

THE IMPACTS OF POTENTIAL HOUSING POLICY SETTINGS

Summary Report

20 March, 2026

Qaive and Tulipwood Economics

Contents

1	Executive Summary	5
1.1	Modelling approach and results	5
1.1.1	Scenario 1: Remove Negative Gearing, with minimal grandfathering	6
1.1.2	Scenario 2: Remove CGT discount, with minimal grandfathering.....	7
1.2	Combining the first two scenarios	9
2	Introduction.....	10
2.1	Purpose and scope	10
2.2	Market participant incentives	10
2.3	A note on the modelling framework	11
2.4	The scenarios considered	12
2.5	The modelling framework.....	15
2.5.1	Assessing the direct fiscal impacts	17
2.5.2	The impacts of grandfathering	17
2.6	The economy wide modelling framework	18
2.7	The economic impacts.....	19
2.7.1	The high impact scenarios.....	19
	References	27
	Appendix A: QGEM model	30
	Introduction	30
	Implementation for this analysis	31

At a glance

- The housing needs of almost one third of Australian residents and visitors are met through the rental market, and private landlords provide nearly six out of every seven rental dwellings. People rent for a wide range of good reasons, including while saving for a house deposit, working or studying somewhere far from home, or to maintain flexibility before making big life decisions like starting a family or moving permanently to a new location.
- Not every renter is in a position to become an owner at any given moment, and the unintended consequences of well-meaning policies to grow the ownership pool by shrinking the rental pool are likely to fall disproportionately on the shoulders of the most vulnerable.
- It is accepted that, as a matter of economic principle, removing negative gearing and the CGT discount will raise the ‘user cost’ for property investors and, ultimately, lead to higher market rents as property investors pass on these higher costs to tenants.
- We modelled a number of scenarios related to removing or partially removing negative gearing and removing or lowering the rate of the 50 per cent CGT discount.
- Removing negative gearing for all new and current rental properties except for one current property per investor would reduce GDP by \$3.1 billion in net present value (NPV) terms and reduce dwelling starts by 45,500 over the five-year period 2025-26 to 2029-30. Construction employment would fall by 4,250 FTEs per year on average. The policy would increase rents above that in the business-as-usual (BAU) scenario by more than 2 per cent per year in real terms by 2029-30.
- Allowing negative gearing for only new construction and grandfathering existing arrangements for current property investors, would reduce GDP by \$1.6 billion and dwelling starts by 22,750 over the five-year modelling period. Construction employment would fall by 2,000 FTEs per year on average. Rents would rise by almost 1 per cent per year higher than in the BAU scenario.
- Halving the CGT discount to 25 per cent would reduce GDP by \$822 million in NPV terms and reduce dwelling starts by 12,000 over the five-year period from 2025-26 to 2029-30. Construction employment would fall by 850 FTEs per year on average. Rents would rise marginally each year in real terms above the BAU scenario.
- Halving the CGT discount to 25 per cent and restricting negative gearing to a single existing property would lead to a fall in GDP of more than \$3 billion and housing starts of almost 46,000.

At a glance - continued

Scenario	NG	CGT	Starts	GDP (\$m)	Jobs (FTE)
Scenario 1: Remove negative gearing, minimal grandfathering	Yes		-45,524	-3,110	-4,288
Scenario 2: Remove CGT discount, minimal grandfathering		Yes	-33,353	-2,255	-3,162
Scenario 3: Restrict negative gearing to one dwelling, full grandfathering	Yes		-8,714	-614	-804
Scenario 4: Restrict negative gearing to two dwellings, full grandfathering	Yes		-4,355	-309	-400
Scenario 5: Restrict negative gearing to newly constructed dwellings, full grandfathering	Yes		-22,757	-1,589	-2,114
Scenario 6: CGT discount indexed to CPI, no grandfathering		Yes	-2,764	-184	-265
Scenario 7: 25% CGT discount, full grandfathering		Yes	-12,032	-822	-1,133
Scenario 8: 40% CGT discount with full grandfathering		Yes	-8,897	-597	-848
Scenario 9: 25% CGT discount with full grandfathering, restrict negative gearing to a single home with no grandfathering	Yes	Yes	-45,943	-3,126	-4,339

Source: Qaive/Tulipwood estimates. 'NG' and 'CGT' columns indicate if each scenario considers alterations to current negative gearing and capital gains tax arrangements respectively. 'Starts' represents the change total dwelling starts from 2025-26 to 2029-30. 'GDP' represents the net present value of the change in GDP from 2025-26. 'Jobs (FTE)' represents the simple average of the change in employment over the period from 2025-26 to 2029-30.

1 Executive Summary

Qaive and Tulipwood Economics have been commissioned by Master Builders Australia, the Housing Industry Association, the Property Council of Australia and the Real Estate Institute of Australia to investigate the economic outcomes of a set of potential alterations to housing taxation policy settings. In particular, we examine the impacts of variations around the key policy instruments of:

- Removal or restriction of negative gearing provisions for the owners of investment properties under a range of grandfathering settings, with alternate treatments including for the number of properties owned and the levels of claimable loss; and
- Removal or restriction of the current 50 per cent CGT discount for property assets, again with a range of levels of restriction or grandfathering arrangements including for different numbers of properties or time of ownership.

1.1 Modelling approach and results

Drawing on a broad range of the housing economics literature, publicly available economic and housing market data, and well-regarded modelling frameworks frequently used by the Australian public service, we have quantified the potential impacts of a set of housing market scenarios designed to align to some prominent proposals in recent federal election campaigns.

An important point to note with any credible economic modelling is that ‘two futures’ are always envisaged and modelled.

- The first future is the business as usual or BAU scenario. In this scenario, the world continues on as per normal, with current policy settings and trend growth rates mapping out a trajectory of relevant economic variables – such as dwelling starts, rental price growth, tax revenues and so on.
- The second future is the policy scenario or scenarios. This is where the impacts of the new policy or policies are traced through time via the main relevant variables.
- It is the difference between those two futures that we seek the measure, rather than comparing the future under the policy change to a static moment in time (e.g. demand or prices in 2026).

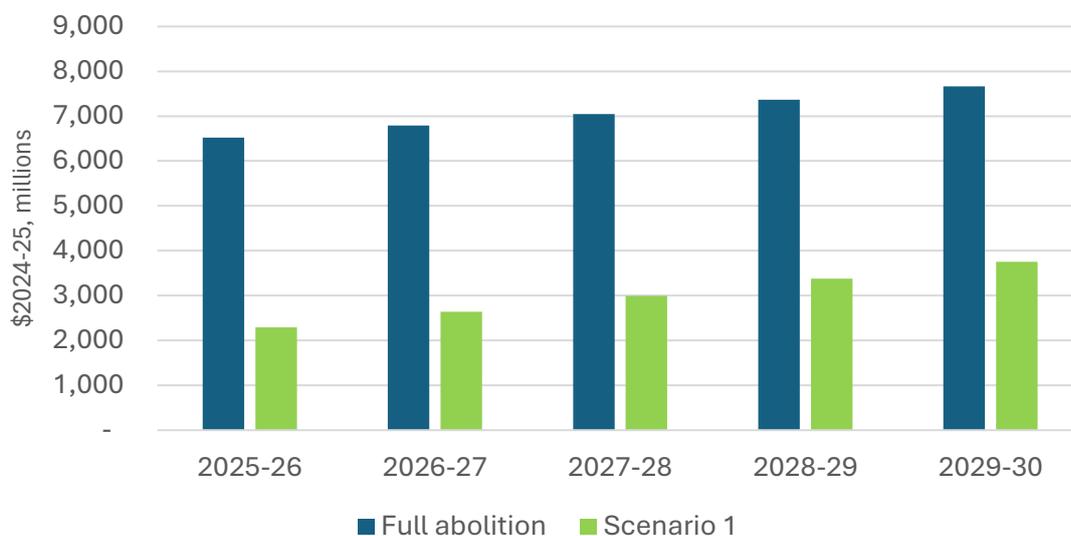
In response to the wide range of policies variously proposed in the public debate, our analysis investigates the economic consequences of nine different variations on housing market settings pertaining to negative gearing and CGT discounts. The first two of these scenarios – our ‘high-impact’ scenarios – describe the possible economy wide consequences of the most significant alterations to current housing market settings that might be considered in the public policy debate, summarised as follows.

1.1.1 Scenario 1: Remove Negative Gearing, with minimal grandfathering

This scenario removes the existing negative gearing provisions from rental investment properties, with an exception for a single property that is shielded from the change (“grandfathered”) for each current property investor.

Beginning with the fiscal impacts, the policy change would raise an additional \$3.0 billion in tax revenue in 2025-26, rising to \$4.7 billion by the end of the decade (the green columns in Chart 1-1 below). This compares to a recent assessment by the Parliamentary Budget Office (PBO, 2025) of the full revenue foregone as a result of removing the current negative gearing provisions, which starts from \$7.2 billion in 2025-26 and increasing to \$8.5 billion in 2029-30 (the blue columns), (both estimates in 2024-25 dollars). Our more modest estimate of the fiscal impact of the proposed change, compared to the PBO’s estimate of the overall the fiscal cost of the current policy, is driven by the grandfathering provisions, which ringfence approximately 70 per cent of negatively geared properties.

Chart 1-1: Direct change in tax collection – full abolition of negative gearing versus Scenario 1 estimates



Source: Parliamentary Budget Office, Qaive and Tulipwood calculations. No Grandfathering data derived from revenue foregone calculations by PBO 2025. All dollar figures are in \$AUD2024-25.

Table 1-1 details a broader range of potential economic impacts of this element of the policy platform as measured within our economy wide modelling framework. Introduction of the policy increases the cost of providing rental property and reduces the return to the supplier, reducing dwelling starts to the end of the decade by up to 45,524 dwellings, suggesting a contraction in new supply of housing of up to 4.4 per cent over the period compared to a business-as-usual scenario.

The contraction in dwelling starts has subsequent impacts on construction sector employment of up to 4,288 fewer jobs each year on average over the period compared to a business as usual, and the combination of the increased cost base and the contraction in supply of residential rentals puts upward pressure on rental prices of up to 2.4 per cent by the end of the decade compared to business-as-usual.

In the short run - that is before the market adjusts to a new equilibrium and owing to the supply being highly inelastic in the short run - dwelling prices are likely to fall. However, in the long-term, the costs of the policy will be shared in approximately equal proportion between renters and landlords.¹ In other words, our modelling indicates (and we expect) rental prices to increase over time following an initial period where dwelling prices absorb the impact of the policy-induced market adjustment.

Table 1-1: Economic impacts of removing negative gearing for residential property

Variable	Total	2025-26	2026-27	2027-28	2028-29	2029-30
GDP (\$m)	-3,110	-424	-603	-781	-965	-1,141
Construction output (\$m)	-5,356	-1,341	-1,324	-1,300	-1,286	-1,267
Construction employment (FTE)	-4,288	-4,476	-4,387	-4,276	-4,197	-4,102
New dwelling starts						
<i>Detached</i>	-31,930	-5,750	-6,074	-6,376	-6,718	-7,012
<i>Non detached</i>	-13,594	-2,394	-2,549	-2,707	-2,888	-3,057
<i>Total</i>	-45,524	-8,144	-8,623	-9,083	-9,606	-10,069
Rental price (%)	1.25	0.21	0.67	1.18	1.77	2.42

Source: Qaive and Tulipwood estimates. Total impacts on GDP and construction output are represented in NPV terms using a 7% real discount rate. Construction output and rental totals are expressed as the mean over the period. Dwelling starts are represented as the simple sum over the period. All figures represent the difference from the business-as-usual in that year.

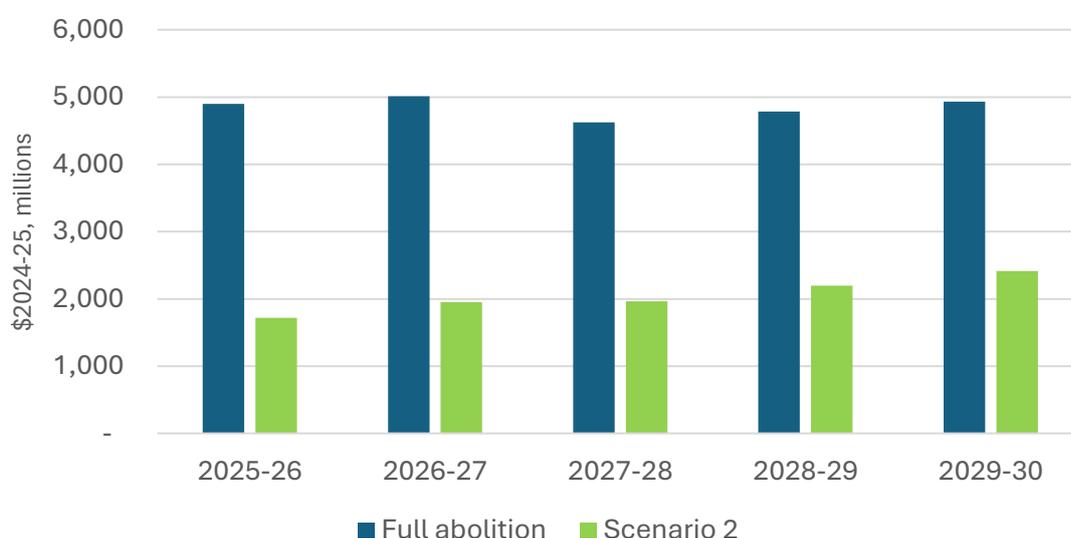
1.1.2 Scenario 2: Remove CGT discount, with minimal grandfathering

This scenario considers the removal of the existing 50 per cent CGT discount, while being similar to Scenario 1 with regards to the grandfathering provisions for existing rental investors. As shown in Chart 1-2, the grandfathering of existing rental properties reduces the direct fiscal impact of the policy compared to an arrangement with no grandfathering, with the estimated direct fiscal impact growing from \$2.5 billion to \$3.2 billion over the period (green columns) compared to an annual average of approximately \$5.7 billion over the period in the absence of grandfathering (blue columns).

¹ Detailed analysis of our results finds that this long run dynamic of approximately equal sharing of the cost of policy between renters and landlords is born out in the QGEM model.

Again, the economic consequences of this policy are significant. The policy sees a reduction in housing starts over the period of up to 33,353 dwellings, representing a contraction in new supply of dwellings of up to 3.2 per cent. Average construction sector employment is projected to be up to 3,162 FTE jobs lower than business-as-usual as a result of the slowdown in the sector, and the reduced supply is projected to increase rents on dwellings by up to 1.7 per cent by the end of the decade, all in comparison to what would be observed in the business-as-usual scenario. Again, the short term projected rental changes should be considered estimates at the lower end of what may potentially occur.

Chart 1-2: Direct change in tax collection – abolition of CGT discount versus Scenario 2 estimates



Source: Parliamentary Budget Office, Qaive and Tulipwood calculations. No Grandfathering data derived from revenue foregone calculations by PBO 2025. All dollar figures are in \$AUD2024-25.



Table 1-2: Economic impacts of removing CGT discount for residential property

Variable	Total	2025-26	2026-27	2027-28	2028-29	2029-30
GDP (\$m)	-2,255	-341	-476	-549	-671	-786
Construction output (\$m)	-3,971	-1,078	-1,046	-913	-895	-872
Construction employment (FTE)	-3,162	-3,599	-3,465	-3,003	-2,919	-2,824
New dwelling starts						
<i>Detached</i>	-23,400	-4,623	-4,797	-4,478	-4,673	-4,828
<i>Non detached</i>	-9,953	-1,925	-2,013	-1,902	-2,009	-2,105
<i>Total</i>	-33,353	-6,548	-6,811	-6,380	-6,682	-6,933
Rental price (%)	0.88	0.17	0.53	0.83	1.23	1.67

Source: Quave and Tulipwood estimates. Total impacts on GDP and construction output are represented in NPV terms using a 7% real discount rate. Construction output and rental totals are expressed as the mean over the period. Dwelling starts are represented as the simple sum over the period. All figures represent the difference from the business-as-usual in that year.

1.2 Combining the first two scenarios

In isolation, each of the two policy levers discussed above have the potential for significant adverse effects, while in combination the impact on the Australian housing market and broader economy could be unprecedented.

The effects of removing negative gearing provisions and the CGT discount would be cumulative, with both adding to ‘user costs’ for property investments. Together, these scenarios could force many property investors with multiple properties or who are early-stage investors (who rely most acutely on negative gearing provisions) to sell. Whilst those renters who are on the cusp of buying their own home and who have sound credit would stand to benefit, property owners would lose from a reduction in property prices, while reductions in the available rental stock have the potential to harm existing and new renters who are not in a situation to buy.

2 Introduction

2.1 Purpose and scope

This summary report has been prepared for Master Builders Australia, the Housing Industry Association, the Property Council of Australia and the Real Estate Institute of Australia. We evaluate the economic implications of a set of proposed housing policy reforms put forward by various stakeholders. In particular, we examine the impacts of policy proposals encompassing the following.

- Removal or restriction of negative gearing for investment properties, under alternate eligibility or grandfathering arrangements.
- Removal restriction of the 50 per cent CGT discount for property assets, again under alternate eligibility or grandfathering arrangements.

The purpose of the summary report is to present quantitative economic analysis on how these policies, taken individually and together, would affect the following aspects of the housing market and the broader economy over time, including through:

- government taxation revenue;
- total housing starts, including for detached and non-detached dwellings;
- the level of output and employment in the construction sector housing
- dwelling rents; and
- broader economic outcomes.

The analysis in this report draws on an extensive body of housing economics literature and previous empirical and policy studies to demonstrate the theoretical frameworks and real life outcomes that drive the property market, in combination with economic modelling to inform quantitative expectations of the policy impacts at the macroeconomic level (e.g. on GDP). A summary of this body of literature is provided in the references at the end of this summary report.

2.2 Market participant incentives

Policies to remove or restrict negative gearing and CGT discounts are likely to affect the behaviour of market participants across all segments of Australia's housing market.

At the high-impact end of the spectrum, removing both negative gearing and the 50 per cent CGT discount would substantially increase the user cost of investing in residential property, altering the after-tax returns that investors factor into their purchase and retention decisions. The policies would, therefore, shift the financial calculus for investors, particularly those holding multiple properties and



for all new investors regardless of their scale. For many such individuals, housing represents a large share of both their total assets and liabilities, especially when leveraged through mortgages.

The behavioural response to these changes - whether by reducing further investment, exiting the rental market, or reallocating capital to other asset classes - would not occur in isolation. Rather, these individual decisions would aggregate to broader structural shifts in the housing market, reshaping both the demand and supply of rental and owner-occupied housing. The reduction in liquidity due to the grandfathering provisions is likely to increase instability in the housing market (by reducing available turnover). These shifts would, in turn, affect the proportion of Australians renting and owning, dwelling and rental prices, the return on investment for rental properties, and tenure composition. Over time, there would be a significant housing market adjustment.

The implications of this adjustment are compounded by the nature of housing as an asset class. As William Fischel notes in *The Homevoter Hypothesis* (2001), housing is a highly idiosyncratic investment. Each property is unique, and unlike financial assets, there are no practical hedging strategies or instruments available. Investors cannot easily “go short” on housing, nor are there robust derivative markets or insurance products to protect against price falls. As a result, property investors are unusually exposed to fluctuations in demand and credit conditions.²

This structural vulnerability adds to the instability of housing markets. Vernon Smith, in *Housing, Bubbles and Market Psychology* (2014), emphasises that real estate markets lack the stabilising presence of short buyers - those who, in equity markets, help cushion price declines by stepping in when prices fall. Without these actors, the housing market becomes more susceptible to price overshooting on both the upside and the downside. When negative shocks occur - whether from demand contraction, credit tightening, or tax reform - there are few mechanisms to arrest price declines. The same is true on the upside. The consequences can be severe, particularly for leveraged investors, and history has shown that such downturns can lead to sharp rises in mortgage stress and bankruptcies, as witnessed during the Global Financial Crisis of 2008.

2.3 A note on the modelling framework

In any credible economic modelling there are ‘two futures’ that are envisaged and modelled.

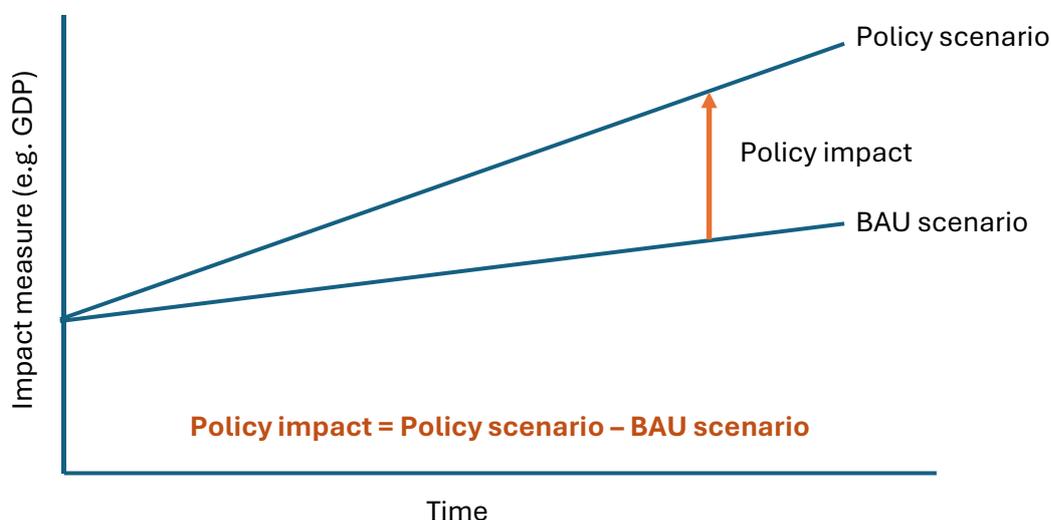
The first future is always the business as usual or BAU scenario. In this scenario, the world continues on as per normal, with current policy settings, trend growth rates and so on setting out a trajectory of relevant economic variables – such as dwelling starts, rental price growth, tax revenues and so on.

² That is, I value my own home in unique ways, and I can’t insure against the loss in that unique value (if I lose my house).

The second future is the policy scenario (or scenarios). In this future the impacts of the new policy or policies are implemented through a series of modelling ‘shocks’, and the consequences of these changes on the relevant variables such as GDP or employment are traced through time.

It is the difference between those two futures that we seek the measure, over some identified time period, rather than comparing the future under the policy change to a static moment in time. The policy impact could be positive or negative in term of what is being measured, and Figure 2-1 illustrates a positive policy impact.

Figure 2-1 Measuring policy impacts



2.4 The scenarios considered

In this section we have considered alternative policy scenarios in relation to negative gearing provisions and the CGT discount. The scenarios have been chosen to cover a wide suite of possibilities that might be potentially or have already been proposed by members of parliament in the Australian housing, and all scenarios are measured relative to a business-as-usual scenario that retain all current taxation settings.

To aid in the interpretation of results the scenarios have been ordered to fit into two separate groupings. The first grouping consists of Scenarios 1 and 2, each of which represent very high impact settings for possible changes to the CGT discount and negative gearing strategies. In this ‘high-impact’ group of scenarios the level of grandfathering is chosen to be very low and the scale of the tax change is very high. Each of the remaining scenarios represents variations or combinations of CGT discount

and negative gearing possibilities, which we present as a second grouping including narrative on the relativities between the results. The scenarios are as summarised in the following table and in detail in the sections that follow.

Table 2-1: Summary descriptions of the modelling scenarios

Scenario	Scenario description
Scenario 1: Remove negative gearing, minimal grandfathering	Remove negative gearing provision for all investment dwellings, except for one current investment dwelling per owner.
Scenario 2: Remove CGT discount, minimal grandfathering	Remove the 50% CGT discount for all investment dwellings, except for one current investment dwelling per owner.
Scenario 3: Restrict negative gearing to one dwelling, full grandfathering	Retain current negative gearing provisions only for a single dwelling per investor, full removal for all other concurrently owned investment dwellings, and full grandfathering of currently owned investment dwellings.
Scenario 4: Restrict negative gearing to two dwellings, full grandfathering	Retain current negative gearing provisions only for two dwellings per investor, full removal for all other concurrently owned investment dwellings, and full grandfathering of currently owned investment dwellings.
Scenario 5: Restrict negative gearing to newly constructed dwellings, full grandfathering	Retain current negative gearing provisions only newly constructed dwellings, full removal for all other investment dwellings, and full grandfathering of currently owned investment dwellings.
Scenario 6: CGT discount indexed to CPI, no grandfathering	Remove the 50% CGT discount and replace with CPI indexation to account for the nominal gain in dwelling prices upon sale. No grandfathering of currently owned rental investment dwellings.
Scenario 7: 25% CGT discount, full grandfathering	Apply a 25% CGT discount for all dwellings, with full grandfathering of currently owned investment dwellings.
Scenario 8: 40% CGT discount with full grandfathering	Apply a 40% CGT discount for all dwellings, with full grandfathering of currently owned investment dwellings.
Scenario 9: 25% CGT discount with full grandfathering, restrict negative gearing to a single home with no grandfathering	The combined settings of Scenarios 7 and 3, with removal of grandfathering of negative gearing provisions.

The scenarios are described in further detail as follows.

Scenario 1: Remove negative gearing, minimal grandfathering

This scenario removes in full the current negative gearing arrangements for rental investment dwellings from the 2025-26 financial year forward. The existing negative gearing arrangements are grandfathered over for a single currently owned dwelling per investor only, with current negative gearing arrangements withdrawn for any property in addition to the nominated grandfathered property where an investor owns two or more dwellings. If the grandfathered property is sold, it is no longer subject to the exemption.

No other alterations are made to taxation settings.

Scenario 2: Remove CGT discount, minimal grandfathering

This scenario removes in full the current CGT discount arrangements for rental investment dwellings from the 2025-26 financial year forward. The existing CGT discount arrangements are grandfathered over for a single currently owned dwelling per investor only, with current CGT discount arrangements withdrawn for any dwelling in addition to the nominated grandfathered property where an investor owns two or more dwellings. If the grandfathered dwelling is sold, it is no longer subject to the exemption.

No other alterations are made to taxation settings.

Scenario 3: Restrict negative gearing to one dwelling, full grandfathering

This scenario restricts the negative gearing provisions to a single rental dwelling per investor, with no negative gearing provisions made available for any additionally owned rental dwellings. The current negative gearing provisions are retained in full for any currently owned dwellings.

Scenario 4: Restrict negative gearing to two dwellings, full grandfathering

This scenario restricts the negative gearing provisions to two rental dwellings per investor, with no negative gearing provisions made available for any additionally owned rental dwellings. The current negative gearing provisions are retained in full for any currently owned dwellings.

Scenario 5: Restrict negative gearing to newly constructed dwellings, full grandfathering

The current negative gearing provisions are allowed only for newly constructed dwellings in this scenario, with negative gearing made unavailable for any pre-owned dwellings purchased from 2025-26 onwards. The current negative gearing provisions are retained in full for any currently owned dwellings.

Scenario 6: CGT discount indexed to CPI, no grandfathering

This scenario considers an alteration to the CGT discount regime whereby the level of discount is indexed to the growth in the CPI over the duration of ownership of the asset. This scenario measures the economic consequence of taxing residential property investors for only the real component of growth in asset values. We acknowledge the range of arguments available on the optimum rate of CGT discount.

Scenario 7: 25 per cent CGT discount, full grandfathering

Scenario 7 reduces the current 50 per cent CGT discount for rental dwellings to a lower level of 25 per cent, with grandfathering of the existing 50 per cent discount for currently owned rental dwellings.

Scenario 8: 40 per cent CGT discount with full grandfathering

Scenario 8 reduces the current 50 per cent CGT discount for rental dwellings to a lower level of 40 per cent, with grandfathering of the existing 50 per cent discount for currently owned rental dwellings.

Scenario 9: 25 per cent CGT discount with full grandfathering, restrict negative gearing to a single home with no grandfathering

This scenario combines the CGT discount treatment of Scenario 7 with full grandfathering of currently owned rental dwellings with the restricted negative gearing provisions of Scenario 3 (that is, to a single dwelling per investor) however without grandfathering of the negative gearing arrangements for currently owned rental dwellings.

2.5 The modelling framework

To quantify the impacts of the scenarios described above we draw on a suite of data and modelling tools closely aligned to those adopted by the Australian public service to provide advice on matters such as these.

At a high level, the framework proceeds as follows:

- First, we quantify the ‘direct impact’ of each scenario using a model of individual taxpayer outcomes of the same type as is used by the Parliamentary Budget Office when developing policy costings for parliamentarians (for example, in terms of ‘revenue foregone’). This part of the modelling utilises the ATO Tax Stats database.

- Second, we specify a Computable General Equilibrium (CGE) model with the required sectoral and regional detail to implement the policy costings in an economy wide modelling framework. The CGE model used is the QGEM model and is calibrated to replicate the findings of the Henry Tax Review (2009) in regard to the marginal excess burden of the taxes under consideration, where MEB measures the efficiency loss to the economy caused by the tax. We augment the core model with a housing module to enhance the detail on asset and rental prices.
- Third, the direct impacts are used as the basis for a set of economic shocks for the CGE model.

The Henry Review did not specifically consider the economic efficiency of capital gains taxes on property and negative gearing arrangements, and disagreement on the efficiency of these taxation bases has been a feature of the public policy debate over time. To address this uncertainty, the QGEM model is calibrated under two alternate settings, a “Likely impact” specification which replicates the efficiency of conveyancing stamp duties (which is an inefficient tax base), and a “Low impact” specification which replicates the efficiency of land taxes (which is an efficient tax base).

Undertaking analysis of the policies scenarios using alternative calibrations addresses the uncertainty of the economic efficiency of changes to the tax structures, for example due to the complex interactions between the range of actors in the property market and the specifics of tax design. Drawing on both the most efficient and the least efficient comparable taxes studied in the Henry review provides a reasonable range for the impacts that we may expect from the scenarios described.

It should however be noted that in the case of land taxes KPMG Econtech (2010) note that due to progressive rate structures, exemptions and issues of aggregation their estimate of the marginal excess burden of land tax is likely to be an underestimate. Furthermore, the base against which land tax is levied is highly immobile compared to taxes and price constraints on rental investments, which (particularly in the case of the CGT discount, which is also highly aligned to a transaction tax) have much greater behavioural consequence. It is for these reasons we consider the “Likely impact” specification to be more representative for the analysis at hand, and we report only these results in the Executive Summary.

2.5.1 Assessing the direct fiscal impacts

Assessment of the direct impact of the potential policy change for all scenarios has been undertaken using an accounting style model, built on a 2 per cent sample of 2020-21 individual tax returns as made available by the Australian Taxation Office under the Taxation Statistics publication.

The model combines this individual tax return data with the schedule of personal income tax rates, in order to estimate the change in tax paid based on the individual circumstances of each taxpayer sample data set, which are subsequently aggregated and grossed up to the population level in order to test the consequences of each policy reform. This approach is highly aligned to that adopted by the PBO in comparable policy costings, and a key advantage of this approach is that it specifically addresses potential behavioural patterns that would be lost in any assessment based on high level aggregate data.

Importantly, in order to validate the results of our model we have replicated the analysis recently published by the PBO in provided in “Cost of Negative Gearing and Capital Gains Tax Discount” (2025), with the results of these costings produced by our model aligned to the findings of the PBO.

2.5.2 The impacts of grandfathering

The grandfathering provisions detailed above have the effect of reducing the effective direct tax base (i.e. stock of dwellings) against which the policies are applied, depending on the exact base of dwellings that are assumed to be grandfathered over.

Under Scenarios 1 and 2, for example, all existing property investors carry over the existing negative gearing and CGT discount for a maximum of a single dwelling thus reducing the direct fiscal impact of the policy. The Australian Taxation Office provides statistics on the number of rental interests by individuals in the 2021-22 financial year, as shown in Table 2-2 below.³ Using this database we can develop an estimate of how many rental interests in Australia are either singly owned or are chosen as the individual dwelling within a portfolio of two or more to which the grandfathering provisions are applied. Any other properties currently owned as rental interests before the introduction of the policy or properties acquired for rental purposes after the introduction of the policy are then not granted the benefits of the grandfathering provisions.

³ ATO Taxation Statistics 2021-22 (latest release).

Table 2-2: Number of rental interests by individuals, 2021-22.

Number of property interests	Total Individuals	Share of individuals
1	1,620,663	71%
2	428,020	19%
3	132,338	6%
4	47,633	2%
5	19,530	1%
6+	19,977	1%

Source: ATO Taxation Statistics 2021-22, Qaive and Tulipwood calculations.

Based on this data we estimate that 69 per cent of the rental property stock currently owned would be grandfathered over in the first year of the policy introduction, with this proportion to contract over time as rental properties change ownership.⁴

While the grandfathering arrangements described above reduce the within-period fiscal impact of the policies described, the change in user costs for a grandfathered dwelling *after a future change of ownership* must be reflected in the future price of the dwelling - with asset prices determined by the expected present value of future cash flows (Poterba, 1984). Adopting a real discount rate of 7 per cent, a future schedule of property transfers based on a median of 10 years holding time for rental properties⁵, and current proportions of investment versus owner-occupied dwellings we estimate the tax equivalence of the impact on asset values for grandfathered rental properties as a result of the policy scenarios implemented.

2.6 The economy wide modelling framework

Framing the outcome of taxation policy change in terms of revenue forgone can be a useful exercise to assess the relative changes in taxation revenue due to policy change. Assessment under this framework is intentionally narrow and denies the possibility of behavioural change affecting impacts, which can significantly alter the actual estimated outcomes. Consider, for

⁴ Note that the data provided by the ATO does not (for example) suggest that 71% of rental properties are owned by an individual who only owns a single property, and to calculate the proportion of properties that are to be subject to grandfathering provisions we must take into account that (again, for example) an individual who owns two property interests (who make up 19% of the *individuals* in the sample) holds twice as many properties as an individual who only owns a single property interest.

⁵ See, for example, <https://www.corelogic.com.au/news-research/news/2023/homeownership-hold-periods-increase-as-short-term-profits-plunge>

example, the difference between the forecasts of tobacco revenue under increasing tax settings and the actual taxes collected, which tend to be lower than forecast.

CGE models are a standard framework for determining the net outcome of policy changes such as those under consideration in this report. CGE models are frequently called on by the Australian public service in this way, for example, in the assessment of the impacts of climate change mitigation policy, the impacts of changes to company taxation settings, and the assessment of the broader Australian taxation system.

The QGEM model is a CGE model based on the well-known and widely used GTAP model and database, customised to draw in the dynamic features of the GTEM model as developed by ABARES and as used by the Commonwealth Treasury.

A technical description of the QGEM model is provided in Appendix A.

2.7 The economic impacts

The following section describes both the direct impacts on the property market in each scenario, alongside the economy wide consequences of the policies under consideration.

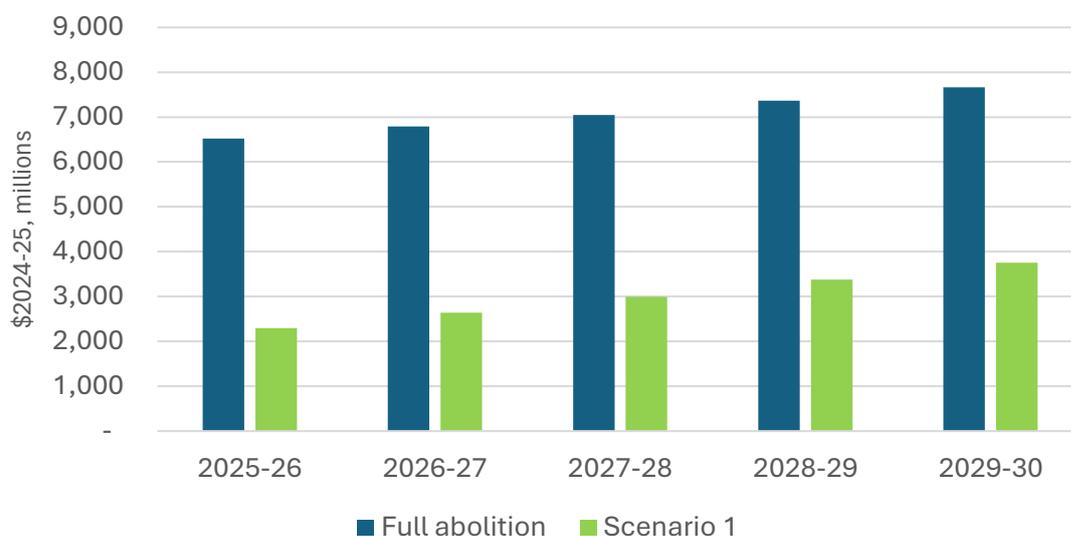
2.7.1 The high impact scenarios

2.7.1.1 *Scenario 1: Remove negative gearing, minimal grandfathering*

As described above, this scenario removes the existing negative gearing provisions from rental investment properties, with the provision for a single property to be grandfathered over for each current property investor. The existing negative gearing arrangements have been a feature of the Australian tax system for many years, dating back to as early as 1915 and with only brief interruption, and is rooted in the economic principle of tax neutrality.

The first year direct fiscal impact of the policy change assessed purely under the framework of revenue foregone would be the raising of an additional \$3.0 billion in tax revenue from residential investment housing, rising to \$4.7 billion by the end of the decade (the green columns in the chart). This compares to an assessment of the full revenue foregone by the Parliamentary Budget Office starting from \$7.2 billion and increasing to \$8.5 billion (the blue columns) as shown in Chart 2-1 (both estimates in 2024-25 dollars). The more modest fiscal impact of the proposed policy is driven by the grandfathering provisions, which put in place a relative privilege for those individuals already invested in the residential property market.

Chart 2-1: Direct change in tax collection – full abolition of negative gearing versus Scenario 1



Source: Parliamentary Budget Office, Qaive and Tulipwood calculations. No Grandfathering data derived from revenue foregone calculations by PBO 2025. All dollar figures are in \$AUD2024-25.

Table 2-3 details a broader range of potential economic impacts of this element of the policy platform as measured within our economy wide modelling framework. Introduction of the policy increases the cost of providing rental property and reduces the return to the supplier, reducing dwelling starts to the end of the decade by up to 45,524 dwellings, suggesting a contraction in new supply of housing of up to 4.4 per cent over the period compared to a business-as-usual scenario.

The contraction in dwelling starts has subsequent impacts on construction sector employment of up to 4,288 fewer jobs each year on average over the period compared to a business as usual, and the combination of the increased cost base and the contraction in supply of residential rentals puts upward pressure on rental prices of up to 2.4 per cent by the end of the decade compared to business as usual. The rental price impacts generated by this framework should be considered a lower bound, with short run disequilibrium outcomes more likely to lower dwelling prices, with the cost of policy in the long-term being shared in approximately equal proportion between renters and landlords.⁶

⁶ Detailed analysis of our results finds that this long run dynamic of approximately equal share of the cost of policy between renters and landlords is born out in the QGEM model.

Table 2-3: Economic impacts of Scenario 1

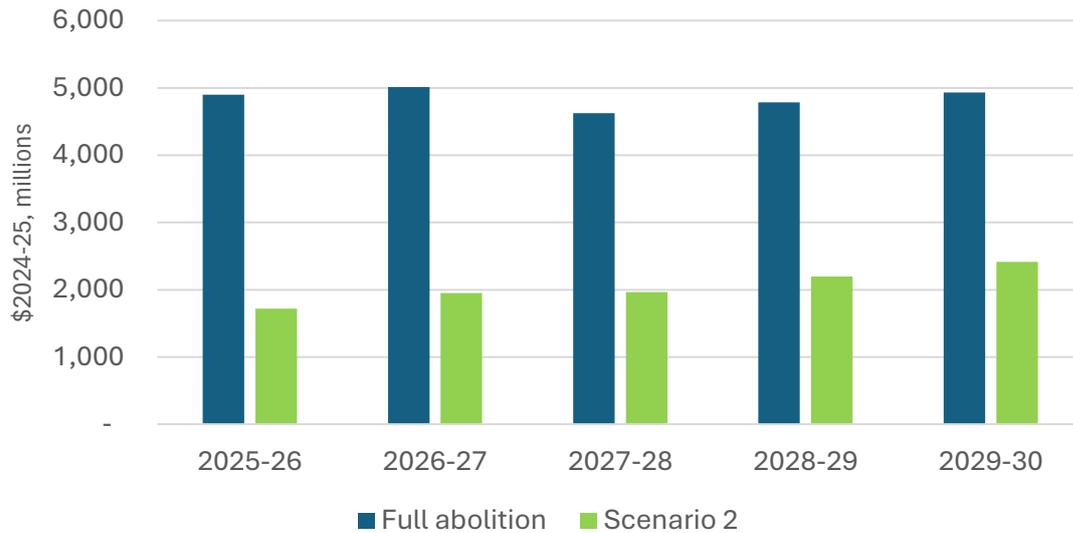
Variable	Total	2025-26	2026-27	2027-28	2028-29	2029-30
Likely impact specification						
GDP (\$m)	-3,110	-424	-603	-781	-965	-1,141
Construction output (\$m)	-5,356	-1,341	-1,324	-1,300	-1,286	-1,267
Construction employment (FTE)	-4,288	-4,476	-4,387	-4,276	-4,197	-4,102
New dwelling starts						
<i>Detached</i>	-31,930	-5,750	-6,074	-6,376	-6,718	-7,012
<i>Non detached</i>	-13,594	-2,394	-2,549	-2,707	-2,888	-3,057
<i>Total</i>	-45,524	-8,144	-8,623	-9,083	-9,606	-10,069
Rental price (%)	1.25	0.21	0.67	1.18	1.77	2.42
Low impact specification						
GDP (\$m)	-732	-100	-142	-184	-227	-268
Construction output (\$m)	-1,260	-316	-312	-306	-303	-298
Construction employment (FTE)	-1,009	-1,053	-1,032	-1,006	-987	-965
New dwelling starts						
<i>Detached</i>	-7,513	-1,353	-1,429	-1,500	-1,581	-1,650
<i>Non detached</i>	-3,199	-563	-600	-637	-680	-719
<i>Total</i>	-10,712	-1,916	-2,029	-2,137	-2,260	-2,369
Rental price (%)	0.29	0.05	0.16	0.28	0.42	0.57

Source: Qaive and Tulipwood estimates. Total impacts on GDP and construction output are represented in NPV terms using a 7% real discount rate. Construction employment and rental totals are expressed as the mean over the period. Dwelling starts are represented as the simple sum over the period. All figures represent the difference from the business-as-usual in that year.

2.7.1.2 Scenario 2: Remove the CGT discount, minimal grandfathering

This scenario considers the removal of the existing 50 per cent CGT discount, while shadowing the design of Scenario 1 with regards to the grandfathering provisions for existing rental investors. As shown in Chart 2-2, the grandfathering of existing rental properties reduces the direct fiscal impact of the policy compared to an arrangement with no grandfathering, with a direct fiscal impact growing from \$2.5 billion to \$3.2 billion over the period (green columns) compared to approximately \$5.7 billion over the period in the absence of grandfathering (blue columns).

Chart 2-2: Direct change in tax collection – abolition of CGT discount versus Scenario 2



Source: Parliamentary Budget Office, Qaive and Tulipwood calculations. No Grandfathering data derived from revenue foregone calculations by PBO 2025. All dollar figures are in \$AUD2024-25.

Again, the economic consequences of this policy are significant. The policy sees a reduction in housing starts over the period of up to 33,353 dwellings, representing a contraction in new supply of dwellings of up to 3.2 per cent. Average construction sector employment is projected to be up to 3,162 FTE jobs lower than business as usual as a result of the slowdown in the sector, and the reduced supply is projected to increase rents on dwellings by up to 1.7 per cent by the end of the decade, all in comparison to what would be observed in the business as usual scenario. Again, the short term projected rental changes should be considered estimates at the lower end of what may potentially occur.

Table 2-4: Economic impacts of Scenario 2

Variable	Total	2025-26	2026-27	2027-28	2028-29	2029-30
Likely impact specification						
GDP (\$m)	-2,255	-341	-476	-549	-671	-786
Construction output (\$m)	-3,971	-1,078	-1,046	-913	-895	-872
Construction employment (FTE)	-3,162	-3,599	-3,465	-3,003	-2,919	-2,824
New dwelling starts						
<i>Detached</i>	-23,400	-4,623	-4,797	-4,478	-4,673	-4,828
<i>Non detached</i>	-9,953	-1,925	-2,013	-1,902	-2,009	-2,105
<i>Total</i>	-33,353	-6,548	-6,811	-6,380	-6,682	-6,933
Rental price (%)	0.88	0.17	0.53	0.83	1.23	1.67
Low impact specification						
GDP (\$m)	-531	-80	-112	-129	-158	-185
Construction output (\$m)	-934	-254	-246	-215	-210	-205
Construction employment (FTE)	-744	-847	-815	-707	-687	-665
New dwelling starts						
<i>Detached</i>	-5,506	-1,088	-1,129	-1,054	-1,099	-1,136
<i>Non detached</i>	-2,342	-453	-474	-447	-473	-495
<i>Total</i>	-7,848	-1,541	-1,603	-1,501	-1,572	-1,631
Rental price (%)	0.21	0.04	0.12	0.20	0.29	0.39

Source: Qaive and Tulipwood estimates. Total impacts on GDP and construction output are represented in NPV terms using a 7% real discount rate. Construction employment and rental totals are expressed as the mean over the period. Dwelling starts are represented as the simple sum over the period. All figures represent the difference from the business-as-usual in that year.

Table 2-5: Summary of impacts – likely impact specification

Scenario	GDP	Starts	Construction output	Construction employment	Clearing rental price
1	-3,110	-45,524	-5,356	-4,288	1.25
2	-2,255	-33,353	-3,971	-3,162	0.88
3	-614	-8,714	-989	-804	0.26
4	-309	-4,355	-490	-400	0.13
5	-1,589	-22,757	-2,610	-2,114	0.67
6	-184	-2,764	-335	-265	0.07
7	-822	-12,032	-1,415	-1,133	0.33
8	-597	-8,897	-1,069	-848	0.23
9	-3,126	-45,943	-5,431	-4,339	1.24

Source: Qaive and Tulipwood estimates. GDP and construction output impacts are represented in NPV terms using a 7% real discount rate. Construction employment and rental totals are expressed as the mean over the period. Dwelling starts are represented as the simple sum over the period. All figures represent the difference from the business-as-usual in that year.

Table 2-6: Summary of impacts – low impact specification

Scenario	GDP	Starts	Construction output	Construction employment	Clearing rental price
1	-732	-10,712	-1,260	-1,009	0.29
2	-531	-7,848	-934	-744	0.21
3	-144	-2,050	-233	-189	0.06
4	-73	-1,025	-115	-94	0.03
5	-374	-5,355	-614	-497	0.16
6	-43	-650	-79	-62	0.02
7	-193	-2,831	-333	-267	0.08
8	-140	-2,094	-252	-200	0.05
9	-735	-10,810	-1,278	-1,021	0.29

Source: Qaive and Tulipwood estimates. GDP and construction output impacts are represented in NPV terms using a 7% real discount rate. Construction employment and rental totals are expressed as the mean over the period. Dwelling starts are represented as the simple sum over the period. All figures represent the difference from the business-as-usual in that year.

With the underlying mechanisms being relatively constant and the main differences being in the coverage and grandfathering characteristics of the scenarios, it is most valuable to consider the drivers of the differences between related scenarios, as follows.

- Scenarios 3 and 4 each implement variations on negative gearing, and are most readily compared to the high-impact Scenario 1.
 - o 71 per cent of current investors holding only a single property interest and an addition 19 per cent holding 2 interests (see Table 2-2), and as such the specifications of Scenarios 3 and 4 (that is, restrictions to the first 1 or 2 dwellings per investor) are not binding on large sections of the market, limiting both the direct scope of the impact and the impact on present day property values for grandfathered properties with respect to Scenario 1, noting that under these scenarios negative gearing would still be available to a significant proportion of aspiring investors.
 - o The broad grandfathering in Scenarios 3 and 4 reduce the direct fiscal impost of these scenarios in relation to Scenario 1, which allows only for a single dwelling to be grandfathered over.
- Scenario 5 again considers alterations to negative gearing, however with forward eligibility extended to new builds only. With residential property a long-lived asset, the addition of new homes is relatively modest in comparison to the existing stock of homes. The broad grandfathering arrangements in this scenario again reduces the direct fiscal impact in comparison to Scenario 1.
 - o The different challenges that face development depending on location (for example, high density metropolitan versus urban fringe) have not been captured in this modelling – for example, the relative challenge of delivering new dwellings in existing urban centres where there is simultaneously high demand from renters.
- Scenarios 6, 7 and 8 present variations on CGT discount settings, and as such are most readily compared to the high-impact results of Scenario 2.
 - o In each of these scenarios we retain broad grandfathering as compared to the more restrictive grandfathering arrangements of Scenario 2, which reduce the fiscal consequences of the altered tax arrangements and the subsequent economy wide impacts.
 - o Scenario 6 has only modest economy wide impact. This is a direct consequence of the current 50% discount settings being very close to the appropriate level of

compensation given the recent history of house price and consumer price index growth.

- Scenario 7 has the greatest impact of scenarios 6 through 8. With the exception of the grandfathering provisions, Scenario 7 may be thought of as half the impact of Scenario 2 (i.e., a halving rather than complete abolition of the discount), with the difference in the grandfathering settings explaining the slightly muted economic response.
- Scenario 9 combines elements of negative gearing and CGT reform – however importantly, includes no grandfathering provisions for negative gearing. This is the only scenario with a more restrictive grandfathering arrangement than in the high-impact scenarios, and this is a key driver of the large impact on all macroeconomic variables.

References

Abelson, P. et al (2005), House Prices in Australia: 1970 to 2003, Facts and Explanations. University of Sydney Research Paper.

Agarwal, N., Bishop, J. and Day, I., (2023), A New Measure of Average Household Size. RBA Bulletin – March 2023. Sydney.

Australian Bureau of Statistics (2023), New insights into the rental market. Accessed here: <https://www.abs.gov.au/statistics/detailed-methodology-information/information-papers/new-insights-rental-market>

Australian Government (2017), Analysis of Wage Growth. The Australian Treasury Department. November 2017. Canberra.

Australian Government (2025), 2024 Population Statement. Centre for Population. Canberra.

Blackley, D.M. and Follain, James, R., (1996), In search of empirical evidence that links rent and user cost. *Regional Science and Urban Economics* 26 (1996) 409-431.

Brookings Institution (Rebecca Diamond, 2018), “*What does economic evidence tell us about the effects of rent control?*” – summary of rent control outcomes (short-run vs long-run). Accessed at <https://www.brookings.edu/articles/what-does-economic-evidence-tell-us-about-the-effects-of-rent-control> .

Caldera, A. and Johansson, A. (2013), The price responsiveness of housing supply in OECD countries. *Journal of Housing Economics*. Vol.22 (2013), pp. 231-249.

Cato Institute (Ryan Bourne, 2024), “*New Meta-Study Details the Distortive Effects of Rent Control*” – meta-analysis of rent control studies (findings on supply, mobility, etc.) <https://www.cato.org/commentary/new-meta-study-details-distortive-effects-rent-control>

Centre for International Economics (2025), Taxation of the Housing Sector. Report for the Housing Industry Association. 3rd March 2025. Canberra.

Cockerell, L., and Russell, B. (1995), Australian WAGE AND PRICE INFLATION: 1971-1994. Research Discussion Paper 9509 November 1995, Economic Research Department. Sydney.

Diamond, R. et al (2018), The Effects of Rent Control Expansion on Tenants, Landlords, and Inequality: Evidence from San Francisco. NBER Working Paper Series. Working Paper 24181. <http://www.nber.org/papers/w24181>

Ellis, L., (2022), Housing in the Endemic Phase. Keynote Speech to the UDIA 2022 National Congress. Reserve Bank of Australia. Accessed: <https://www.rba.gov.au/speeches/2022/sp-ag-2022-05-25.html>

Evans, R., Rosewall, T. and Wong, A., (2020), The Rental Market and COVID-19, RBA Bulletin – September 2020. Sydney.

Fane, G. and Richardson, M. (2004), Negative Gearing Redux. *Agenda*, Volume 11, Number 3, 2004, pages 211-222.

Gitelman, E. and Otto, G. (2012), Supply Elasticity Estimates for the Sydney Housing Market. The Australian Economic Review, vol. 45, no. 2, pp. 176–90.

Glaeser, E. L., (2005), Why have house prices gone up? American Economic Review. Vol.95 No.2. April 2005.

Henry, K. et al (2009), Australia’s Future Tax System – Final Report. Australian Government. Canberra.

Hensher, D., Balbontin, C., and Beck, M.J. (2022), The impact of working from home on modal commuting choice response during COVID-19: Implications for two metropolitan areas in Australia. Transportation Research Part A: Policy and Practice. Vol.155. pp.179-201. January 2022.

Hensher, D., Beck, M.J. and Balbontin, C. (2024), COVID-19 and its influence on the propensity to work from home between March 2020 and June 2021, Case Studies on Transport Policy 18, 101319.

Holden, R. and Cavanough, E. (2025), Harnessing Aspiration. McKell Institute.

Hotelling, H., (1931), The Economics of Exhaustible Resources. Journal of Political Economy. Vol.39, No.2 (April 1931). pp.137-175.

Hunter, S. (2024), Housing market cycles and fundamentals. Speech by RBA Assistant Governor (Economic) to the REIA Centennial Congress.

Hutchens, G. (2015), Negative Gearing: a topical tax issue. Parliamentary Library Research Paper. Australian Parliament House. Canberra.

Jones, P. (2025), “*Why working hard no longer buys you a home in Australia*”. Australian Financial Review 16th April 2025. Accessed here: <https://www.afr.com/policy/economy/why-working-hard-no-longer-buys-you-a-home-in-australia-20250415-p5ls1p>

Katz, Lawrence F., and Rosen, K.T. (1987), The interjurisdictional effects of growth controls on housing prices. Journal of Law and Economics 30(1): 149-160.

Kholodilin, K.A. (2024), Rent control effects through the lens of empirical research: An almost complete review of the literature. Journal of Housing Economics Vol. 63 (2024) 101983.

KPMG Econtech (2010), CGE Analysis of the Current Australian Tax System, Final Report.

Modigliani, F., & Brumberg, R. (1954), Utility analysis and the consumption function: An interpretation of cross-section data. In K. K. Kurihara (Ed.), Post-Keynesian Economics (pp. 388–436). New Brunswick, NJ: Rutgers University Press.

National Housing Finance and Investment Corporation (2022), Overview of Rental Market.

Parliamentary Budget Office analysis of negative gearing and CGT reforms, 2019. Cited via The Australian, <https://www.theaustralian.com.au/nation/politics/negative-gearing-overhaul-to-cost-renters-5000/news-story/84fd034f22fd6e3b816fead14087cba7> .

Parliamentary Budget Office (2025), “Cost of Negative Gearing and Capital Gains Tax Discount”, <https://www.pbo.gov.au/publications-and-data/publications/costings/cost-of-negative-gearing-and-capital-gains-tax-discount>, accessed 30/4/2025.

Phillips, B. (2016), Distributional Modelling of Proposed Negative Gearing and Capital Gains. Taxation Reform Research Note, ANU Centre for Social Research and Methods, February 2016. Canberra.

Productivity Commission (2004), First Home Ownership. Inquiry Report No.28. Melbourne.

Productivity Commission (2020), Mental Health, Final Report – Volumes 1 & 2. Inquiry Report No.95. Canberra.

SQM Research modelling of Labor’s 2019 housing tax policy (rent and price impacts). Cited via The Australian, <https://www.theaustralian.com.au/nation/politics/negative-gearing-overhaul-to-cost-renters-5000/news-story/84fd034f22fd6e3b816fead14087cba7> .

Seelig, T. et al (2009), Understanding what motivates households to become and remain investors in the private rental market. Australian Housing and Urban Research Institute. AHURI Final Report No.130 March 2009, Canberra.

Singh, R. et al (2025), Modelling landlord behaviour and its impact on rental affordability: Insights across two decades. AHURI Final Report NO. 440. Melbourne.

Appendix A: QGEM model

Introduction

The quantitative impacts of housing market reforms have been generated through a combination of information derived from the academic literature, taxation analysis based on publicly available tax return samples, and the application of economy wide modelling in the form of a CGE model. CGE models are widely used tools for analysing the local, national global economic effects of policy changes, such as trade liberalization, environmental policies, and structural reforms. CGE models have a long history of usage in Australia in particular, with frameworks of this type being demanded for use in a range of national and state approvals processes and policy analyses.

The Qaive General Equilibrium (QGEM) model is Qaive's in-house CGE model. QGEM model is a multi-region, multi-sector model that captures interactions between economies, markets, and industries, focusing on the flow of goods, services, and factors of production across regions and sectors.

QGEM is highly flexible and can be used to assess a wide range of policy interventions, including:

- **Trade policies** (e.g., tariff changes, trade agreements)
- **Environmental policies** (e.g., carbon taxes, emission trading schemes)
- **Fiscal policies** (e.g., subsidies, taxes)
- **Structural reforms** (e.g., changes in labour market regulations)

The model provides detailed results on sectoral output, trade flows, factor prices, and welfare impacts across regions, making it useful for both global and regional policy analysis.

The QGEM model is built based on well-known and accepted functional forms, combined with parameters and data that constitute an approximation to the working structure of the global economy. The construction of the QGEM model draws initially on the GTAP7 model for the key structural definition, which has been further enhanced as described below.

Implementation for this analysis

For this analysis the QGEM model has been specified to separately represent an Australia and a Rest of World region. At the sectoral level, we have separately identified 12 economic sectors, as shown below in the table below.

Table A-1 – Sectoral detail of the QGEM model.

Sector	Description
Agriculture	Primary agriculture, forestry and fishing
Coal	Coal mining
Oil	Oil extraction
Gas	Gas extraction and distribution
Other Mining	Mining not elsewhere classified
Manufacturing	All manufacturing activities
Electricity, Water and Waste	Electricity generation and distribution, water supply, waste management
Construction	Construction and construction services
Trade	Wholesale and retail trade, accommodation and food services
Transport	All transport, including road, rail, water and air.
Tertiary Services	All tertiary services
Dwellings	All dwellings

Detail on model structure

The following provides detail on the formal structure of the model, including the regional and sectoral scope of representation, the definition of representative agents and markets, and the nature of the model implementation.

Multi-Regional and Multi-Sectoral Structure

The QGEM model divides the global economy into multiple regions (typically countries or groups of countries) and sectors (for example, agriculture, manufacturing, services, etc.). Each region produces and consumes a variety of goods and services, which are exchanged both domestically and internationally. Trade flows between regions are captured, allowing for the analysis of the effects of trade policies, such as tariffs and quotas.

The QGEM model is based on the most recent iteration of the GTAP database, now in the 11th version with a base of 65 production sectors and 160 international regions, including 141 separately identified countries.

The QGEM model further extends the GTAP database by not only permitting highly flexible aggregations of the underlying 65 sectors and 160 regions, but also allowing both for custom disaggregation of sectors as required, and for disaggregation to include sub-national detail as

required, including to structures such as state and territories, local government areas and commonwealth electoral divisions.

Input-Output Linkages

The model incorporates input-output linkages between sectors, meaning that each sector not only produces commodities but also consumes inputs from other sectors. For example, manufacturing may require agricultural products, energy, and services as inputs.

These linkages allow the model to capture the indirect effects of changes in one sector on others through supply chain relationships. As a consequence, a change in one sector (e.g., tariff reduction in agriculture) affects all other sectors and regions through changes in relative prices and income adjustments.

Factor Markets

Primary factors of production (such as labour, capital, land and the natural resource) are specified to have a range of mobility possibilities and supply assumptions, with prices (such as wages and rents) used to clear factor markets on a period-by-period basis.

Endowments are region specific, with the model allowing for changes to endowments over time depending on the endowment and the specification of the modelling exercise. Notably, capital stocks vary from period to period based on a depreciation and investment rates, while labour is determined by demographic inputs in the baseline and a comparative labour supply elasticity in policy simulations.

Implementation framework

A range of software platforms are used for CGE models, including the GEMPACK/RunDynam suite, GAMS and Gauss. The QGEM model is instead solved within a Python software framework, drawing on a number of off-the-shelf packages including Pandas for data manipulation and the scipy package for model solution.

In addition, the interface of the model is implemented in Microsoft Excel, enhancing usability and aiding in internal documentation of modelling, reducing the risk of modelling error, and allow for (for example) systematic sensitivity analysis.

Representation of Trade

The QGEM model adopts the Armington assumption, which differentiates products by their region of origin. This assumption means that products are imperfect substitutes based on

where they are produced (e.g., wheat from Australia is considered different from wheat from Canada), with the strength of this assumption varying from product to product.

The adoption of this assumption allows for more realistic modelling of trade patterns and responses to policy changes, avoiding simple corner solutions.

The model also explicitly incorporates trade and transport margins, which represent the costs of moving goods between regions. These costs are crucial for understanding the true impact of trade policies and infrastructure changes on global trade patterns.

Consumer Preferences, Government and Savings

The QGEM model includes representation of households and governments through the implementation of a regional consumer agent and a regional government agent. Total factor income is allocated across the regional household, the regional government and savings according to a Cobb-Douglas (CD) specification.

Private demand is determined through a utility-maximizing behaviour framework subject to Constant Difference of Elasticities (CDE) function. The government agent again is represented as a utility maximising agent, subject to a Constant Elasticity of Substitution (CES) function.

The model calculates changes in welfare (e.g., equivalent variation) based on changes in consumption, income, and prices, allowing for the assessment of the distributional effects of policies across households and regions as required.