Report

Modelling of initiatives to improve the supply of affordable housing using the AHURI-3M model

authored by

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CONTENTS

LIST OF TABLES

1   PROJECT OVERVIEW

This project employs AHURI's housing market microsimulation model (AHURI-3M) to undertake modelling on initiatives to improve the supply of affordable housing. The project is carried out in two stages.

During the first stage, we address two key policy questions. First, what are the internal rates of return received by landlords in the current policy environment? Second, what is the budget cost of providing upfront grants that will increase landlords' internal rates of return by one percentage point? The modelling work conducted in Stage 1 replicates the modelling work conducted by Queensland as part of Commitment 4 of the Framework for National Action on Affordable Housing. However, Stage 1 uses data on actual rather than hypothetical properties and investors.

In the second stage of the project, the modelling work is extended to analysis of the housing affordability impacts of the Stage 1 proposals. We estimate the impacts on housing affordability of an upfront grant that raises the internal rate of return of each landlord by one percentage point. AHURI-3M is capable of estimating the impacts of supply-side policy reforms on housing affordability taking into account important housing assistance programs such as Commonwealth Rent Assistance (CRA).

2 STAGE 1: ESTIMATING LANDLORDS' INTERNAL RATES OF RETURN

2.1 Stage 1 overview

Stage 1 estimates the internal rates of return actually being achieved by landlords in the prevailing policy environment using the AHURI-3M model. These estimates are based on data from the wealth module in wave 2 of the Household, Income and Labour Dynamics in Australia (HILDA) survey conducted in 2002, supplemented by imputed estimates of the costs of owning and operating rental housing investments. A policy simulation is conducted to estimate the impacts of a policy proposal designed to improve landlord returns and enhance rental housing affordability. The policy proposal is the provision of an upfront grant that will increase landlords' calculated internal rates of return by one percentage point.

2.2 Method

The first stage involves estimating the internal rate of return based on properties actually held by landlords. The HILDA data for wave 2 contained a wealth module that provides financial information on 692 properties other than the household's principal place of residence (investment properties). 61 properties were omitted from the sample because of missing values or because they were holiday homes. The relevant data for the remaining 631 properties are:

→ Actual property values

→ Rents for each property

→ Outstanding debt secured against investment properties.

The measured costs of owning and operating rental accommodation as well as taxes and concessions include:

Taxes and concessions

→ Land tax

→ Local government rates and charges

→ Stamp duty on property acquisition

→ Income tax on rental income

→ Goods and services tax on inputs (GST)

→ Capital gains tax

→ Capital Works deduction.

Owning and operating costs

→ Insurance

→ Maintenance

→ Interest on debt

→ Property management fees

→ Real estate agent fee on sale of property

→ Depreciation.

Sources for these data are set out in Appendix 1.

The methodology used to evaluate the internal rate of return on investment properties is developed using standard discounted cash flow analysis. The internal rate of return is calculated as the unique rate of discount that makes the present value of the revenue from an investment property equal to the present value of the costs of holding a rental property. The progressive development of the internal rate of return expression is detailed in Appendix 2.

The required level of upfront grants to property owners is in the form of an upfront grant equivalent to the present value of CRA commuted over 10 years together with any additional amounts necessary to bring about an internal rate of return to property owners that is one percentage point higher than the internal rates of return without such grants.

The data used to calculate internal rates of return are set out in Appendix 3. The internal rates of return are based on estimates that include the Capital Works deduction.[1] If Capital Works deductions were excluded from our calculations, the internal rates of return would change very little. Appendix 4 describes the treatment of Capital Works deductions in our estimates. An alternative set of estimates for the internal rates of return excluding the Capital Works deduction is available upon request. Two sets of estimates are made available because of the fact that the Capital Works deduction only applies to rental properties constructed after 17 July 1985, and the HILDA database does not provide information on time of construction.

2.3   Estimates of internal rates of return

Our estimates show that the typical (median) landlord in Australia has an internal rate of return of 2.2 per cent (see Table 2.1)[2]. This estimate is sensitive to the assumed real rate of capital gain of 1 per cent per annum. If the real rate of capital gain was 2 per cent instead of the assumed rate of 1 per cent, the median internal rate of return would be 3.7 per cent rather than 2.2 per cent. The estimates assuming 1 per cent capital growth are comparable to estimates from the Queensland Department of Housing (2007) which indicate that landlords' internal rates of return typically range from 2.5 to 4.9 per cent. Table 2.1 also reports the median gross and net rental yields nationally and in each state.[3] These yields are high in Tasmania, where property values are relatively low, but low in Western Australia where there has been a steep rise in property values and in New South Wales where property values are very high by Australian standards.

Some further insights into the rental investor market can be gleaned from Table 2.2 where the median values of key variables and parameters are displayed by property value segment. These segments are defined by dividing the sample into ten equal

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[1] Previously known as the building allowance. It allows 2.5 per cent construction costs to be deducted in each year of the investor's holding period. However, it is subtracted from the cost base used to calculate taxable capital gains.

[2] We are conscious that the 2002 HILDA data used in this modeling pre-date the housing boom. Notwithstanding the methodology used that up-rated house prices since 2002, higher recorded house prices could potentially affect the realism of modeling results by significantly reducing landlords' actual internal rates of return. We have also re-run AHURI-3M but using wave 6 HILDA (2006) data to test the internal rates of return to see if they are significantly affected by the higher house price inflation recorded compared to that assumed in this analysis. It is evident that internal rates of return on Australian private rental properties have fallen only slightly (from 2.2 per cent to 1.8 per cent) despite the more rapid increase in property values than that assumed in this analysis. The reason for this stability is that gross rents have also increased over the 2002 to 2006 period by an average 22 per cent more than that assumed here. In view of this, we can put considerable confidence in the estimates of internal rate of return reported in this report.

[3] The gross rental yield is gross rent divided by the investor's estimate of the current property value (and expressed as a percentage). The net rental yield subtracts operating costs and taxes from gross rent.

sized groups (deciles) ranked from the lowest property value to the highest property value. There are some important patterns here that confirm findings from earlier studies (Wood and Watson, 2001; Wood and Tu, 2004). Firstly, landlords from higher tax brackets are clustered towards the upper value segments of the investment property market (see column 3, Table 2.2). Landlords from lower tax brackets tend to invest at the cheaper end of the market. Gross rental yields range from 5.0 per cent in the lowest decile to only 1.6 per cent in the highest decile. At the low value (affordable) end of the market, tenants are paying rents that are high in relation to the size, quality and location of housing (as indicated by low capital value). Landlords from lower tax brackets tend to cluster in the low capital value segments where gross rental yields are high. Gross rental yields in these segments are pushed up because their relatively low marginal income tax rates (MITRs) push up after-tax economic costs (Wood and Tu, 2004). Table 2.2 also shows a declining trend in internal rates of return as property value increases. With an assumed uniform real rate of capital gain, the higher gross rental yields in cheaper property value segments combine with lower MITRs to boost internal rates of return in this segment.[4]

Table 2.1: Median internal rates of return, gross rental yield and net rental yield by state/territory

State (1)	Median rental property value (2007 dollars)[a] (2)	Gross rental yield (per cent)[b] (3)	Net rental yield (per cent)[b] (4)	Internal rate of return (per cent) (5)
NSW	354,644	2.6	-0.1	2.2
Vic	271,086	2.9	-0.5	2.3
Qld	180,701	3.4	-1.0	2.1
SA	223,887	2.8	-0.4	2.1
WA	285,557	2.2	-0.4	2.0
Tas	84,457	6.2	0.4	3.9
NT	156,858	3.6	-1.3	0.7
ACT	288,393	2.8	-0.1	2.2
Total	260,022	2.7	-0.4	2.2

Notes:

a.   The median estimates used in this report are derived from data on actual landlords' properties. This is a divergence from the Queensland Department of Housing's approach which uses values from representative properties in the affordable segment of the housing market, which are:

→   New South Wales (2 bedroom unit): $352,000

→   Victoria (2 bedroom unit): $280,000

→   Queensland (3 bedroom house): $310,000

→   Western Australia (2 bedroom unit): $315,000

→   South Australia (3 bedroom house): $275,000

→   Tasmania (3 bedroom house): $285,000

→   Northern Territory (3 bedroom house): $385,000

→   Australian Capital Territory (3 bedroom house): $317,000.

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[4] The higher returns in cheaper segments of the market are puzzling in view of the shortages of affordable rental housing. High returns should attract new investments that push gross rental yields back down to levels prevailing in other segments of the market. This is an important research question that deserves attention.

b.   The gross rental yield rate is gross rent expressed as a proportion of property value during the first holding period. The net rental yield is the after-tax rent net of operating costs and interest repayment expressed as a proportion of property value during the first year of the holding period.

Table 2.2: Median internal rates of return, gross rental yield and net rental yield by property value decile

Property decile (1)	Median rental property value (2007 dollars)[a] (2)	MITR (per cent) (3)	Gross rental yield (per cent)[a] (4)	Net rental yield (per cent)[a] (5)	Internal rate of return (per cent) (6)
1	72,037	30	5.0	0.8	3.6
2	114,223	36	4.5	-0.1	3.2
3	158,113	37	4.0	-0.4	2.9
4	193,633	35	3.0	-0.4	2.3
5	228,446	30	2.6	0.0	2.3
6	282,345	36	2.8	-0.3	2.3
7	365,727	37	2.3	-0.7	2.0
8	443,305	38	2.4	-1.5	1.4
9	608,561	41	2.0	-0.4	1.7
10	1,106,475	41	1.6	-0.5	1.6
Total	260,022	37	2.7	-0.4	2.2

Note:

a.   See notes to Table 2.1.

2.4   Estimates of the cost of providing upfront grants to holders of rental properties

The policy simulation undertaken with AHURI-3M involved determining the size of grant to landlords that would have the effect of increasing their internal rates of return by one percentage point (i.e. the median rate of 2.2 per cent is increased to 3.2 per cent). We assume this grant is tax exempt.

The simulation assumes that an upfront grant is paid to landlords by the federal government, which is equivalent to the present value of a flow of CRA payments over a 10 year period. In the event that this is not sufficient to achieve the target of a one percentage point increase in the internal rate of return, it is assumed the residual difference is made up by an additional lump sum grant from the state government. This residual could alternatively be met by altering capital gains tax arrangements, land tax schedules and stamp duty schedules. AHURI-3M is capable of undertaking these calculations.

The estimation of CRA by AHURI-3M is detailed in Appendix 1. The lump sum value of CRA is calculated on an annual basis over a 10 year period and is assumed to increase by 2.5 per cent each year. This is equivalent to the mid-point of the Reserve Bank target inflation rate range of 2 to 3 per cent. The present value of this stream of payments is then calculated using a discount rate of 5.5 per cent, the prevailing rate on 10 year Commonwealth government bonds.

The budget cost estimates are based on the assumption that the upfront grant is payable to all landlords. Because it is not targeted, the budget cost is extremely high at $21.2 billion, around three-quarters of this being met by the residual grant. On a per dwelling basis, the total grant is $29,320.

Table 2.3: Gross budget cost of increasing landlords' internal rates of return by one percentage point, by state/territory, 2007 dollars[a]

State	Cost per dwelling			Budget cost		
	Total upfront grant (dollars)	Federal grant (dollars)	State grant (upfront grant less Federal grant) (dollars)	Upfront grant (billion dollars)	Federal grant (billion dollars)	State grant (upfront grant less Federal grant) (billion dollars)
NSW	38,728	6,508	32,220	10.3	1.7	8.6
Vic	24,371	6,348	18,023	4.2	1.1	3.1
Qld	19,076	8,148	10,929	2.8	1.2	1.6
SA	28,785	8,546	20,240	1.0	0.3	0.7
WA	29,837	6,536	23,301	2.0	0.4	1.6
Tas	14,506	9,018	5,487	0.2	0.1	0.1
NT	26,653	8,469	18,184	0.3	0.1	0.2
ACT	32,598	2,648	29,951	0.5	0.0	0.5
All	29,320	6,980	22,340	21.2	5.1	16.2

An alternative case is that of the grant only applying to properties in the lowest quartile (25 per cent) of the rent distribution. This approach focuses on properties in the more affordable segment of the housing market. The upfront grant required to increase the internal rate of return of landlords in the lowest quartile is $16,959 per dwelling. This estimate is comparable with estimates from the Queensland Department of Housing (2007) which indicate that overall cost would be $14,900 to $16,900 per dwelling. The cost to the federal government (equivalent to an amount derived from commuting CRA) would be $2,174 per dwelling, leaving state governments with a residual grant of $14,785 per dwelling. The budget cost of providing the upfront grant would be $3.1 billion as compared to $21.2 billion with an untargeted grant. The budget cost borne by the federal and state governments is estimated to be $0.4 billion and $2.7 billion respectively.

2.5 Summary and concluding comments

The budget cost of a subsidy to all landlords is very high. There is a straightforward explanation: the simulation is conducted assuming that all rental investors are eligible. A sensible and typical approach with respect to supply-side subsidies is to target them at segments of the market where they are most needed. The United States Low Income Housing Tax Credit is an example of a similar targeted supply-side measure (Wood, Watson and Flatau, 2006).

A simple way of targeting the grants modelled in this project is to restrict eligibility to rental properties in the more affordable segments of the market. This is where low income households are more likely to reside, and where subsidies are most needed if weak capital growth makes investment less attractive in this segment of the market – hence the high gross rental yields (see Table 2.2). For only properties in the lowest

quartile (25 per cent) of the rent distribution, the upfront grant would be much lower at $3.1 billion as compared to $21.2 billion with an untargeted grant.

These estimates demonstrate how targeting supply-side measures can dramatically cut their budget cost. There is a disproportionate reduction in the budget cost because the grant is targeted on properties with low capital values; it is less costly to increase internal rates of return on low value properties (say $200,000) than high value properties (say $500,000). The targeting has the added benefit of concentrating assistance in the more affordable rental housing segment, and on landlords who generally receive less benefit from the favourable federal tax provisions applied to rental housing investments. However, as we learn in the second half of this report, some of the targeted benefits leak into the rest of the private rental housing market.

3 STAGE 2: MODELLING THE HOUSING AFFORDABILITY CONSEQUENCES OF SUPPLY-SIDE POLICY LEVERS

3.1 Stage 2 overview

In Stage 2 the estimation of internal rates of return for landlords is extended to analysis of the impacts of Stage 1 policy proposals on housing affordability outcomes. The key policy question here is: what is the impact on housing affordability of an upfront grant that raises the internal rate of return by one percentage point? Section 3.2 outlines the process by which the supply-side component (housing investors) of AHURI-3M is linked with its demand side component (housing consumers), so that the impacts of alternative supply-side policy levers on housing affordability can be estimated. In Section 3.3 we report the impacts of alternative policies on housing affordability outcomes based on policy simulations conducted using AHURI-3M. Section 4 provides a summary and conclusion.

3.2 Method

The user cost of capital is the after-tax economic cost to an investor (per dollar of outlay) of acquiring and holding an income-earning asset. If the user cost rises above a landlord's gross rental yield, there will be economic losses. Some landlords will respond to such circumstances by cashing in their property investment in favour of alternative investments. As supply shrinks, gross rental yields will increase and converge on the user cost. The reverse process can be anticipated when user cost is less than gross rental yields. This analysis is important because it provides the foundations of our economic modelling where the weighted[5] average of the user cost of capital for landlords is interpreted as the required Market Rental Rate (MRR) – the rate just sufficient to ensure the average investor obtains a return equal to that on the 'next best alternative' investment. This MRR is used to convert the actual rents that tenants pay into estimated capital values for the properties they occupy. For example, suppose the market rental rate is estimated to be 10 per cent and a tenant is paying $10,000 per annum rent. The capital value consistent with the rental rate is then $100,000 (or $10,000 divided by 0.1).

Our estimates from AHURI-3M show that the weighted average of the user cost of capital for landlords in Australia is 6.5 per cent. Detailed user cost estimates by state and territory, property value deciles and MITR brackets are shown in Appendix 5.

When a grant is made available to (withdrawn from) landlords, it lowers (raises) their user cost, supply increases (declines) and the gross rental yield falls (rises). If the entire benefit (loss) of the grant is passed on to tenants, the consequence is a fall (rise) in tenants' rents.[6] This is how we arrive at estimates of impacts on housing affordability. To simulate the impact of a grant we re-calculate each landlord's user cost and the new (weighted) average user cost is the MRR used to calculate the new rents that tenants will pay. Once again using the earlier example, if the MRR falls from 10 per cent to 9 per cent, the new annual rent is $9,000 (or $100,000 multiplied by 0.9), a reduction of $1,000 per annum in the tenant's housing cost burden. The HILDA survey has a sample of around 2,000 households in private rental accommodation, and information from the survey on key variables such as income. This data source

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[5] The weights are the proportion of investors in each tax bracket.

[6] Our analysis in fact assumes 100 per cent 'pass through' into market rents. In the language of economists, this is equivalent to assuming a perfectly elastic supply of housing.

therefore allows simulation analysis of the impact of supply-side policy reforms on the housing affordability of tenants with different incomes.

3.3 The impact on housing affordability of providing upfront grants to investors in rental properties

An upfront grant sufficient to increase investors' internal rates of return by one percentage point reduces the estimated MRR by 1.4 percentage points (from 6.5 per cent to 5.1 per cent). We assume that the entire benefit of the grants is passed on to tenants in the form of reduced rents. Hence, for example, if a tenant were living in a property of capital value $100,000, their rent falls from a pre-grant amount of $6,500 to a post-grant amount of $5,100.

The housing affordability impacts of the upfront grant are measured using two housing affordability measures:

→ The housing affordability ratio (HAR), which is the ratio of mean net annual housing costs to mean gross income. Net housing costs are defined as the market rent paid by tenants less their CRA entitlements;

→ Housing Affordability Stress (HAS), the percentage of tenants paying more than 30 per cent of their mean gross income in net housing costs.

To illustrate, consider the following example. Assume that a private renter couple receives a weekly income of $1,000 and pays a weekly rent of $300 to their landlord. Suppose that the same couple also receives a weekly CRA amount of $30. Their net housing cost is market rent less CRA, which is $270 (or $300–$30). Hence, their HAR is 27 per cent ($270/$1,000). The couple would not be in HAS because net housing costs do not exceed 30 per cent of gross income.

Recall from Stage 1 that upfront grants to investors are in the form of a federal grant equivalent to the present value of CRA commuted over 10 years, together with any additional state contributions necessary to bring about a one percentage point increase in IRR. We measure the housing affordability consequences of such a grant under two alternative scenarios:

→ First we assume that in addition to the grant paid to landlords, all tenants continue to receive CRA where entitled to it. The CRA amounts received by tenants will still be affected by the fall in rents due to the upfront grant;

→ Second we assume that CRA funding is in fact transferred from tenants to landlords to help cover the cost of providing the upfront grant, such that all tenants lose all their CRA entitlements following the upfront grant.

The housing affordability results under the first and second scenarios are presented by household income quintiles in Tables 3.1 and 3.2 respectively. Prior to the upfront grant, the average tenant pays 18.1 per cent of gross income in net housing costs and one-fifth of tenants are in HAS. The average income of tenants in the highest income quintile ($110,676) is 13 times the average income of those in the bottom quintile ($8,455). But the rent of tenants in the highest income quintile is about three times the rent of tenants in the bottom quintile. Hence, HAS is much more likely to afflict low income tenants than high income tenants. Over half of tenants in the bottom income quintile are in HAS, as compared to under 2 per cent in the highest income quintile. Appendix 6 shows that the proportion of tenants in HAS ranges from a low of 14.6 per cent in Tasmania to 24.1 per cent in New South Wales.

Table 3.1 also shows that the percentage of tenants lifted out of HAS by the upfront grant is 42.3 per cent (203,000 tenants). The average tenant's HAR falls by 4 percentage points following the grant. The percentage of tenants lifted out of HAS

increases from 28 per cent in the bottom income quintile to 100 per cent in the highest quintile. Population estimates show that in the bottom income quintile 63,000 tenants are lifted out of HAS, as compared to only 6,000 in the highest quintile.

If, however, tenants were to lose their CRA housing affordability, benefits are more limited. Now only 3.3 per cent of tenants in HAS (15,000 tenants) are lifted out of HAS by the grant (see Table 3.2). The grant would lift 25,000 tenants out of HAS in the two highest income quintiles, but there would be no respite for tenants in the bottom two quintiles. Approximately half of these are reliant on CRA to subsidise their housing costs, as compared to fewer than 2 per cent in the highest income quintile. The removal of CRA has a more adverse impact on low income than high income tenants' housing affordability. An upfront grant will reduce market rents, but if the grant is accompanied by the removal of CRA there is little overall reduction in HAS, and the incidence of 'stressed' tenants in the bottom two income quintiles actually increases because rent reductions can be more than offset by loss of CRA (see Table 3.2). There are 73,000 low income tenants who were cushioned by CRA but find that the lower market rents due to the grant are more than offset by the removal of CRA.

Furthermore, even the seemingly beneficial results of the grant under the first scenario, where tenants retain CRA eligibility, need to be viewed in the context of their huge budget costs. Table 3.3 sets out the net budget cost of providing the grant, taking into account any CRA savings that will eventuate. The gross budget cost of introducing the upfront grant is estimated to be $21.2 billion (see Table 2.3). If tenants retain their CRA eligibility, CRA savings of $355.3 million will still be achieved because market rents fall following the grant. However, these savings do little to diminish the cost of the policy proposal, the resulting net cost being $20.8 billion. Under a system where CRA is transferred to landlords, the CRA savings are greater at $1.7 billion. However, the net budget cost remains very high at $19.6 billion.

Table 3.1: Housing affordability consequences of providing upfront grants to all landlords, mean values by population gross income quintile, tenants retain CRA entitlements

Gross income quintile	Gross income unit income (2007 dollars)	Pre-grant annual net housing cost (2007 dollars)	Post-grant annual net housing cost (2007 dollars)	Reduction in annual net housing cost (2007 dollars)	Pre-grant HAR (per cent)	Post-grant HAR (per cent)	Percentage point reduction in HAR	Pre-grant per cent in HAS	Post-grant per cent in HAS	Per cent lifted out of HAS	Number lifted out of HAS ('000s)	Total population ('000s)	Per cent eligible for CRA
1	8,455	4,822	3,820	1,002	57.0	45.2	11.9	50.6	36.4	28.0	63	445	47.1
2	19,630	5,672	4,471	1,200	28.9	22.8	6.1	33.8	15.7	53.6	72	400	56.9
3	34,280	7,058	5,551	1,507	20.6	16.2	4.4	14.4	7.2	49.7	42	588	33.7
4	56,895	9,482	7,465	2,016	16.7	13.1	3.5	5.8	1.9	66.6	20	521	15.4
5	110,676	13,079	10,295	2,783	11.8	9.3	2.5	1.7	0.0	100.0	6	347	1.5
Population average	43,396	7,843	6,178	1,664	18.1	14.2	3.8	20.9	12.1	42.3	203	2,301	31.3

Table 3.2: Housing affordability consequences of providing upfront grants to all landlords, mean values by population gross income quintile, tenants lose all CRA entitlements

Gross income quintile	Gross income unit income (2007 dollars)	Pre-grant annual net housing cost (2007 dollars)	Post-grant annual net housing cost (2007 dollars)	Reduction in annual net housing cost (2007 dollars)	Pre-grant HAR (per cent)	Post-grant HAR (per cent)	Percentage point reduction in HAR	Pre-grant per cent in HAS	Post-grant per cent in HAS	Per cent lifted out of HAS	Number lifted out of HAS ('000s)	Total population ('000s)	Per cent eligible for CRA
1	8,455	4,822	4,460	362	57.0	52.8	4.3	50.6	54.3	0.0	0a	445	47.1
2	19,630	5,672	5,445	226	28.9	27.7	1.2	33.8	36.6	0.0	0a	400	56.9
3	34,280	7,058	6,278	780	20.6	18.3	2.3	14.4	11.2	21.8	18	588	33.7
4	56,895	9,482	7,809	1,673	16.7	13.7	2.9	5.8	2.2	62.7	19	521	15.4
5	110,676	13,079	10,338	2,741	11.8	9.3	2.5	1.7	0.0	100.0	6	347	1.5
Population average	43,396	7,843	6,742	1,101	18.1	15.5	2.5	20.9	20.2	3.3	15b	2,301	31.3

Notes:

a. In the bottom two quintiles, 45,000 tenants are lifted out of HAS. However, this is more than offset by 73,000 who fall into HAS because rent reductions are more than offset by loss of CRA. Hence, the net effect is that in the bottom two quintiles 28,000 tenants are in HAS after the grant. On a net basis, none are 'lifted' out of HAS.

b. This is equivalent to the number of tenants lifted out of HAS by the grant less the number who fall into HAS after the grant because the latter's rent reductions are more than offset by loss of CRA.

Table 3.3: Net budget cost of increasing landlords' internal rates of return by one percentage point, by state/territory, 2007 dollars

State	Budget cost when tenants retain CRA			Budget cost when tenants lose CRA		
	Gross expenditure (billion dollars)	CRA savings (million dollars)	Net cost (gross expenditure less CRA savings) (billion dollars)	Gross expenditure (billion dollars)	CRA savings (million dollars)	Net cost (gross expenditure less CRA savings) (billion dollars)
NSW	10.3	102.0	10.2	10.3	540.7	9.8
Vic	4.2	80.9	4.1	4.2	341.7	3.8
Qld	2.8	77.9	2.7	2.8	426.2	2.4
SA	1.0	26.7	1.0	1.0	115.7	0.9
WA	2.0	42.7	2.0	2.0	158.1	1.8
Tas	0.2	23.1	0.2	0.2	57.5	0.1
NT	0.3	1.4	0.3	0.3	4.6	0.3
ACT	0.5	0.6	0.5	0.5	6.7	0.5
All	21.2	355.3	20.8	21.2	1,651.1	19.6

Because it is not targeted, the budget cost of providing an upfront grant is extremely high. To assess whether targeting would provide a better outcome, a second simulation was carried out, confining the upfront grant to landlords in the lowest rent quartile. In this case, the average MRR falls from 6.5 per cent to 6.2 per cent. The average MRR is used because the effect of an upfront grant to landlords in the lowest rent quartile cannot be confined to that quartile. The initial effect of a reduction in market rents on properties in the lowest rent quartile is transmitted to all other properties through competition between landlords, so all rents fall. Furthermore, rents fall less than when all landlords receive the upfront grant. In this simulation it is assumed that all eligible tenants continue to receive CRA both before and after the grant.

Table 3.4 analyses housing affordability impacts. A targeted grant lifts 12 per cent of 'stressed' tenants (58,000 tenants) out of HAS. Unsurprisingly, a targeted grant where tenants retain CRA eligibility provides a better outcome than an untargeted grant where they lose their eligibility. The targeted grant policy appears to be more effective for low to moderate income groups, lifting 22,000 (17,000) tenants in the second (third) income quintile out of HAS, as compared to 6,000 (4,000) in the fourth (highest) quintile. The net budget cost of the targeted grant is $3 billion, which is considerably lower than the cost of the universal grant.[7]

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[7] We repeated the simulation of a targeted grant under the assumption that the rental housing market was perfectly competitive. As expected, housing affordability outcomes improve more under a perfectly competitive market assumption. However, patterns across income groups remain the same. A description of the alternative simulation and its tables of results are presented in Appendix 7.

Table 3.4: Housing affordability consequences of providing targeted upfront grants to landlords in the lowest rent quartile, mean values by population gross income quintile, tenants retain CRA entitlements

Gross income quintile	Gross income unit income (2007 dollars)	Pre-grant annual net housing cost (2007 dollars)	Post-grant annual net housing cost (2007 dollars)	Reduction in annual net housing cost (2007 dollars)	Pre-grant HAR (per cent)	Post-grant HAR (per cent)	Percentage point reduction in HAR	Pre-grant per cent in HAS	Post-grant per cent in HAS	Per cent lifted out of HAS	Number lifted out of HAS ('000s)	Total population ('000s)	Per cent eligible for CRA
1	8,455	4,822	4,562	261	57.0	54.0	3.1	50.6	48.5	4.2	9	445	47.1
2	19,630	5,672	5,353	319	28.9	27.3	1.6	33.8	28.4	16.0	22	400	56.9
3	34,280	7,058	6,663	395	20.6	19.4	1.2	14.4	11.6	19.5	17	588	33.7
4	56,895	9,482	8,968	514	16.7	15.8	0.9	5.8	4.6	20.8	6	521	15.4
5	110,676	13,079	12,375	704	11.8	11.2	0.6	1.7	0.6	63.6	4	347	1.5
Population average	43,396	7,843	7,413	429	18.1	17.1	1.0	20.9	18.4	12.0	58	2,301	31.3

4   CONCLUSION

This project has employed AHURI's housing market microsimulation model (AHURI-3M) to undertake modelling on initiatives to improve the supply of affordable housing. We began by replicating the modelling work conducted by Queensland as part of Commitment 4 of the Framework for National Action on Affordable Housing, to estimate landlords' internal rates of return. We estimate the government budget cost of providing upfront grants to landlords that will increase their internal rates of return by one percentage point.

Our estimates indicate that the median landlord has an internal rate of return of 2.2 per cent, which is somewhat below the Queensland Department of Housing's (2007) estimates of 2.5 to 4.9 per cent. However, the latter estimates are based on project model estimates for housing targeted on low to moderate income groups. Our estimates are generated from a sample of actual rental properties drawn from all segments in the market, including high value segments where internal rates of return are relatively low.

We found the net budget cost of a universal supply-side grant to be extremely high at approximately $21.2 billion. Simulations using AHURI-3M indicate that a universal upfront grant will lift 42 per cent (203,000) of 'stressed' tenants out of HAS. The grant ensures a substantial improvement in housing affordability, as is to be expected given the extremely high budget cost. However, these benefits are substantially reduced if the CRA program is 'reformed' to help finance the universal grant. Budget savings from transferring CRA to landlords are $1.7 billion (at 2002 claim rates but adjusted to 2007 prices), but now only 3.3 per cent of stressed tenants (15,000) are pulled out of HAS. This is a poor return given a very large estimated budget outlay of $19.6 billion. On transferring CRA to landlords, some (73,000) low to moderate income tenants will be worse off because what they gain from lower rents is more than offset by lost CRA entitlements.

A more effective way of curbing the budget cost of supply-side measures is to target them on the low to moderate rent segments of the private rental housing market, where we might expect low income households to be concentrated. This is implicit in the modelling work conducted for the National Action for Affordable Housing. A microsimulation of the upfront grant restricted to landlords of properties in the bottom rent quintile (i.e. the 25 per cent of properties with the lowest rents) suggests that a targeted supply-side incentive is much more cost effective. Even if CRA is retained, the net budget cost is 'only' $3 billion. It succeeds in lifting 12 per cent (58,000) of 'stressed' tenants out of HAS. We find that the targeted grant is particularly effective in alleviating HAS among low to moderate income households.

There are three main policy implications from these modelling exercises. First, a universal supply-side grant will lift large numbers of 'stressed' tenants out of HAS, but the budget cost is extremely high. Second, transferring CRA to landlords to help finance the universal grant does little to curb the budget cost. However, its effectiveness in alleviating HAS is seriously impaired. Thirdly, a more cost effective way of delivering supply-side assistance is to target grants in relatively low rent segments of the private rental housing market.

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APPENDICES

Appendix 1: AHURI-3M data sources

A1.1   AHURI-3M

The AHURI-3M model brings together the supply and demand components of the Australian housing system by estimating the prices and constraints faced by housing investors and housing consumers, given their income support payments and tax liabilities. The model is operationalised using wave 2 of the Household, Income and Labour Dynamics in Australia (HILDA) survey, which contains comprehensive data on both housing investors and consumers in the year 2002 and contains a wealth module that provides data on 692 landlords' rental properties. In the present context, a key component of the model is a tax-benefit simulator that computes each landlord's and tenant's tax liabilities and income support payments. The latest 2007 land tax, stamp duty tax and capital gains tax parameters are modelled. All other tax-benefit parameters are from the 2003-04 financial year because the latest tax-benefit system that has been coded up in the AHURI-3M tax-benefit simulator is the 2003-04 tax-benefit system. Given time limitations, these are not modelled using the latest parameters but are instead up-rated by the Capital Cities Consumer Price Indexes (CPI) to 2007 price levels.

A1.2   Statutory costs

Capital gains tax

Capital gains tax is applied at half the marginal income tax rate (MITR) where a property has been held for more than a year.

Goods and services tax on inputs (GST)

There is no GST on accommodation rents, and landlords are not able to claim a refund of GST paid on purchases associated with goods and services as inputs to residential rental property. As the GST is included in the purchase price of these goods and services, the burden of the GST is reduced through the deductibility of these expenses from taxable income.

Income tax on rental income

The MITRs of landlords are estimated using the tax-benefit component of AHURI-3M. This is a comprehensive tax-benefit simulator that takes into account the interactions between the income support payments and tax liabilities of landlords to arrive at a measure of taxable income, from which the MITR is derived. The latest tax-benefit system that has been coded up in the AHURI-3M tax-benefit simulator is the 2003-04 tax-benefit system. Hence, it is the 2003-04 tax and benefit parameters that are applied to derive landlords' MITRs. In order to derive estimates at 2007 price levels, all financial values and tax-benefit thresholds have been up-rated to 2007 price levels using the Capital Cities CPIs.

Land tax

As the HILDA dataset contains an estimated value for investment properties, a reasonable assumption about what proportion of this is the land value needs to be made in order to estimate the amount of land tax payable. A confidentialised form of the Victorian Valuer General's Statewide Valuations Database has been used to derive an estimated land component of property value, by location (metropolitan and non-metropolitan) and property type (houses and units/apartments). In metropolitan areas, land is estimated to account for on average of 57 per cent of a dwelling's

value. In non-metropolitan areas, land is estimated to account for on average 39 per cent of a dwelling's value. Current (2007) land tax rates and thresholds are applied to the estimated land value of each landlord's investment property.

Local government rates and charges

Local government rates and charges are based on average property taxes by property value and state segment from the 2002-03 Survey of Income and Housing Costs and increased by actual CPI changes to 2007 values.

Stamp duties

Current (2007) stamp duties on property transfers and mortgage stamp duties are applied.

A1.3   Owning and operating costs

Property values

The HILDA dataset contains the estimated values for investment properties in the year 2002. This is up-rated to 2007 price levels using state-specific CPIs.

Real estate fees (property management and letting fees)

Searches through property management company websites indicate that management fees are typically 8 to 9 per cent of annual rent, and letting fees are approximately 1-2 weeks of rent (which equates to about 2 per cent of annual rent). Hence, agent's fees are set at 11 per cent of gross annual rent.

Insurance

 Average rates per dollar value of property were obtained from insurance providers.

Maintenance

Maintenance expenditures for investors are based on the mean expenditure by property value/state segment, obtained from the 1999 Australian Housing Survey and the 1997 Rental Investors Survey, and increased to 2007 values by actual CPI increases.

Water charges

Water charges are included in estimates of maintenance expenditures.

Real estate agent fee on sale of property

Guides for buyers and sellers of properties indicate that brokerage fees are typically 3.5 per cent of property value at the time of sale.

Depreciating assets

Annual depreciation of depreciable items in rental properties was estimated by setting the depreciation at 0.75 per cent of the building value. Depreciation amounts range widely depending on the items to be depreciated. Sample reports from a depreciator website indicate the typical range varies between 0.5 and 1 per cent of the building value. It is calculated as a deduction against taxable income, which impacts the internal rate of return (IRR) through the MITR.

Interest on debt

Interest on debt is set at 8.05 per cent of the debt owed against the property. The interest rate is the 2007 banks' interest rate on housing loans, derived from the Reserve Bank statistical tables.

Borrowing costs

No estimates made.

A1.4   Data adjustment factors

CPI adjustment

Prior years: All financial values from years prior to 2007 are adjusted to 2007 year values using the actual changes in the Capital Cities CPIs so that all values have a same year value. In addition, the rents derived from the HILDA wealth module are assumed to increase at the same rate as the CPI.

Forward years: The forward years beyond 2007 CPI adjustments are made using the mid-point of the Reserve Bank's target inflation range. This value is 2.5 per cent.

Property holding period

It is assumed that a rental property is held for 10 years.

Real capital appreciation rate

Property values are assumed to increase in real terms by 1 per cent a year.

Vacancy rate

State-specific vacancy rates from September 2006 were used to reduce all annual rents. The rates used are:

→ NSW: 1.7 per cent

→ Vic: 1.6 per cent

→ Qld: 1.7 per cent

→ SA: 1.5 per cent

→ WA: 2.1 per cent

→ Tas: 2.0 per cent

→ NT: 1.7 per cent

→ ACT: 1.1 per cent.

Commonwealth Rent Assistance (CRA)

Private renters eligible for CRA are identified as those who receive an income support payment or more than the base rate of Family Tax Benefit Part A, and pay rent above a minimum rent threshold specific to their household type. The CRA entitlement per private rental dwelling is estimated using a sample of private renters from the HILDA Survey. The CRA entitlement of each private rental dwelling is imputed using the tax-benefit component of AHURI-3M, which calculates the CRA entitlement based on the reported private income, rent payments and socio-demographic characteristics of the dwelling occupants. As stated in the beginning of the appendix, the landlord and tenant data are from the year 2002, but the tax-benefit parameters that are used to estimate CRA entitlement per tenant dwelling are from the 2003-04 financial year because the latest tax-benefit system that has been coded up in the AHURI-3M tax-benefit simulator is the 2003-04 tax-benefit system. Population weights are applied to aggregate the CRA entitlement per private rental dwelling to derive total CRA entitlement for each state. This is then divided by the number of private rental dwellings in each state to derive a CRA cost per dwelling for each state. The CRA cost per dwelling for state x is multiplied by the number of investment properties owned by landlords in state x in order to derive the budget cost for the state.

Appendix 2: The progressive development of the internal rate of return expression

Expressed in its simplest form, the IRR is the discount rate r that insures:

$$\sum_{t=1}^{N} \frac{(R_t - C_t)}{(1+r)^t} - V_o = 0$$

Where:

$R_1, R_2 \ldots \ldots \ldots \ldots R_N$ = Future stream of rents

$C_1, C_2 \ldots \ldots \ldots \ldots C_N$ = Operating costs

N = Expected holding period.

V_0 = Initial acquisition price or value on sale

The above expression, however, does not capture in detail the full range of revenues and costs that are relevant to the holders of rental properties. The progressive incorporation of these costs is developed as follows:

(i) The introduction of taxation: on rental income

If γ = the MITR of the property owner, then

$$\sum_{t-1}^{N} \frac{(R_t - C_t)(1-\gamma)}{(1+r)^t} - V_0 = 0$$

(ii) The introduction of debt

Let

L_o = the debt outstanding at the onset (time zero)

$REPAY_t$ = repayments in period t on an interest only loan.

$$\sum_{t-1}^{N} \frac{(R_t - C_t - REPAY_t)(1-\gamma)}{(1+r)^t} - V_o + L_o - \frac{L_o}{(1+r)^N} = 0$$

(iii) The introduction of capital gains tax

Suppose that on resale the proceeds are V_N and capital gains tax is applied to realised capital gains. The capital gains tax liability is the product of the investor's MITR and one half capital gains.

The solution to the IRR is now obtained from

$$\sum_{t-1}^{N} \frac{(R_t - C_t - REPAY_t)(1-\gamma)}{(1+r)^t} - V_o + L_o - \frac{L_o}{(1+r)^N} - \frac{0.5\gamma(V_n - V_o)}{(1+r)^N} + \frac{V_n}{(1+r)^N} = 0$$

(iv) The introduction of transaction costs

For this analysis it is assumed that all properties are acquired at the beginning of the 10 year holding period, and thus incur transaction costs, the costs associated with a property acquisition, the principle component of which is stamp duties. As these are an upfront cost, they enter the IRR expression as S_0 representing the stamp duties payable upon acquisition and are added to the acquisition price (V_0) to arrive at the cost base used to calculate capital gains for tax purposes.

In addition, B_n is the real estate agent fee on the final sale of the property, and φ is the vacancy rate and property management and letting fees as percentage of gross rent.

(v) The Capital Works deduction

The income tax system allows for an annual Capital Works deduction based on the construction cost of the property. This only applies to residential buildings whose construction start date was after 17 July 1985. The rate of deduction per income year has varied depending on the date construction has commenced. The sample of rental properties derived from the HILDA survey does not provide information on dates construction started. Two calculations of IRRs were therefore made: one assuming that all properties qualified for a 2.5 per cent annual Capital Works deduction, and another that none of the properties qualified for the Capital Works deduction. Assumed land value parameters are used to calculate the imputed construction cost value. The calculations where a deduction is allowed are also conducted on an 'as if' basis, that is, property owners were acquiring the property at the self-assessed current value.

It should be noted that while the Capital Works deduction gives rise to a reduction in taxable income in the holding period, on the sale of the property the amounts claimed during the holding period are subtracted from the cost base for the purpose of calculating the capital gain, thus effectively the deduction is clawed back through the payment of a higher level of capital gains tax.

Appendix 3: Data used to calculate internal rates of return

Table A3.1 shows the mean values of the data used to calculate the IRR, gross rental rate and net rental rate for each state and territory.

Table A3.1: Data and results from the AHURI-3M model – mean values per property by state/territory

State	Rental property value (2007 dollars)	MITR (per cent)	Equity (per cent)	Stamp duty (2007 dollars)	Gross rent (2007 dollars)	Annual operating costs (2007 dollars)	Interest on debt (2007 dollars)	Net present value of pre-tax capital gain (2007 dollars)	Net present value of capital gains tax (2007 dollars)	Brokerage fees (2007 dollars)	IRR (per cent)	Gross rental rate (per cent)	Net rental rate (per cent)
NSW	482,063	34	77.1	18,736	12,616	8,662	8,449	90,975	16,062	16,872	2.2	3.4	-0.2
Vic	323,618	34	70.0	15,220	8,350	5,439	8,183	59,526	10,373	11,327	2.5	3.9	-0.2
Qld	260,534	34	63.7	8,332	8,337	5,040	6,615	50,218	8,415	9,119	1.8	3.6	-0.9
SA	324,032	37	72.1	13,423	8,902	5,846	5,206	60,666	11,802	11,341	2.7	3.8	-0.3
WA	405,671	33	66.9	17,201	11,832	7,082	12,066	75,719	12,437	14,198	1.2	2.7	-1.2
Tas	163,738	39	87.4	4,561	5,579	4,321	1,012	31,956	6,648	5,731	4.3	6.6	1.6
NT	327,415	40	67.7	15,782	5,061	5,089	6,094	60,000	12,301	11,460	1.2	2.7	-1.1
ACT	369,756	41	78.2	14,312	9,459	7,148	10,086	69,815	14,448	12,941	2.1	3.1	-1.2
Total	373,663	34	71.5	14,970	10,166	6,706	8,064	70,256	12,340	13,078	2.2	3.5	-0.4

Table A3.2 shows the components of total annual operating costs in Table A3.1.

Table A3.2: Components of total annual operating costs in Table A3.1 – mean values per property by state/territory

	Components of annual operating costs $ (2007 dollars)					
	Land tax	Maintenance cost	Property taxes	Agents' fees	Insurance	Total
NSW	1,112	3,514	2,212	1,388	437	8,662
Vic	166	2,362	1,706	918	287	5,439
Qld	53	1,902	1,909	917	260	5,040
SA	108	2,315	2,154	979	291	5,846
WA	96	2,956	2,340	1,302	387	7,082
Tas	682	1,391	1,490	614	145	4,321
NT	0	2,456	1,676	557	400	5,089
ACT	1,040	2,723	1,893	1,040	452	7,148
Total	500	2,728	2,011	1,118	348	6,706

Table A3.3 shows the median values of the data used to calculate the IRR, gross rental rate and net rental rate for each state and territory.

Table A3.3: Data and results from the AHURI-3M model – median values per property by state/territory

State	Rental property value (2007 dollars)	MITR (per cent)	Equity (per cent)[a]	Stamp duty (2007 dollars)	Gross rent (2007 dollars)	Total annual operating costs (2007 dollars)	Interest on debt (2007 dollars)	Net present value of pre-tax capital gain (2007 dollars)	Net present value of capital gains tax (2007 dollars)	Brokerage fees (2007 dollars)	IRR (per cent)	Gross rental rate (per cent)	Net rental rate (per cent)
NSW	354,644	37	100.0	12,365	9,073	5,611	0	68,052	11,130	12,413	2.2	2.6	-0.1
Vic	271,086	36	78.7	11,925	6,820	4,324	2,672	50,346	7,698	9,488	2.3	2.9	-0.5
Qld	180,701	30	63.6	5,515	5,796	3,299	4,818	34,985	6,293	6,325	2.1	3.4	-1.0
SA	223,887	40	88.3	7,845	6,927	3,982	3,154	42,753	7,217	7,836	2.1	2.8	-0.4
WA	285,557	36	76.0	10,115	5,853	4,684	6,069	54,535	9,414	9,995	2.0	2.2	-0.4
Tas	84,457	40	100.0	1,348	3,692	2,879	0	17,299	3,609	2,956	3.9	6.2	0.4
NT	156,858	41	80.4	4,893	5,136	2,785	5,637	30,307	7,122	5,490	0.7	3.6	-1.3
ACT	288,393	43	100.0	9,036	8,648	6,153	0	55,698	12,210	10,094	2.2	2.8	-0.1
Total	260,022	37	88.0	8,938	6,820	4,506	2,672	49,563	8,165	9,101	2.2	2.7	-0.4

Note: a. Where the median equity contribution is 100 per cent, more than half of the landlords have no outstanding loan against their property.

Table A3.4 shows the components of total annual operating costs in Table A3.3.

Table A3.4: Components of total annual operating costs in Table A3.3 – median values per property by state/territory

State	Components of annual operating costs $ (2007 dollars)					
	Land tax	Maintenance cost	Property taxes	Agents' fees	Insurance	Total
NSW	0	2,585	1,563	998	337	5,611
Vic	0	1,976	1,314	750	240	4,324
Qld	0	1,172	1,315	638	193	3,299
SA	0	1,632	1,471	762	195	3,982
WA	0	2,081	1,690	644	293	4,684
Tas	175	854	769	406	76	2,879
NT	0	1,163	803	565	192	2,785
ACT	780	2,102	1,477	951	353	6,153
Total	0	1,895	1,471	750	245	4,506

Table A3.5 shows the mean values of the data used to calculate the IRR, gross rental rate and net rental rate by property value deciles.

Table A3.5: Data and results from the AHURI-3M model – mean values per property by property value decile

Property value decile	Rental property value (2007 dollars)	MITR (per cent)	Equity (per cent)	Stamp duty (2007 dollars)	Gross rent (2007 dollars)	Total annual operating costs (2007 dollars)	Interest on debt (2007 dollars)	Net present value of pre-tax capital gain (2007 dollars)	Net present value of capital gains tax (2007 dollars)	Brokerage fees (2007 dollars)	IRR (per cent)	Gross rental rate (per cent)	Net rental rate (per cent)
1	65,324	31	77.5	1,360	4,178	1,799	1,351	13,018	1,947	2,286	5.3	7.6	1.8
2	117,451	34	71.1	2,929	5,246	2,329	2,691	23,123	3,911	4,111	3.1	4.5	0.1
3	158,213	36	62.1	4,589	7,333	3,026	4,907	30,771	5,501	5,537	2.5	4.6	-0.3
4	192,208	33	66.5	6,039	6,102	3,174	5,159	37,112	6,109	6,727	1.7	3.2	-0.7
5	233,959	34	78.3	7,804	6,707	4,134	4,110	44,907	7,575	8,189	2.2	2.9	-0.4
6	288,902	33	72.4	10,783	9,112	4,997	7,526	54,783	9,143	10,112	2.0	3.2	-0.8
7	365,989	34	68.6	13,719	10,108	6,071	9,436	69,366	11,852	12,810	1.6	2.8	-0.9
8	459,821	36	64.8	18,522	10,553	7,391	13,010	86,397	15,651	16,094	0.8	2.3	-1.4
9	609,198	36	76.6	26,252	13,458	9,993	11,451	113,460	20,353	21,322	1.2	2.2	-0.9
10	1,246,198	36	77.7	57,863	28,890	24,194	20,928	229,663	41,315	43,617	1.2	2.3	-0.9
Total	373,663	34	71.5	14,970	10,166	6,706	8,064	70,256	12,340	13,078	2.2	3.5	-0.4

Table A3.6 shows the components of total annual operating costs in Table A3.5.

Table A3.6: Components of total annual operating costs in Table A3.5 – mean values per property by property value decile

Property decile	Annual operating costs (2007 dollars)					
	Land tax	Maintenance cost	Property taxes	Agents' fees	Insurance	Total
1	3	836	438	460	63	1,799
2	12	882	747	577	111	2,329
3	4	1,072	994	807	150	3,026
4	0	1,118	1,193	671	191	3,174
5	15	1,705	1,454	738	223	4,134
6	50	2,106	1,569	1,002	270	4,997
7	48	2,668	1,909	1,112	335	6,071
8	147	3,352	2,303	1,161	427	7,391
9	313	4,440	3,186	1,480	573	9,993
10	4,469	9,084	6,327	3,178	1,137	24,194
Total	500	2,728	2,011	1,118	348	6,706

Table A3.7 shows the median values of the data used to calculate the IRR, gross rental rate and net rental rate by property value deciles.

Table A3.7: Data and results from the AHURI-3M model – median values per property by property value decile

Property value decile	Rental property value (2007 dollars)	MITR (per cent)	Equity (per cent)[a]	Stamp duty (2007 dollars)	Gross rent (2007 dollars)	Total annual operating costs (2007 dollars)	Interest on debt (2007 dollars)	Net present value of pre-tax capital gain (2007 dollars)	Net present value of capital gains tax (2007 dollars)	Brokerage fees (2007 dollars)	IRR (per cent)	Gross rental rate (per cent)	Net rental rate (per cent)
1	72,037	30	100.0	1,463	3,478	1,819	0	14,525	2,162	2,521	3.6	5.0	0.8
2	114,223	36	90.0	2,815	5,186	2,263	901	22,522	3,979	3,998	3.2	4.5	-0.1
3	158,113	37	60.0	4,606	6,555	2,980	5,174	30,955	5,465	5,534	2.9	4.0	-0.4
4	193,633	35	79.5	5,865	5,796	3,291	3,546	36,863	6,310	6,777	2.3	3.0	-0.4
5	228,446	30	100.0	7,694	6,030	4,123	0	43,996	7,434	7,996	2.3	2.6	0.0
6	282,345	36	76.0	10,647	7,843	5,012	5,517	54,118	9,274	9,882	2.3	2.8	-0.3
7	365,726	37	75.0	12,992	8,194	5,823	6,819	68,292	11,895	12,800	2.0	2.3	-0.7
8	443,305	38	61.5	17,937	10,341	7,114	13,382	84,562	16,662	15,516	1.4	2.4	-1.5
9	608,561	41	95.0	25,418	11,531	9,953	2,672	111,445	22,543	21,300	1.7	2.0	-0.4
10	1,106,475	41	95.8	47,777	18,713	19,152	6,067	198,363	38,408	38,727	1.6	1.6	-0.5
Total	260,022	37	88.0	8,938	6,820	4,506	2,672	49,563	8,165	9,101	2.2	2.7	-0.4

Note: a. Where the median equity contribution is 100 per cent, more than half of the landlords have no outstanding loan against their property.

Table A3.8 shows the components of total annual operating cost in Table A3.7.

Table A3.8: Components of total annual operating costs in Table A3.7 – median values per property by property value decile

Property decile	Annual operating costs (2007 dollars)					
	Land tax	*Maintenance cost*	*Property taxes*	*Agents' fees*	*Insurance*	*Total*
1	0	863	438	383	67	1,819
2	0	810	767	570	108	2,263
3	0	1,101	1,060	721	144	2,980
4	0	1,113	1,250	638	173	3,291
5	0	1,665	1,563	663	210	4,123
6	0	2,058	1,472	863	251	5,012
7	0	2,666	1,840	901	337	5,823
8	0	3,231	2,102	1,138	397	7,114
9	148	4,436	3,154	1,268	545	9,953
10	3,486	8,065	6,135	2,058	973	19,152
Total	0	1,895	1,471	750	245	4,506

Appendix 4: The treatment of the capital works deduction

If Capital Works deduction were excluded from the calculations, the overall mean (median) IRR would be 2.4 per cent (2.4 per cent) as compared to 2.2 per cent (2.2 per cent) when Capital Works deduction is included.

This small difference is attributable to the fact that even though tax gains are derived from the Capital Works deduction during the holding period, the sum of the Capital Works deduction is deducted from the property cost base when the property is sold at the end of the holding period. Hence, tax gains derived during the holding period are in part reclaimed by the government through capital gains tax at the end of the holding period.

The net present value (NPV) of the sum of the Capital Works deduction over the holding period is $32,762 on average. The NPV of the tax gain on the sum of the Capital Works deduction is $11,540. When the property is sold at the end of the holding period, the deduction of Capital Works deduction from the property cost base raises capital gains tax by $4,481 on average.

Appendix 5: Landlords' user cost of capital

Table A5.1: User cost of capital – mean estimates by state/territory

State	Rental property value (2007 dollars)	MITR (per cent)	User cost (per cent)
NSW	482,063	34.4	6.4
Vic	323,618	33.6	6.7
Qld	260,534	33.6	6.6
SA	324,032	37.1	6.5
WA	405,671	32.7	6.5
Tas	163,738	39.1	7.3
Population average[a]	373,663	34.3	6.5

a.　　　Due to small sample numbers, results are not presented separately for the Northern Territory and Australian Capital Territory. However, the population average includes landlords from both the Northern Territory and the Australian Capital Territory.

Table A5.2: User cost of capital – mean estimates by property value decile

Property value decile	Rental property value (2007 dollars)	MITR (per cent)	User cost (per cent)
1	65,324	30.6	7.7
2	117,451	33.8	6.5
3	158,213	35.8	6.4
4	192,208	32.8	6.3
5	233,959	33.8	6.4
6	288,902	33.3	6.5
7	365,989	34.2	6.4
8	459,821	36.1	6.2
9	609,198	36.0	6.3
10	1,246,198	36.2	6.7
Population average	373,663	34.3	6.5

Table A5.3: User cost of capital – mean estimates by MITR bracket

MITR bracket	Rental property value (2007 dollars)	MITR (per cent)	User cost (per cent)
0	379,312	0.0	7.9
0-17	295,052	16.6	7.5
17-30	340,888	28.8	6.9
30-42	366,375	38.3	6.4
42-47	429,732	45.4	5.8
Population average	373,663	34.3	6.5

Appendix 6: Housing affordability consequences of providing upfront grant to holders of rental properties, by state/territory

Table A6.1: Housing affordability consequences of providing upfront grants to all landlords where tenants retain CRA entitlements – mean values by state/territory

State	Gross income unit income (2007 dollars)	Pre-grant annual net housing cost (2007 dollars)	Post-grant annual net housing cost (2007 dollars)	Reduction in annual net housing cost (2007 dollars)	Pre-grant HAR (per cent)	Post-grant HAR (per cent)	Percentage point reduction in HAR	Pre-grant per cent in HAS	Post-grant per cent in HAS	Per cent lifted out of HAS	Number lifted out of HAS ('000s)	Total population ('000s)	Per cent eligible for CRA
NSW	46,427	9,392	7,381	2,011	20.2	15.9	4.3	24.1	14.5	39.7	79	821	29.1
Vic	41,232	7,269	5,741	1,528	17.6	13.9	3.7	18.0	11.9	33.9	32	520	29.7
Qld	43,270	7,187	5,636	1,551	16.6	13.0	3.6	20.8	10.1	51.4	56	520	33.2
SA	41,584	6,243	4,933	1,310	15.0	11.9	3.2	16.2	9.4	41.9	9	131	39.0
WA	37,986	6,153	4,886	1,266	16.2	12.9	3.3	20.9	10.5	49.7	23	224	31.8
Tas	33,772	4,649	3,862	786	13.8	11.4	2.3	14.6	7.1	51.5	4	54	53.5
Population average[a]	43,396	7,843	6,178	1,664	18.1	14.2	3.8	20.9	12.1	42.3	203	2,301	31.3

Note: a. Includes Northern Territory and the Australian Capital Territory.

Table A6.2: Housing affordability consequences of providing upfront grants to all landlords where tenants lose all CRA entitlements – mean values by state/territory

State	Gross income unit income (2007 dollars)	Pre-grant annual net housing cost (2007 dollars)	Post-grant annual net housing cost (2007 dollars)	Reduction in annual net housing cost (2007 dollars)	Pre-grant HAR (per cent)	Post-grant HAR (per cent)	Percentage point reduction in HAR	Pre-grant per cent in HAS	Post-grant per cent in HAS	Per cent lifted out of HAS	Number lifted out of HAS ('000s)	Total population ('000s)	Per cent eligible for CRA
NSW	46,427	9,392	7,916	1,477	20.2	17.1	3.2	24.1	21.9	9.3	18	821	29.1
Vic	41,232	7,269	6,242	1,027	17.6	15.1	2.5	18.0	18.4	0.0	0	520	29.7
Qld	43,270	7,187	6,306	881	16.6	14.6	2.0	20.8	19.3	7.3	8	520	33.2
SA	41,584	6,243	5,612	631	15.0	13.5	1.5	16.2	19.8	0.0	0	131	39.0
WA	37,986	6,153	5,402	751	16.2	14.2	2.0	20.9	21.3	0.0	0	224	31.8
Tas	33,772	4,649	4,503	145	13.8	13.3	0.4	14.6	20.9	0.0	0	54	53.5
Population Average[a]	43,396	7,843	6,742	1,101	18.1	15.5	2.5	20.9	20.2	3.3	15[b]	2,301	31.3

Notes:

a.   Includes Northern Territory and the Australian Capital Territory.

b.   This is equal to the sum of tenants lifted out of HAS less the sum of tenants who fall into HAS after the grant because the latter's rent reductions are more than offset by loss of CRA.

Table A6.3: Housing affordability consequences of providing targeted upfront grants to landlords in the lowest rent quartile where tenants retain CRA entitlements – mean values by state/territory

State	Gross income unit income (2007 dollars)	Pre-grant annual net housing cost (2007 dollars)	Post-grant annual net housing cost (2007 dollars)	Reduction in annual net housing cost (2007 dollars)	Pre-grant HAR (per cent)	Post-grant HAR (per cent)	Percentage point reduction in HAR	Pre-grant per cent in HAS	Post-grant per cent in HAS	Per cent lifted out of HAS	Number lifted out of HAS ('000s)	Total population ('000s)	Per cent eligible for CRA
NSW	46,427	9,392	8,878	515	20.2	19.1	1.1	24.1	20.9	13.1	26	821	29.1
Vic	41,232	7,269	6,872	397	17.6	16.7	1.0	18.0	16.3	9.3	9	520	29.7
Qld	43,270	7,187	6,787	400	16.6	15.7	0.9	20.8	18.8	9.6	10	520	33.2
SA	41,584	6,243	5,897	346	15.0	14.2	0.8	16.2	12.8	21.1	5	131	39.0
WA	37,986	6,153	5,825	327	16.2	15.3	0.9	20.9	18.8	9.9	5	224	31.8
Tas	33,772	4,649	4,437	212	13.8	13.1	0.6	14.6	11.3	22.5	2	54	53.5
Population Average[a]	43,396	7,843	7,413	429	18.1	17.1	1.0	20.9	18.4	12.0	58	2,301	31.3

Note: a. Includes Northern Territory and the Australian Capital Territory.

Appendix 7: Housing affordability consequences of providing upfront grant to holders of rental properties in the bottom rent quartile under the assumptions of a perfectly competitive housing market

In a perfectly competitive rental housing market, competition between landlords should lead to all rental property being provided by investors who pay the highest MITR. Assuming that all properties were held by landlords who faced the top MITR on rental income from property, we utilise a pre-grant Market Rental Rate (MRR) of 5.7 per cent, equivalent to the average user cost of landlords in the top MITR. If only the landlords holding properties in the lowest rent quartile were provided with an upfront grant to increase their IRR by one percentage point, the MRR would fall to 5.3 per cent. The improvements in housing affordability outcomes following the grant are larger than the outcomes estimated under a non-competitive housing market scenario in the main report. However, the trends across income groups remain the same regardless of whether a competitive housing market assumption is employed or not.

Table A7.1: Housing affordability consequences of providing targeted upfront grants to landlords in the lowest rent quartile in a perfectly competitive rental housing market where tenants retain CRA entitlements – mean values by state/territory

State	Gross income unit income (2007 dollars)	Pre-grant annual net housing cost (2007 dollars)	Post-grant annual net housing cost (2007 dollars)	Reduction in annual net housing cost (2007 dollars)	Pre-grant HAR (per cent)	Post-grant HAR (per cent)	Percentage point reduction in HAR	Pre-grant per cent in HAS	Post-grant per cent in HAS	Per cent lifted out of HAS	Number lifted out of HAS ('000s)	Total population ('000s)	Per cent eligible for CRA
NSW	46,427	9,392	8,692	700	20.2	18.7	1.5	24.1	19.7	18.2	36	821	29.1
Vic	41,232	7,269	6,730	539	17.6	16.3	1.3	18.0	15.3	14.8	14	520	29.7
Qld	43,270	7,187	6,643	544	16.6	15.4	1.3	20.8	18.5	11.1	12	520	33.2
SA	41,584	6,243	5,774	469	15.0	13.9	1.1	16.2	12.7	21.9	5	131	39.0
WA	37,986	6,153	5,708	445	16.2	15.0	1.2	20.9	18.4	11.9	6	224	31.8
Tas	33,772	4,649	4,363	286	13.8	12.9	0.9	14.6	11.3	22.5	2	54	53.5
Population Average[a]	43,396	7,843	7,259	584	18.1	16.7	1.3	20.9	17.6	15.7	75	2,301	31.3

Note: a. Includes Northern Territory and the Australian Capital Territory.

Table A7.2: Housing affordability consequences of providing targeted upfront grants to landlords in the lowest rent quartile in a perfectly competitive rental housing market where tenants retain CRA entitlements – mean values by population gross income quintiles

Gross income quintile	Gross income unit income (2007 dollars)	Pre-grant annual net housing cost (2007 dollars)	Post-grant annual net housing cost	Reduction in annual net housing cost (2007 dollars)	Pre-grant HAR (per cent)	Post-grant HAR (per cent)	Percentage point reduction in HAR	Pre-grant per cent in HAS	Post-grant per cent in HAS	Per cent lifted out of HAS	Number lifted out of HAS ('000s)	Total population ('000s)	Per cent eligible for CRA
1	8,455	4,822	4,468	354	57.0	52.9	4.2	50.6	47.3	6.6	15	445	47.1
2	19,630	5,672	5,239	433	28.9	26.7	2.2	33.8	27.1	19.7	27	400	56.9
3	34,280	7,058	6,522	536	20.6	19.0	1.6	14.4	10.8	24.8	21	588	33.7
4	56,895	9,482	8,782	699	16.7	15.4	1.2	5.8	4.2	26.7	8	521	15.4
5	110,676	13,079	12,120	959	11.8	11.0	0.9	1.7	0.3	83.0	5	347	1.5
Population Average	43,396	7,843	7,259	584	18.1	16.7	1.3	20.9	17.6	15.7	75	2,301	31.3

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