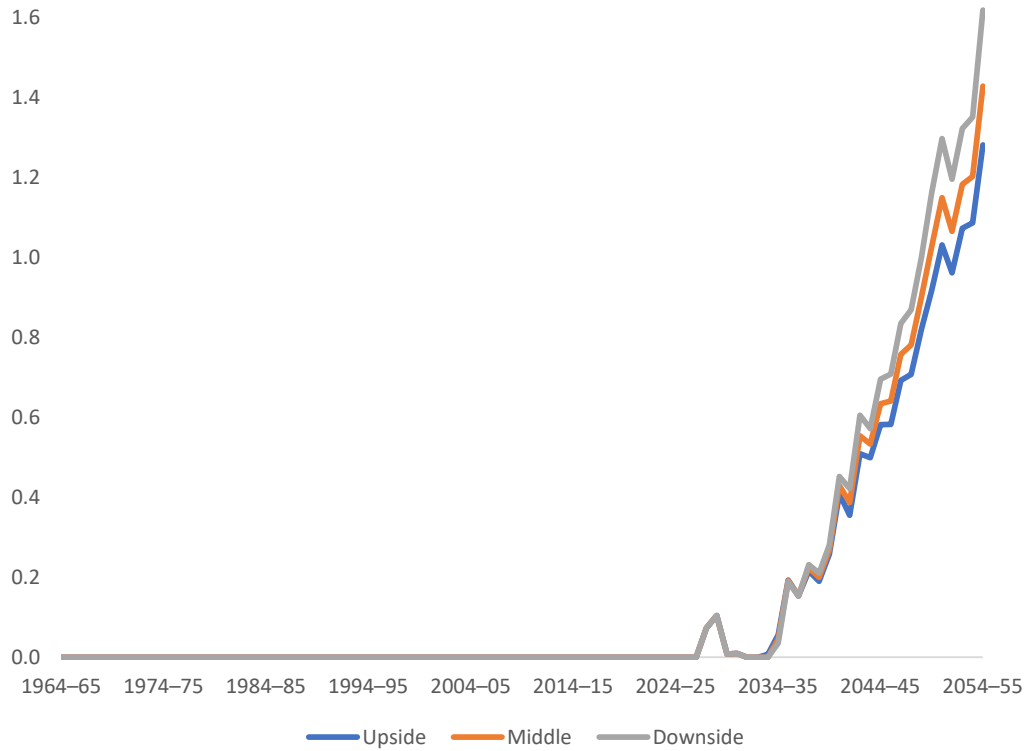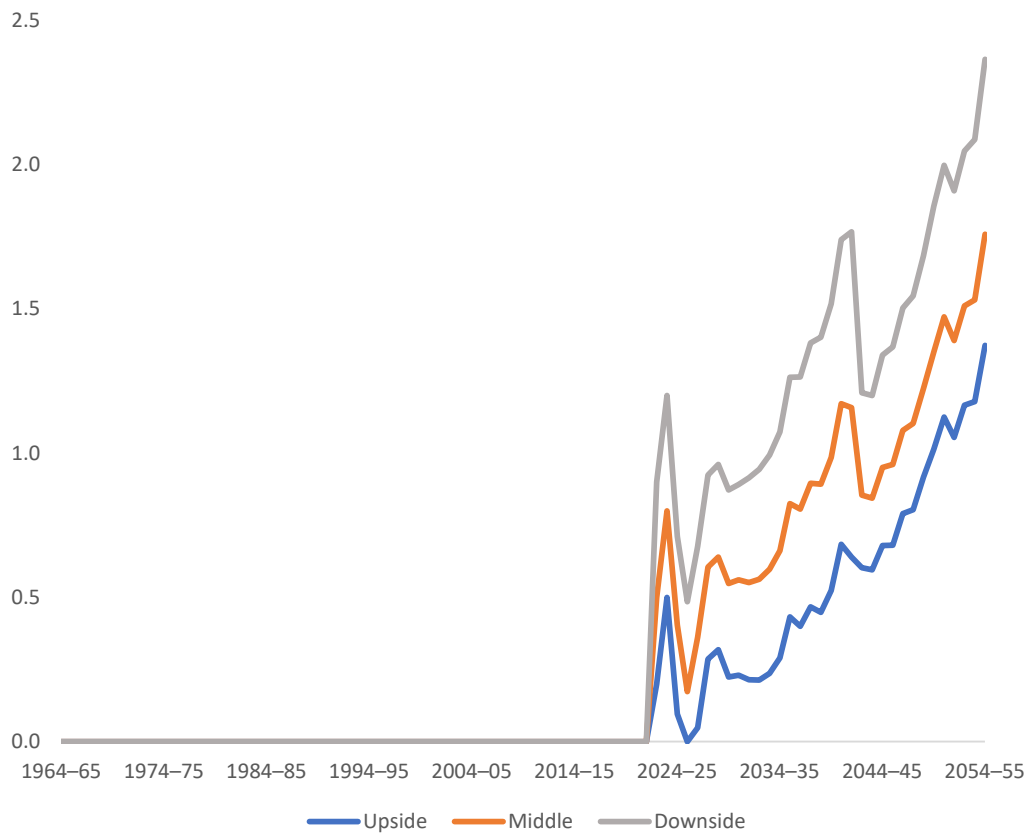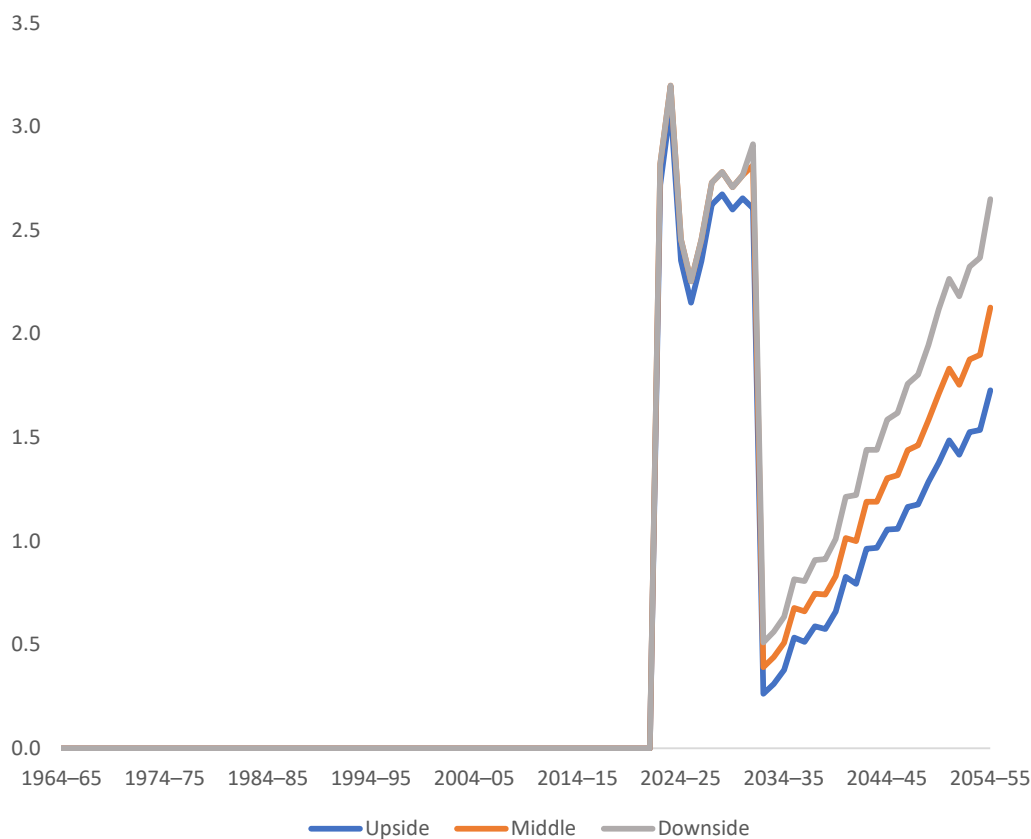
Figure 9: Required change in headline cash balance for fiscal sustainability for overall middle, upside and downside 10-year scenarios, 1964-65 to 2054-55 (% of GDP)

Policy modelling – methodology

Having estimated the magnitude of policy change required to achieve a fiscally sustainable level of debt under each scenario, we model the impacts of simple policy changes on debt and the budget balance relating to: personal income tax, corporate income tax, GST, CGT, pension payments, and inheritance tax and federal land tax proposals. For most of these, we vary a policy parameter such as a tax rate in our model to determine the nature of the policy change that meets a fiscal sustainability target. For simplicity, we consider each of these policy changes on their own and not in conjunction with each other.

The general approach to modelling the budget impact of a tax or transfer policy change is to estimate the budget position under no policy change, then to vary policy parameters and estimate the new budget position. The difference between the budget balance in the baseline and policy change "worlds" represents the estimated budget impact of the policy change. This general method can be used to estimate budget impacts of hypothetical historical policy changes, and to forecast into the future, as in our analysis. Of course, for our proposed inheritance and land taxes, the baseline budget position is zero because these taxes do not currently exist.

As with the scenario modelling, our policy modelling relies on underlying data from the IGR and PBO. In particular, the breakdown of receipts and payments that allows us to work out how various types of policies contribute to the budget in the long term is from the IGR. To assess the budget impacts of various policy changes which we then plug into the IGR framework, we will usually need to use

supplementary data sources. Once we have the headline cash balance excluding interest after policy change, we can calculate annual gross debt, interest payments and headline cash balance including interest.

All policy changes are assumed to commence in 2022-23 and are relatively stylised. Some aspects of implementation we do not consider, such as slow phasing-in of policies or grandfathering arrangements. We also do not consider political factors that may make it hard for governments to introduce these policies without significant compromise, which would flow through to budget impacts.

Accurate modelling is difficult to conduct over the long term, so various simplifying assumptions are made. We assume that economic conditions do not deviate substantially from historical precedents. Changing international circumstances, like the Russia-Ukraine war or a hypothetical Chinese invasion of Taiwan, have the potential to radically alter this assumption. Effects on tax revenue could be massive and would swamp our policy scenarios. See Appendix D for more discussion. Other policy-relevant variables that we use in our modelling are also assumed to reflect historical trends.

In practice, tax and transfer policy changes lead to behavioural responses as a result of incentives for entities to minimise the tax they need to pay or maximise the payments they will receive. Larger behavioural responses occur depending on the size of policy change, the mobility of the tax base or the pre-existing presence of policy that favours tax minimising behaviour. We do not model these effects.[15] All our estimates are "underestimates" in the sense that the required changes in tax rates, taking into account a behavioural response, would need to be larger than those presented below. This difference is largest for corporate tax, where companies have a wide range of options responding to tax increases, including relocation. This will also hold true to a lesser extent for personal income tax. The personal income tax system, particularly for individuals who operate as sole traders or who own trusts, also offers opportunities for tax minimisation. Land tax is at the opposite extreme, with little scope for behavioural response (beyond changes in asset prices) as land cannot be relocated.

We now present the results of our policy modelling, which include descriptions of the type of policy change considered and some policy-specific notes on methodology. Our particular interest is in how or whether each type of policy change can achieve the fiscal sustainability targets in each scenario from Table 2, in which case we consider Australia's COVID-19 debt to be paid down sufficiently quickly. We include a range of policies for illustrative purposes. Inclusion or consideration of a policy option is not an endorsement of that policy. Some of the options we present are clearly bad ideas. We present our recommendations separately in the policy discussion in Part A of this paper.

Policy modelling – summary of results for 33-year middle scenario
We report a summary of the below results in Table 3, for 33-year middle scenarios only. That is, we provide the current and new tax rates for each policy change considered such that fiscal sustainability is achieved by 2054-55 under our criteria in Table 2, assuming that interest rates and economic growth follow their expected trajectories. Results for the pensions and CGT policies are not reported because these policies do not involve a change to a tax rate.

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[15] Our modelling does not incorporate any 'second round' economic effects. We only model fiscal impacts, not economy-wide or distributional impacts. We assess these expected impacts as part of our policy discussion in Part A.

Table 3: Current and new tax rates to achieve fiscal sustainability for each tax type, 33-year middle scenario

Policy change	Current tax rates	New tax rates
Introduce land tax	0%	0.1%
Include principal residence in pension assets test	NA	NA
Introduce inheritance tax	0%	10%
Reduce CGT exemption for principal residence; reduce CGT discount for other assets	NA	NA
Increase GST rate	10%	11%
Increase all personal income tax rates	19%, 32.5%, 37%, 45%	19.9%, 33.4%, 37.9%, 45.9%
Increase top personal income tax rate	45%	51.8%
Increase base and headline corporate income tax rates	25%, 30%	28%, 33%
Increase headline corporate income tax rate	30%	34%

Personal income tax – results

We consider two types of simple policy changes to personal income taxes. One is to increase all personal income tax rates by a certain percentage point amount, and the other is to increase only the top personal income tax rate. Results in terms of percentage point increases required to meet our fiscal sustainability criteria from Table 2 are reported in Table 4 and Table 5.

Table 4: Increase in all personal tax rates required for fiscal sustainability

	33-year scenarios Time horizon: 2022-23 to 2054-55	20-year scenarios Time horizon: 2022-23 to 2041-42	10-year scenarios Time horizon: 2022-23 to 2031-32
Middle case (middle r, middle g)	+0.9 pp	+1.4 pp	+5.8 pp
Upside case (low r, high g)	+0.9 pp	+0.7 pp	+5.7 pp
Downside case (high r, low g)	+0.9 pp	+2.1 pp	+5.9 pp

Table 5: Increase in the top personal tax rate required for fiscal sustainability

	33-year scenarios Time horizon: 2022-23 to 2054-55	20-year scenarios Time horizon: 2022-23 to 2041-42	10-year scenarios Time horizon: 2022-23 to 2031-32
Middle case (middle r, middle g)	+6.8 pp	+10.6 pp	+44.0 pp
Upside case (low r, high g)	+6.9 pp	+5.1 pp	+43.1 pp
Downside case (high r, low g)	+6.6 pp	+16.0 pp	+44.9 pp

Current (2021-22) personal tax rates for Australian residents are 19% for taxable income between $18,201 and $45,000, 32.5% for taxable income between $45,001 and $120,000, 37% for taxable income between $120,001 and $180,000, and 45% for taxable income over $180,000. An example of how the above policy changes will work in 2022-23 is the following: in the 33-year middle scenario, all four tax rates increase to 19.9%, 33.4%, 37.9% and 45.9% respectively, and remain at these rates indefinitely. Or alternatively, the top rate increases to 51.8%, and all other rates remain at their current level. The 10-year scenarios for the top rate require practically unacceptable and large tax increases. We nonetheless report them for completeness. Large tax increases result in large behavioural responses and more aggressive use of tax minimisation strategies, at least for some groups of taxpayers, which significantly reduces revenue gains. As mentioned previously, we do not include these effects in our modelling.

We observe from Table 4 and Table 5 that the tax changes required to meet the fiscal sustainability targets in Table 2 vary much more in the 20-year scenarios than in the 10-year and 33-year scenarios. Less variation exists in the 10-year scenarios because interest rate and economic growth variations only start to take effect in 2031-32, which is the last year of the 10-year scenario period. Less variation exists in the 33-year scenarios because, as outlined in Table 2, we are aiming at different gross debt targets. Following the example of the PBO (2021a), these targets reflect variation in what could be considered a fiscally sustainable level of gross debt over the long term. For example, in the long-term downside case, the target level of gross debt is higher than in the middle case. We also observe that, in the upside case, the 20-year fiscal sustainability criterion is met using a smaller tax increase than in the 33-year scenario, which seems counter-intuitive. However, this is also explained by the fact that the 33-year and 20-year criteria are different as outlined in Table 2. These observations are true for most of the following policy modelling.

This modelling has been undertaken using PolicyMod, which is a microsimulation model developed at the Australian National University for the purpose of modelling fiscal and distributional impacts of personal tax and transfer policy changes in Australia.[16] The primary underlying data source is the ABS Survey of Income and Housing. The model is comprised of a representative Australian population, and the impacts of policy changes on all individuals in this population can be aggregated to estimate summary statistics such as budget aggregates. See Phillips (2017) for a brief description of the model and its capabilities.

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[16] We are grateful to Ben Phillips for his help in modelling these scenarios.

Corporate income tax – results

We consider two corporate income tax changes. One is to increase the headline corporate tax rate (currently 30%). The other is to increase both the headline rate and the base rate (currently 25%) by a the same percentage point amount. The reduced base rate applies to entities that are effectively carrying on a business with aggregated turnover below a certain threshold. Results in terms of new tax rates required to meet our fiscal sustainability targets are reported in Table 6 and Table 7.

Table 6: New headline corporate tax rate required for fiscal sustainability

	33-year scenarios Time horizon: 2022-23 to 2054-55	20-year scenarios Time horizon: 2022-23 to 2041-42	10-year scenarios Time horizon: 2022-23 to 2031-32
Middle case (middle r, middle g)	34%	36%	NA
Upside case (low r, high g)	34%	33%	NA
Downside case (high r, low g)	34%	39%	NA

Table 7: New headline and base corporate tax rates required for fiscal sustainability

	33-year scenarios Time horizon: 2022-23 to 2054-55	20-year scenarios Time horizon: 2022-23 to 2041-42	10-year scenarios Time horizon: 2022-23 to 2031-32
Middle case (middle r, middle g)	Headline rate: 33% Base rate: 28%	Headline rate: 34% Base rate: 29%	Headline rate: 48% Base rate: 43%
Upside case (low r, high g)	Headline rate: 33% Base rate: 28%	Headline rate: 32% Base rate: 27%	Headline rate: 48% Base rate: 43%
Downside case (high r, low g)	Headline rate: 33% Base rate: 28%	Headline rate: 36% Base rate: 31%	Headline rate: 49% Base rate: 44%

Note that in each of the 10-year scenarios, the headline rate cannot be increased by enough on its own to hit the gross debt target. When base rate increases are considered along with headline rate increases, the requisite increase in the headline rate is lower than when the headline rate is considered on its own: this allows the 10-year targets to be achieved. However, as with the personal tax modelling, these tax increases would not be practically implementable and take no account of behavioural responses, which would be significant and undesirable. These would include an increase in tax avoidance behaviour and negative impacts on foreign investment and firm location decisions, and a reduction in domestic investment (Rose, Sinning and Breunig 2021).

The underlying data used to perform this analysis come from the Australian Taxation Office's Taxation Statistics 2018-19 (ATO 2021). We simulate total tax payable when tax rates are increased by: apportioning taxable or net income between full rate and base rate entities using a calculated proportion, applying the new rates and accounting for additional taxes and offsets. We simulate franking credits paid to domestic shareholders under the policy change also using: the new tax rates, the proportion of entities that are base rate entities and a calculated proportion of franking credits attached to franked dividends that are paid out to Australian residents. We forecast quantities by taking simple averages or growing out to 2054-55 by GDP growth as indicated by historical data. The total annual change in corporate tax receipts is estimated as the increase in tax payable relative to no policy change less the increase in franking credits paid relative to no policy change.

GST – results

We consider a policy change to increase the GST rate from its current level of 10%. Results in terms of the new GST rate required to meet our fiscal sustainability targets are reported in Table 8. An alternative would be to consider increasing the base of the GST. Food, private education and private healthcare are frequently mentioned as items which are currently excluded from the GST which could be included in a base-broadening reform. We do not consider any base-broadening of the GST in our modelling. See Daley and Wood (2015) for a discussion of the trade-offs between increasing the rate and broadening the base of the GST.

Table 8: New GST rate required for fiscal sustainability

	33-year scenarios Time horizon: 2022-23 to 2054-55	20-year scenarios Time horizon: 2022-23 to 2041-42	10-year scenarios Time horizon: 2022-23 to 2031-32
Middle case (middle r, middle g)	11%	12%	17%
Upside case (low r, high g)	11%	11%	16%
Downside case (high r, low g)	11%	13%	17%

To perform this analysis, we use the GST receipts series from the IGR which has been projected to 2054-55. From this, we use the current GST rate to work out the total production of goods and services on which GST is applied. We then apply the new GST rate to this tax base and calculate the change in receipts resulting from the policy change.

Capital gains tax – results

We consider three types of policy changes relating to CGT. These are: removing the 50% CGT discount for assets besides the principal residence that have been owned for at least 12 months, applying this 50% CGT discount to the principal residence (which is currently exempt from CGT), and removing the CGT exemption for the principal residence entirely such that the full value is subject to CGT with no discount. Results in terms of gross debt at the end of the time horizon achieved by implementing these policies are reported in Table 9, Table 10 and Table 11 respectively.

Under all 33-year scenarios, each of these policies sufficiently pays down the debt by 2054-55, according to our fiscal sustainability targets as outlined in Table 2. In particular, the policies relating to the principal residence massively exceed the gross debt targets, meaning that they easily pay down the debt. Removing the 50% CGT discount for assets besides the principal residence meets the gross debt target only in the upside case for the 20-year scenarios, and does not meet the gross debt target for any of the 10-year scenarios. Applying a 50% CGT discount to the principal residence meets the gross debt targets for all of the 20-year scenarios but none of the 10-year scenarios. Removing the CGT exemption for the principal residence meets the gross debt targets in all cases.

Table 9: Gross debt at end of time horizon achieved by removing 50% CGT discount for assets besides the principal residence

	33-year scenarios Time horizon: 2022-23 to 2054-55	20-year scenarios Time horizon: 2022-23 to 2041-42	10-year scenarios Time horizon: 2022-23 to 2031-32
Middle case (middle r, middle g)	27.0% of GDP	31.5% of GDP	44.9% of GDP
Upside case (low r, high g)	19.3% of GDP	27.3% of GDP	44.4% of GDP
Downside case (high r, low g)	37.4% of GDP	36.3% of GDP	45.4% of GDP

Table 10: Gross debt at end of time horizon achieved by applying 50% CGT discount to principal residence

	33-year scenarios Time horizon: 2022-23 to 2054-55	20-year scenarios Time horizon: 2022-23 to 2041-42	10-year scenarios Time horizon: 2022-23 to 2031-32
Middle case (middle r, middle g)	1.4% of GDP	17.4% of GDP	37.5% of GDP
Upside case (low r, high g)	0% of GDP	14.3% of GDP	37.1% of GDP
Downside case (high r, low g)	7.2% of GDP	20.9% of GDP	38.0% of GDP

Table 11: Gross debt at end of time horizon achieved by removing CGT exemption for principal residence

	33-year scenarios Time horizon: 2022-23 to 2054-55	20-year scenarios Time horizon: 2022-23 to 2041-42	10-year scenarios Time horizon: 2022-23 to 2031-32
Middle case (middle r, middle g)	0% of GDP	0% of GDP	28.4% of GDP
Upside case (low r, high g)	0% of GDP	0% of GDP	28.0% of GDP
Downside case (high r, low g)	0% of GDP	1.9% of GDP	28.7% of GDP

To perform this analysis, we use the Treasury's (2021b) Tax Benchmarks and Variations Statement, which does not incorporate behavioural responses. This does not provide us with enough information to model the effects of changing policy parameters such as the rate of CGT discount. In other words, we are unable to identify the exact rate of CGT discount that would pay down the debt by the end of a specific time horizon. Instead, we report the gross debt level at the end of 33, 20 or 10 years due to the policy changes outlined above. We are also unable to model the effects of allowing tax deductions on debt associated with the principal residence, which should realistically accompany a significant reduction in the CGT exemption on the principal residence.

Pensions – results

We consider a policy change to include the principal residence in the pension assets test. The age pension, disability support pension and carer payment are all subject to means testing, with rules that reduce or eliminate pension payments to people who are otherwise eligible for these payments, depending on their fortnightly income and level of assets. Currently, the value of the principal residence is not included in the assets test. Results in terms of gross debt at the end of the time horizon achieved by implementing this policy are reported in Table 12. In all 33-year scenarios, this policy sufficiently pays down public debt by 2054-55, according to our fiscal sustainability targets. This policy also pays down the debt in the middle and upside cases for the 20-year scenarios. Similar to the CGT policies we considered, we do not vary any policy parameters here, i.e. policy is identical between scenarios.

Table 12: Gross debt at end of time horizon achieved by including principal residence in pension assets test

	33-year scenarios Time horizon: 2022-23 to 2054-55	20-year scenarios Time horizon: 2022-23 to 2041-42	10-year scenarios Time horizon: 2022-23 to 2031-32
Middle case (middle r, middle g)	24.0% of GDP	29.9% of GDP	44.0% of GDP
Upside case (low r, high g)	16.8% of GDP	25.8% of GDP	43.5% of GDP
Downside case (high r, low g)	33.8% of GDP	34.5% of GDP	44.5% of GDP

To perform this analysis, we use HILDA data from Release 20 (Summerfield, Garrard, Hahn, Jin, Kamath, Macalalad, Watson, Wilkins and Wooden 2021). HILDA is a household-based longitudinal survey which records a large amount of information about the Australian population using a sample which is representative of non-remote Australian households. We use information about demographics, income and wealth, as well as population weights, which allow us to estimate the budget impact from the policy change by aggregating the impacts on all individuals in the HILDA sample. HILDA covers the period in 2001-2020, but wealth data is only available every four years starting in 2002, so our historical analysis is limited to these years. Wealth data are only available at the household level, so to estimate individual-level assets, we divide household assets evenly between adults in each household. Our analysis also relies on policy parameters relating to pensions from Treasury's CAPITA model (Australian Treasury 2021c).

We model the hypothetical impact on historical payments to each individual in the sample from including the value of home equity owned by each individual or couple in the assets test. To do this, we model how the pension means test works, given a person's assessable fortnightly income and assets. A basic overview of the test is provided by the Productivity Commission (2015, p. 119). Individuals in the sample are assumed to be eligible for a pension if they already receive a pension payment. For these people, we calculate the amount by which the maximum fortnightly pension payment is reduced under the income and assets tests. The greater reduction of the two is applied to each person, and in some cases, this results in the person no longer receiving a pension payment as a result of the new policy. Currently, the assets threshold (over which pension payments are reduced) is dependent on an individual's couple status and home ownership status. We assume that when home equity is included in the assets test, the more favourable non-homeowner threshold applies for all individuals.

We aggregate up pension payments for all individuals under the policy change and subtract this from total pension payments under no policy change to calculate hypothetical historical change in pension expenditure due to the policy change. As we find that the historical budget saving from the proposed policy would have been relatively constant as a percentage of GDP, it is easy to forecast this approximately out to 2054-55.[17]

Inheritance tax – results

We consider the introduction of a simple inheritance tax that taxes all bequests at a flat rate. Results in terms of the tax rate required to meet our fiscal sustainability targets are reported in Table 13.

Table 13: Inheritance tax rate required for fiscal sustainability

	33-year scenarios Time horizon: 2022-23 to 2054-55	20-year scenarios Time horizon: 2022-23 to 2041-42	10-year scenarios Time horizon: 2022-23 to 2031-32
Middle case (middle r, middle g)	10%	16%	65%
Upside case (low r, high g)	10%	8%	64%
Downside case (high r, low g)	10%	24%	66%

We again use HILDA data to approximate historical bequests (which are available directly in HILDA), we grow this out by GDP growth to 2054-55, and then apply the inheritance tax rate to estimate receipts from introducing this policy. While the quality of this data is unclear and the sample is relatively small, HILDA is still considered to be the best single source of data on Australian bequests (Productivity Commission 2021).

Land tax – results

We consider a policy to introduce a simple land tax that taxes all unimproved land values at a flat tax rate annually, excluding government and rural land. Results in terms of the tax rates required to meet our fiscal sustainability targets are reported in Table 14.

Table 14: Land tax rate required for fiscal sustainability

	33-year scenarios Time horizon: 2022-23 to 2054-55	20-year scenarios Time horizon: 2022-23 to 2041-42	10-year scenarios Time horizon: 2022-23 to 2031-32
Middle case (middle r, middle g)	0.1%	0.2%	0.7%
Upside case (low r, high g)	0.1%	0.1%	0.6%
Downside case (high r, low g)	0.1%	0.3%	0.7%

The underlying data for this analysis come from ABS (2021) estimates of land values. We grow total assessable land value out by GDP growth to 2054-55 and apply the land tax rate to estimate receipts from introducing this policy.

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[17] Admittedly, this is a "back of the envelope" calculation, but one which provides a reasonable way of projecting the fiscal impact from this policy change.

Appendix A – Tax policy in Australia

To achieve long-run fiscal sustainability, Australia's budget balance before interest will need to increase to compensate for the increase in interest payments due to COVID-19 debt. This appendix discusses structural features of the tax and transfer system which have been eroding fiscal sustainability since prior to the COVID-19 pandemic. The imperative for policy change to address these problems takes on greater urgency in light of Australia's greatly increased debt. This appendix outlines the key principles of tax and transfer policy design and summarises the current state of the Australian tax system with respect to these principles. This immediately suggests areas for reform, which are noted here.

Principles of tax and transfer policy design

The primary purpose of the tax system is to raise revenue for government expenditure. The transfer system is focused on redistributing income and wealth. *Efficiency*, *equity*, *simplicity* and *sustainability* are generally regarded as the key principles of tax (and transfer) policy (see TTPI 2018).

Sustainability broadly means that the government's fiscal position is stable over time. In the short term, governments can borrow and run deficits, but eventually the accumulated debt needs to be repaid with revenues largely collected from taxes. If debt is growing relatively faster than GDP, the government will eventually be unable to pay it off. In this case, taxes will eventually need to be increased – so paying less tax in the short term ultimately requires long-term increases in taxes. This is equivalent to asking future generations to pay for current consumption at the expense of their own consumption. Sustainability is intimately related to equity across generations.

The government chooses how to raise revenue, subject to trade-offs between sustainability and the other principles of tax policy above. Some economically efficient taxes might simultaneously be regressive and so increasing the proportion of revenue raised by such taxes will increase efficiency but decrease equity (see TTPI 2021a). This can be offset by other changes to taxes or transfers. Taxes must therefore be considered in the context of the entire system (see TTPI 2021b). System design must consider these trade-offs to achieve a balance between the different principles of tax policy. The design of the system in totality has large effects (whether intentional or not) on the welfare of the population.

The current state of the Australian tax system

In Australia, taxation revenues have been lower than government expenditure since 2008 (RBA 2022), and the COVID-19 debt has significantly extended the timeline for a return to a balanced budget. Sometime in the future, either tax revenue will need to increase or expenditure will need to be cut to ensure long-term fiscal sustainability.

Increasing expenditure in areas such as health, disability and aged care led to budget deficits in the post-Global Financial Crisis (GFC) period, even though the Australian economy was performing relatively well. This suggests a structural deficit in the Australian system at current levels of revenue and expenditure. Even at the peak of the economic cycle, Australia just barely managed to balance its budget. In summary, even before COVID-19, the combination of revenue and expenditure left the Australian tax system with a poor mark in sustainability.

Australia raises around two thirds of its taxes from personal and business income taxes, around double the average proportion for other OECD nations (OECD 2020). This represents approximately 15% of GDP (Henry 2021). The over-reliance of the tax system on personal income causes unnecessary inefficiency. High marginal income tax rates suppress participation and productivity, a

particular problem when population growth already endures significant pressures such as ageing and reduced immigration due to COVID-19 (Australian Treasury 2021a). Both these tax bases have become narrower and consequently more fragile in recent decades. A smaller number of individuals and businesses are paying a larger proportion of tax (Davis et al. 2019, Watkins 2022). This undermines the resilience of the tax system.

Much of the growth in tax revenue over the past two decades is attributed to fiscal drag, whereby inflation increases the proportion of individuals in higher marginal tax brackets. By design the thresholds are not indexed to inflation. This allows government a simple way to raise more tax revenue over time without the political costs of tax rate increases. Not only is fiscal drag economically harmful (Australian Treasury 2016): demanding proportionally more from the personal income tax base "threatens the social compact" (Henry 2021). Budget assumptions usually factor in some manual indexation of tax thresholds over time to correct for fiscal drag (PBO 2021a).[18] However, nothing guarantees that such indexation will actually be legislated.

The business income tax base has been subject to erosion and significant volatility. Because much of Australia's business tax income comes from mining companies, whose revenues are themselves dependent on international commodity prices, the tax take from the business sector fluctuates unpredictably beyond a short time horizon (Henry 2021). Businesses are also able to move operations outside of Australia as tax rates increase, which has become an increasingly significant source of base erosion as offshore business tax rates have been declining relative to Australia (Rose et al. 2021). Exacerbating this problem is the increased mobility of capital due to the processes of technological change and financial integration.

In contrast to Australia's large revenues from direct taxation, revenue from indirect taxation is only around 5.3% of GDP, the same level as prior to the introduction of the GST in 2000 (Henry 2021). The GST has been subject to natural base erosion as people have substituted away from consuming taxable items to non-taxable items, a process which is expected to continue. Exemptions and concessions, some built into the GST from the outset and some introduced since, have further eroded the coverage and efficiency of the tax.

While Australian savings income (e.g. dividends, interest and capital gains) is mostly taxed at high rates, exemptions and concessions reduce the amount of actual savings taxation substantially and distort behaviour. Australians keep the bulk of their savings in superannuation and, if they own property, their principal residence. Superannuation is subject to concessional tax rates of 15% and tax-free disbursements – benefitting older Australians and incentivising extra savings – while CGT is waived on the principal residence. Importantly, the value of the principal residence is also exempt from pension means testing. Concessions and exemptions like negative gearing and franking credits further incentivise specific savings vehicles and significantly reduce the overall tax revenue from savings (Varela, Breunig and Sobeck 2020).

The tax described by the OECD (2010) as the most efficient tax – the recurrent, immovable land tax – does not feature in the Australian system. Instead, we have a state-level system of taxing property transactions with stamp duty. This is the least efficient tax in Australia in terms of the marginal excess burden imposed by the tax (Cao, Hosking, Kouparitsas, Mullaly, Rimmer, Shi, Stark and Wende 2015). Like a land tax, stamp duty increases over time as land and property prices increase. However, it can be avoided by not selling property. This reduces liquidity in the housing market and

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[18] Consequently, this is an implicit feature of our modelling.

reduces the mobility of Australians, placing a drag on productivity and resulting in the higher welfare cost of the tax (The Tax Institute 2021).

This appendix has so far focused on the state of the Australian tax system with respect to sustainability and efficiency. However, examination also reveals stark issues with equity, another key principle of tax system design. In particular, the disproportionate taxation of labour and business income relative to savings income and wealth undermines fairness. While nominally taxation occurs at the same rate, the exemptions and concessions on savings income and capital gains result in people with millions of dollars in assets having no net tax liabilities while people earning $19,000 a year do (Sainsbury and Breunig 2020). This undermines confidence in the system and may increasingly result in the typical taxpayer feeling disenfranchised. Even beyond equity concerns, the system is needlessly complex, further increasing the cost to society.

How to reform the system

Before briefly outlining the broad lines of reform that should be pursued in Australia it is important to acknowledge that many aspects of our tax system would be the envy of most countries. The Australian Taxation Office is a respected and well-run organisation. Australia is effective at raising revenue and its taxation authority operates at a reasonable cost, about the OECD average of 90 cents spent per $100 of tax revenue generated (OECD 2021). The Australian system, overall, is quite progressive and does a good job of distributing revenue from those with more resources to those with less (Tran and Zakariyya 2021). Nonetheless, tax reform offers Australia one of the best opportunities for productivity-improving microeconomic reform.

Australia's tax system is not fit for purpose in terms of sustainability and does not fare well with respect to the criteria of efficiency, equity or simplicity. The immediate suggestion from the above summary of the tax system is that personal and corporate tax rates be reduced, and the emphasis shifted to taxation of land and consumption. This could involve policy changes such as including the value of the principal residence in the CGT base and the pension means test, replacing stamp duties with a land tax based on unimproved value, or increasing the GST rate and broadening the base. Harmonising tax rates on savings and including all forms of savings in the tax base is also a policy priority, as detailed by Varela et al. (2020). A low rate of tax on all savings, implemented separately from the income tax system, would align Australia with best practice internationally. These and related ideas are discussed elsewhere in this paper, in the context of Australia's COVID-19 debt.

Appendix B – Sources of information on public debt and the budget balance

The main source of information about Australia's debt and budget balance is the annual Budget. Budgets contain current and past values for balance sheet aggregates, as well as medium-term projections based on the assumption that existing government policy persists. The medium term is understood to mean the current budget year plus the next 10 years. Long-term projections are found in the IGR, which is typically produced by the government every five years and relies on budget data. The IGR defines the long term as being the next 40 years, including the current budget year. The latest IGR was released in 2021. So in this IGR, the medium term refers to the period up to 2031-32 and the long term refers to the period up to 2060-61 (Australian Treasury 2021a).

The PBO also produces independent research reports on fiscal sustainability and the medium- to long-term fiscal outlook. This includes long-term projections of the budget balance, measures of debt and interest payments. In the PBO's latest long-term analysis, the long term is defined as the period up to 2054-55, which lines up with the end of the 2015 IGR period (PBO 2021a). The PBO provides a range of scenarios, to take into account variation in interest rates, economic growth and the budget balance.

The difference between the Budget and IGR projections (which are identical in the medium term) and the PBO projections reflects a difference in the research question being asked. The IGR aims to investigate fiscal and economic trends promoted by current policy settings, whereas the PBO aims to investigate whether Australia is on a fiscally sustainable trajectory if its approach to fiscal policy broadly corresponds with past behaviour (subject to uncertainty). Therefore, the IGR assumes no policy change, which it acknowledges would be an unrealistic assumption for the purpose of prediction, and the PBO assumes that policies will change in a historically representative manner with respect to budget balance. That is, they assume that governments will either raise revenue or cut expenditure to keep debt at historic levels. How exactly governments will do this is not addressed.[19]

The 2021 IGR is based on 2021-22 Budget data whereas the PBO's most recent long-term fiscal sustainability report relies on 2020-21 Budget data. Our scenario modelling uses the published IGR and PBO projections as a starting point for estimating the size of policy change required to meet a fiscal sustainability target. As a result, we have often referred to 2021-22 or 2020-21 Budget data in this paper rather than the most updated 2022-23 figures, to correspond to the base years of our analysis, despite the fact that these are now slightly out of date. Given that debt projections have been revised down somewhat in the 2022-23 Budget, our fiscal sustainability debt targets, which are based on PBO analysis, can be viewed as relatively more conservative.

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[19] Our research question is different again. Similar to the IGR, we want to assess the long-term fiscal outlook under current policy, but similar to the PBO, we want to allow future policy change to occur in our modelling such that Australia can meet its increased debt obligations. However, unlike the PBO, our main aim is to propose specific reform solutions that demonstrably address this challenge, rather than assuming this will occur in an unspecified way.

Appendix C – Breakdown of the budget impact of COVID-19 and the government's response to it

The joint effects of the COVID-19 pandemic and the government's response to it have led to significant increases in government debt and the annual deficit. The direct, current cost of the initial response to the pandemic, including health measures, JobKeeper, cash flow boosts for employers, the Coronavirus Supplement and foregone revenue, was $299b (Australian Treasury 2020a). Programs such as Early Access to Superannuation will have future costs in terms of increased age pension payments and are estimated to have induced longer stays on unemployment which translated into very large increases in government unemployment benefits; see Sainsbury, Breunig and Watson (2022) who estimate these costs to be over $500m. These costs are not included in our modelling. As at August 2020, wage subsidies made up half of spending support, with the rest being made up largely by investment incentives, other household income support, residential construction subsidies, cash flow support to businesses and arts subsidies (Edwards 2020).

The following tables provide a simplified breakdown of government revenue and expenses between 2018-19 and 2021-22 from annual budgets (estimated for the last two years). The 2018-19 figure was the only one unaffected by the COVID-19 pandemic. We observe a significant increase in expenses following that year. The item with the largest increase is 'other economic affairs', which includes much of the immediate economic response to COVID-19, such as the JobKeeper program, Boosting Cash Flow for Employers and the JobMaker Hiring Credit. Expenditure on health and social security and welfare also increased due to the pandemic. In 2021-22, expenses start to decrease due largely to the expected cessation of some of these temporary response measures (Australian Treasury 2021d). On the revenue side we see a decline in 2019-20, mainly due to COVID-19 and the 2020 bushfires, which then increases again somewhat in 2020-21. In 2019-20, tax receipts were $32.0b (6.9%) below the 2019-20 MYEFO forecast (Australian Treasury 2020b). Significant effects were seen across personal income tax, company tax and indirect tax collections. To provide some perspective around the size of revenue loss, this decline is much less substantial than the impacts following the Global Financial Crisis of 2008 (Parliamentary Library 2020). Specifically, total government revenue fell to a low point of 21.8% of GDP in the years following the GFC, whereas in 2019-20 it was 24.5% of GDP.

Table 15: Breakdown of government revenue (billions), 2018-19 to 2021-22 (Australian Treasury 2021d)

	2018-19	**2019-20**	**2020-21 (estimate)**	**2021-22 (estimate)**
Income and other withholding tax	228.4	229.7	231.0	224.9
Other income tax	5.1	4.9	4.9	5.1
Company tax	94.7	87.8	94.3	84.2
Superannuation tax	10.9	6.6	11.7	15.3
Goods and services tax	66.4	65.3	71.1	74.1
Excise and customs duty	39.4	42.6	42.8	43.3
Other indirect tax	11.1	10.6	10.1	10.1
Non-tax revenue	37.3	38.8	39.1	39.6
Total	**493.3**	**486.3**	**504.9**	**496.6**

Table 16: Breakdown of government expenses (billions), 2020-21 and 2021-22 (Australian Treasury 2019, 2020a, 2021d)

	2018-19	**2019-20**	**2020-21 (estimate)**	**2021-22 (estimate)**
Defence	31.0	33.2	33.4	34.5
Education	34.8	39.9	42.6	42.8
Health	80.6	87.0	94.5	98.3
Social security and welfare	172.7	196.1	225.4	210.0
Housing and community amenities	5.3	5.3	7.0	7.9
Fuel and energy	8.0	7.9	9.1	9.6
Transport and communication	8.1	7.3	13.8	14.5
Other economic affairs [a]	10.3	65.5	83.8	14.6
All other [b]	136.6	136.3	149.8	157.2
Total	**487.3**	**578.5**	**659.4**	**589.3**

[a] *Includes the temporary economic response to COVID-19, from 2019-20*

[b] *Includes public debt interest and general revenue assistance to states and territories*

The government's balance sheet dictates its ability to pay down debt so the above breakdown is of key importance for fiscal sustainability going forward. Interest rate conditions, which drive the size of annual interest payments, will also play an important role. The main risks to receipts and payments arise from the ongoing impacts of COVID-19 and the government response to it, the economic outlook and other structural trends, including expectations around the quality and volume of government services (PBO 2021b).

Appendix D – International conditions

We outline some ways in which international economic and political conditions could affect Australia's fiscal and economic health into the long term. Modelling these factors is outside the scope of this paper and would involve a lot of speculation. This discussion instead provides a broad indication of why conditions could be worse than the downside scenarios considered in our modelling (i.e. high interest rates and low economic growth). This would motivate a more drastic fiscal policy response from the Australian government than that modelled. Following this discussion, we illustrate Australia's debt position as a result of COVID-19 and the associated policy response compared to other countries. This provides context around the fiscal sustainability problem facing Australia over the coming years, and also motivates monitoring the actions that other countries take in response to their own debt.

Economic and political factors

Government debt has risen in most countries due to the COVID-19 pandemic and associated policy responses. This means that most countries will need to find ways to conduct fiscal repair and grow their economies to achieve fiscal sustainability. Some features of the global economy making fiscal sustainability difficult to achieve prior to the pandemic have been compounded by it. These include: trade isolationism, a worldwide trend of low productivity and growth, and geopolitical tensions. Future developments in these areas could severely impact Australia's ability to pay down its debt.

In recent years, global trade growth has been subdued (Jääskelä and Mathews 2015). While global trade growth reached a relative high of 9.5% in 2021, reflecting the ongoing recovery from COVID-19, the World Bank (2022a) predicts growth will reduce to 4.7% by 2023 as pent-up demand moderates. The World Bank cites rising protectionism as an ongoing source of downside risk to global trade, along with ongoing supply bottlenecks due to surges of COVID-19 variants. The European Central Bank (2019) also notes that even prior to the pandemic, countries around the world have been more protectionist in their trade stance. The pandemic will almost certainly reinforce this trend by motivating economies to focus on resilience to supply chain shocks through increased domestic investment and a corresponding reduction in international trade. This has been discussed in Australia as well (Parliament of Australia 2020).

Trade is an important source of economic activity for most countries. Australia is reliant on trade, with trade amounting to 45% of GDP (World Bank 2022b). Further, the positive effects of trade on tax revenues and economic growth contribute significantly to the budget balance. Australia's ability to pay down its debt is therefore harmed when trading partners introduce protectionist policies. While there are some benefits of protectionism for select domestic groups, its overall economic costs far outweigh these benefits (Altenberg 2021).

Global productivity growth has been falling since the 2008 GFC (Dieppe 2020). Through this period, investment and wage growth have also been relatively stagnant. These are not Australia-specific phenomena, and some level of exposure to these global factors is unavoidable. However, economic policies, including but not limited to tax policies, can have considerable impact. If tax and transfer policy is designed to promote more efficient allocation of resources across the economy, fiscal sustainability can be maintained while unnecessary barriers to productivity growth are removed or reduced.

Diplomatic tensions have been increasing globally due to various factors, including COVID-19 itself. Australia's trade has suffered the consequences of tensions, such as China imposing restrictions on

certain Australian goods, such as barley, wine and coal. While overall exports have not been severely affected, largely due to strong demand for iron ore (Uren 2022), the trend towards less stable relations between nations poses risks. Foreign policy and Australia's ability to diversify its trade activity across international markets will both impact future outcomes (Xue 2021). The budget could be affected through loss of economic growth and direct effects on tax revenues, most immediately relating to corporate taxes.

International comparison of COVID-19 debt

The COVID-19 pandemic prompted an immediate fiscal response from most countries. This included healthcare spending and measures to suppress unemployment and preserve private incomes such as wage subsidies and transfers to individuals. Figure 10 depicts the size of the direct response for selected countries. Advanced economies have typically spent between 5% and 24% of GDP in total, whereas smaller economies have spent between 1% and 10% of GDP.
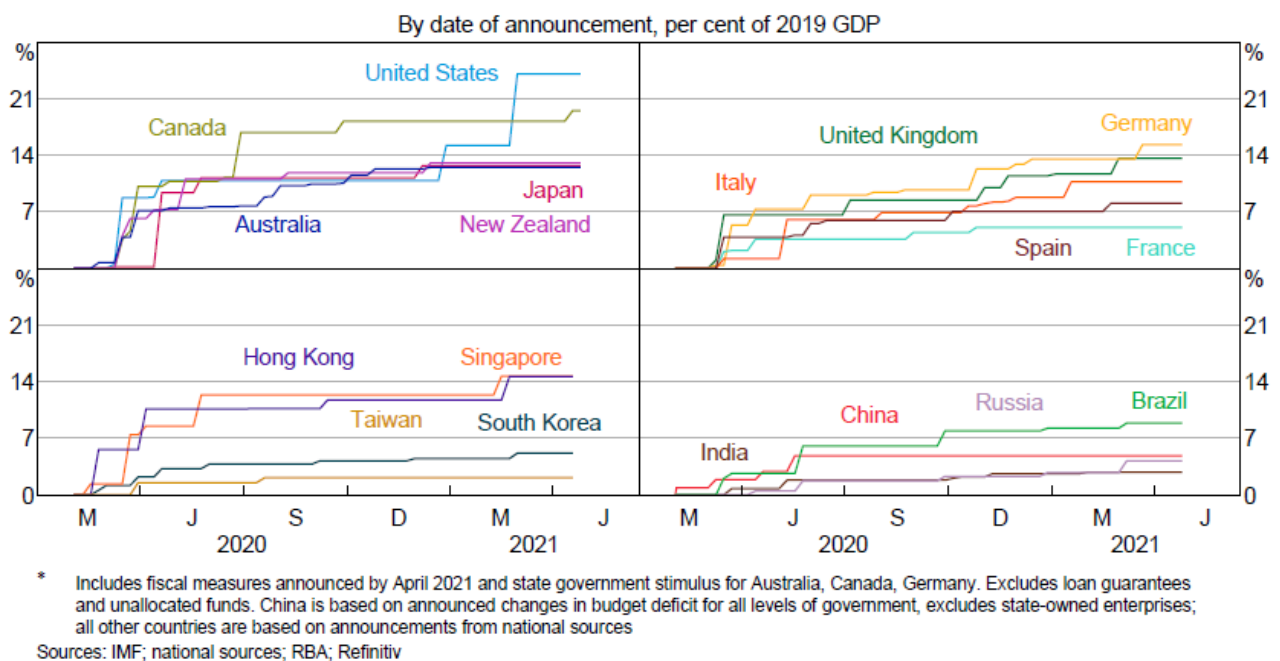

Figure 10: Cumulative acute phase direct fiscal response to the COVID-19 pandemic (Hudson, Watson, Baker and Arsov 2021)

As a result, most countries report a steep rise in public debt. Figure 11 depicts current and projected net debt as a percentage of GDP for selected countries from 2017-18 to 2025-26. Japan has the highest expected net debt by 2025-26, at approximately 170% of GDP, and the USA has the highest expected increase compared to 2019 over the same period, at around 26 percentage points. The key point for Australia from this chart is that its debt, while high by historical standards, is still far lower than in comparable economies. As most countries will need to conduct fiscal repair, Australia can monitor and learn from international developments.
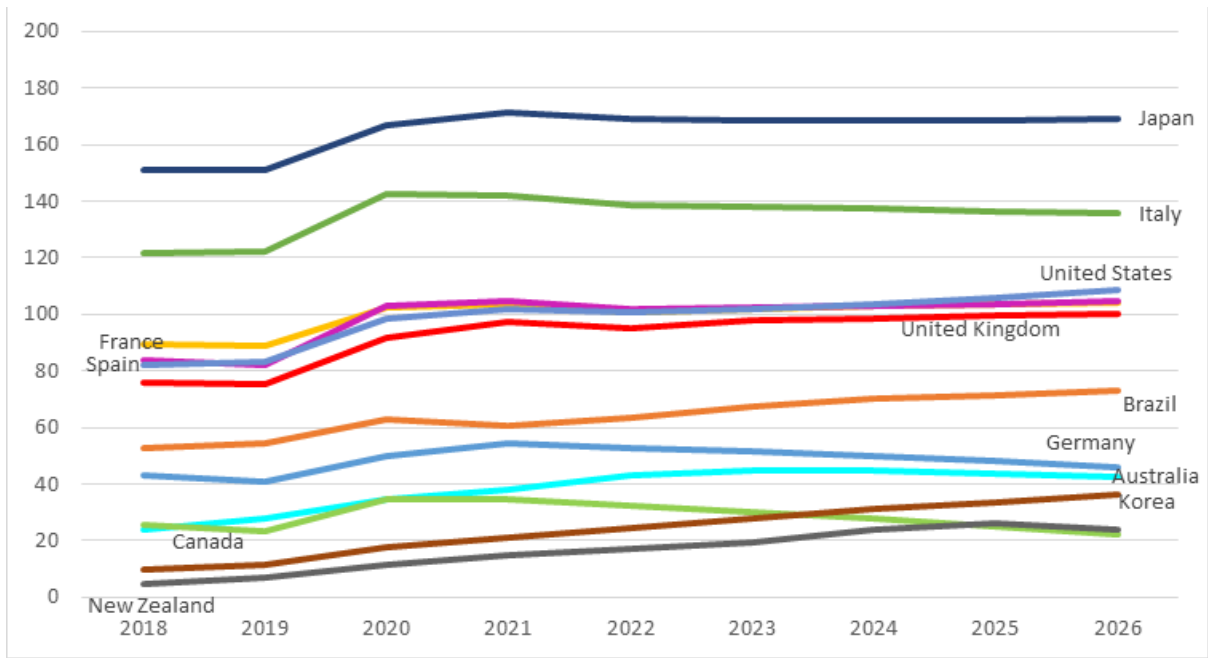
Figure 11: Net debt-to-GDP for selected countries, 2017-18 to 2025-26 (%) (IMF 2021)

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