

Market Impacts and Efficiency Implications of Taxation and Subsidies for the Australian Housing Market

Peter Abelson

Sydney University

Abstract

This paper quantifies the major subsidies and taxes separately for the homeowner and rental sectors, assesses the impacts on house prices and housing consumption, and quantifies the efficiency effects. The paper estimates that private housing receives a net subsidy of \$6.3 billion per annum. Most of this subsidy accrues to homeowners, who as a group receive about an 8 per cent subsidy on imputed gross rentals. The rental sector receives a subsidy of approximately 0.4 per cent of rents. On plausible demand and supply assumptions, the homeowner subsidy raises total housing consumption by an estimated 3.4 per cent and house prices by a similar amount. The housing subsidy produces an estimated deadweight loss from expenditure on renovations of about \$100 million per annum. However, contrary to previous work, the paper finds that the housing subsidy produces *welfare gains* from expenditure on new housing in the order of \$187 million a year. This arises because the subsidy offsets the over-regulated supply of new housing. Transaction taxes on housing have a separate deadweight cost of \$375 million per annum. Also, the unequal treatment of homeowners and renters has a small annual deadweight cost.

JEL classification H20, H21, R31

Acknowledgements: I thank Roselyne Joyeux for her assistance in the preparation of this paper. Any errors are my responsibility.

1 Introduction

Residential property attracts concurrently numerous taxes and substantial subsidies. It attracts taxes because it is an easy tax target. It attracts subsidies because, despite the taxes, governments generally want to make housing more affordable.

In Australia, taxes on housing include land taxes, local council rates, stamp duties on property transfers, developer charges, the goods and services tax (GST) on sales of new dwellings and renovations of existing dwellings, and capital gains taxes on rental property and second homes. On the other hand, there is no income taxation of imputed rent, no expenditure taxes on rents, and no capital gains tax for owner-occupied housing. There are grants to assist first home buyers and rent subsidies for low income households in private and public housing.

This proliferation of fiscal measures has attracted much critical public comment and concern. For example the Housing Industry Association (HIA, 2003) contends strongly that the developer charges and taxes on new housing significantly raise the price of housing. On the other hand, many analysts (for example Henderson and Bourassa, 1992) argue that the subsidies result in significant over-investment in owner-occupied housing. And the Reserve Bank (2003, p5) expressed concern that tax arrangements were causing finance and resources to be 'disproportionately channelled' into rental housing.

In this paper I analyse the market impacts and efficiency implications of these fiscal measures and, as we will see, all of the above views are wrong. Section 2 describes and quantifies the national impact of the main taxes and subsidies that affect housing. Section 3 shows the impacts on housing user costs. Section 4 analyses the impacts of these fiscal provisions on house prices and housing consumption in both the owner-occupier and investor/renter sectors. Section 5 estimates the efficiency effects.

2 Housing Taxes and Subsidies in Australia

Table 1 shows the main housing-related taxes and subsidies (tax concessions and public expenditure subsidies) in Australia. Note three general points about tax concessions. First, some concessions (for example the tax treatment of negative gearing) are economy-wide concessions, but they are included here because they have a particularly strong impact on the housing sector. Second, the notion and size of a tax concession depends critically on the definition of an appropriate tax benchmark (tax base and tax rate). In this paper the appropriate tax base is taken to be an individual's full real income as per the standard Haig-Simons definition (the amount of goods and services that an individual can enjoy in any period with no change in their net wealth).¹ The benchmark tax rate is the average charged for similar income or goods. Third, the value of the tax concessions varies with personal and economic circumstances. As we will see in the next section, the value rises significantly with higher equity in housing, higher marginal tax rates, and higher rates of inflation.

Major tax concessions that assist housing

The four major tax concessions that substantially assist housing are the exclusion of imputed rents from the income tax base, the exclusion of all housing rents from any expenditure tax base, the exemption of owner-occupied housing from the CGT, and the asymmetric income tax treatment of losses and gains by investors in rental housing.

The exclusion of imputed housing rents from the income tax base is part of the general exclusion of imputed rents from consumer durables from the tax base. However, housing is by far the most important exclusion. Also, the rental income of investor landlords is taxed. Wang et al. (2004) and the Productivity Commission (PC, 2004) estimated that the non-taxation of imputed rents was worth a net \$8 billion per annum to homeowners in 2001 and

¹ This tax base differs from that employed by Treasury (2006) in its annual estimates of tax concessions, which are based on an arbitrary politically possible tax regime. Thus the Treasury excludes taxation of imputed rents from its calculations.

2003 respectively. Wang et al. provide more detail. They estimated that with household equity averaging 81 per cent and a marginal tax rate on average income of 31.5 per cent, the non-taxation of gross imputed rent less housing expenses provided an *after-tax* benefit of \$13 billion to owner-occupier households. On the other hand, the non-deductibility of mortgage interest payments cost homeowners an estimated \$5.0 billion. The net figure of \$8.0 billion is sensitive to the marginal tax and gearing rates. For example, for 2000, when the marginal tax rate on average income was 35.5 per cent, the estimated value of the imputed rent exemption to homeowners after tax was \$10 billion.

Table 1 Major Australian taxes and subsidies affecting housing

Tax or subsidy	Main features
Tax concessions	
Non-taxation of imputed rents	Imputed rental income is not assessed as part of taxable income.
Non-taxation of rental services	There is no consumption tax on imputed or actual housing rents.
Concessional capital gains taxes	(a) Home owner-occupiers pay no capital gains tax. (b) Property investors pay tax on half the nominal capital gains.
Tax treatment of losses on rental property (negative gearing)	Investors can deduct 100 per cent of nominal losses from rental property against other taxable income.
Public expenditure subsidies	
First home owner grants	Grants of \$7000 to first home owner purchasers since 1 July 2000.
Assistance to private renters	Australian Government provides rental subsidies to low income persons, who comprise about one quarter of all private renters.
Assistance to public housing tenants	State governments provide public housing to 5 per cent of Australian households - in most cases at below market rents.
Main taxes on land and housing	
State land taxes	States taxes on value of land used for rental properties and second homes. Some land taxes on premium value owner-occupied property.
Local government land taxes	Local governments levy land taxes (rates) on most residential properties.
Stamp duties on transfers of land and housing and on mortgages	Most state governments levy stamp duty on the value of property when it is transferred and on mortgages.
GST on home renovations, land sales and new buildings	10% GST applies to (a) maintenance and renovation expenditure for existing housing and (b) sales of land and new buildings.
Infrastructure developer charges	Most state and local governments levy infrastructure charges on developers.

Secondly, existing housing services are not part of the consumption tax base.² While nearly 60 per cent of goods and services in Australia attract a 10 per cent value-added tax (the GST), there is no GST on imputed or actual rents. Given an estimated gross annual rental of \$99 billion on housing stock in 2004 (see Table 2 below), a 10 per cent GST would raise tax revenues of \$9.9 billion per annum (assuming unchanged quantity, price or rental of the housing stock). This is partly offset by GST of \$6.0 billion charged on new houses and on inputs to house renovations and maintenance (see below).

Thirdly, home owners are exempt from CGT. Wang et al (2004) estimate that, between 1990 and 2001, the value of this concession compared with a tax on real capital gains averaged \$10.0 billion. However, real capital gains were quite high over this period. With the value of owner-occupied stock at \$1813 billion in 2004 (see below), and an estimated real price increase (after allowing for owner improvements) of 1 per cent per annum, capital gains would be \$18.1 billion per annum. With a marginal tax rate of 40 per cent, the CGT concession would equate to a subsidy of \$7.2 billion after tax.

Unlike homeowners, investors in rental housing pay CGT on half the nominal capital gains. Thus they pay tax on $0.5(\pi + rg)$, where π is the general inflation rate and rg the real gain in house prices. This tax is often regarded as concessionary. However, compared with a 100 per cent tax only on rg , it is concessionary only when the general inflation rate (π) is less than rg . If $\pi > rg$, it is not concessionary (indeed it may be regarded as an excess tax). This is commonly the case, with inflation rates currently about 2 to 3 per cent per annum and the long run real house price increase about one per cent per annum.

² Whether consumption should be taxed as well as full real income may be debated. However, because of the importance of the GST (value-added) tax in Australia (as in many other countries), the exclusion of housing from the GST is effectively a major tax concession that cannot be ignored.

However, matters are complicated by the tax treatment of borrowing costs for renters. Investors are allowed to deduct losses, inclusive of borrowing costs, against income from other activities in the same period.)³ The *combination* of allowing investors to deduct 100 per cent of the cost of borrowing while taxing only 50 per cent of the capital gains is a tax concession. Suppose an investor borrows \$100,000 at 7 per cent, with a real cost of 4 per cent and annual inflation of 3 per cent which translates into a nominal 3 per cent increase in house prices, and his marginal tax rate is 40 per cent. The investor records an operating loss of \$3000 which reduces his tax payment by \$1200. On the other hand, if he realises the nominal capital gain, he pays tax on only half the gain. The net gain is \$600 or 0.6 per cent of the capital value. If the capital gain is deferred, the present value of the gain increases. The *asymmetrical treatment of nominal costs and gains* provides investors with an annual tax concession that equals (the size of the loan outstanding \times the inflation rate \times the marginal tax rate) less the present value of the tax on realised nominal capital gains. Allowing for an estimated capital value of rental stock of \$657 billion (see Table 2) and average investor gearing of 40 per cent, loans to rental investors are currently about \$262 billion. Working with the same parameters as above, the tax concession is worth \$1.57 billion ($0.006 \times \262 billion). The real value is larger in so far as the capital gain is deferred.⁴

Other housing subsidies

Governments support home purchase and rental in various ways (see Australian Institute of Health and Welfare, 2005a, 2005b). Easily the largest schemes are the first home owner grant (FHOG) scheme and the provision of private rental assistance. Between its inception in July

³ When the losses arise from borrowing costs, the practice is known as negative gearing. The Productivity Commission (2004) noted that, of the 17 per cent of taxpayers who report rental income, nearly half report losses on rental investment and in some years reported losses from rental property exceed reported incomes. Because negative gearing is a general business practice, the Treasury (2006) does not consider it to be a tax concession and the Productivity Commission (2004) did not estimate a tax concession figure.

⁴ The estimated value of this tax concession is based on the benchmark assumption that only real income should be taxed and only real costs should be tax deductible. A similar asymmetry of tax treatment occurs with depreciation allowances, but the effects are much smaller and not estimated here.

2000 and January 2004, the Australian government provided \$4.3 billion to over 550,000 first home owners (PC, 2004), a subsidy of \$1.2 billion per annum. The Australian Government provides rental assistance directly to about one-quarter of all renters via means tested cash benefits. Wang et al. (2004) report that the Commonwealth provided over \$1.8 billion in rent assistance to 943,000 income units in 698,000 households in 2001-02 for an average annual benefit of \$2470 per household.

Public housing is a third major vehicle of housing assistance. About 5 per cent of households in Australia live in public housing with most receiving a rental subsidy. Wang et al. (2004) estimate that just over 300,000 households receives a subsidy of \$1.25 billion per annum, which equates to about \$4150 per household per annum.

Taxes on land and housing

The main taxes on housing are land taxes, stamp duties and GST on land and new houses and on renovations. State and territory taxes on residential land yield nearly \$2 billion per annum (PC, 2004). Given our real income benchmark for tax (and because other forms of household wealth are not taxed), these land taxes are viewed in this paper as an excess tax. Note, however, that the PC also estimated that the value of the home owner exemption from land taxes on their principal homes is about \$7 billion per annum. This exemption of home owners from land taxes is non-tenure neutral and often viewed as a tax subsidy.

In addition, in 2004 local government in Australia raised about \$8.0 billion in land taxes (rates). In this paper these revenues are also regarded as taxes because they have no direct relationship to services provided and are widely viewed as taxes by Australian households. However investors can deduct land taxes, whether levied by the states or local jurisdictions, from their taxable rental income. Thus the effective cost of land taxes (LT) to investors is $LT \times (1 - mtr)$, where mtr is their marginal tax rate which we assume is 40 per cent in this analysis.

Turning to stamp duties collected by the states, total stamp duty on conveyancing of residential properties is about \$9 billion per annum (PC, 2004).⁵ These stamp duties are regarded as part of the capital price and reduce any long-term CGT liability for investors, but they are not tax deductible against income.

GST is imposed on vacant land sold by registered enterprises, new dwellings, renovation expenditures, and inputs to home maintenance. Gross capital formation for private dwellings is about \$50 billion per annum, including some \$30 billion on new dwellings and \$20 billion on renovations. This expenditure attracts GST of about \$5.0 billion per annum. In addition, land development and repairs and maintenance each attract GST of about \$0.5 billion per annum (PC, 2004). Thus total GST on housing is about \$6.0 billion per annum.

Finally, most state and local governments levy developers of new housing for public provision of related economic and social infrastructure. The charges (see Housing Industry Association, 2003) vary greatly with jurisdiction and are usually much higher for houses on the urban fringe than for units in established areas. Allowing an average developer charge of \$20 000 per 150 000 new dwelling units in a year, developer charges total some \$3.0 billion per annum. However, although the levies are a capital charge on developers rather than a recurrent charge on homeowners, they are generally designed to reflect the costs of services and to be payments for services provided. Accordingly, although I analyse the effects of the developer charges below, they are not included as a tax in Table 3.

Housing subsidies and taxes: a summary

Table 2 provides estimated capital and annual values of the housing stock in 2004 in the owner-occupied and investor/rental sectors. The estimates of privately-owned stock are based on Household Census figures for 2001 (Kennedy and Robertson, ABS, 2003) plus a net

⁵ These figures do not include stamp duties on mortgages associated with property purchase.

increase of 100,000 dwellings per annum to 2004 that allows for demolitions. The same ABS report shows that 70 per cent of occupied stock is owner-occupied.⁶ The Reserve Bank of Australia (RBA, *Bulletin*) estimates that the total value of the private housing stock in mid-2004 was \$2558 billion. This implies a mean value of \$325,000 per dwelling unit.⁷ To estimate the value of the capital stock, the RBA uses privately purchased and unpublished dwelling price information. Drawing on data in Abelson and Chung (2004), my estimates are marginally lower. As far as I am aware, there are no separate estimates of the value of owner-occupied and rental stock. According to the 2001 Census, owner-occupiers occupy 81 per cent of separate houses and 30 per cent of units (with the balances rented). However, with two-thirds of units in Australia within 25 km of the Sydney and Melbourne CBDs, average house prices are not much higher than average unit prices. In this paper I take owner-occupied dwellings to have a mean value of \$325,000 and investor dwellings to have a mean value of \$275,000. Imputed and actual rental values are based on rentals at 4 per cent of capital values (Reserve Bank, 2003). Turning to publicly-owned rented housing, Wang et al (2004) report nearly 390,000 such dwelling units. An assumed mean value of \$200,000 for these dwellings is adopted here for illustrative rather than for analytic purposes.

Table 2 Estimated capital and annual values of housing in 2004

	Unit	Owner-occupied housing ^a	Private rental housing	All private housing ^b	Public rental housing
No. of dwellings	No mn	5.58	2.39	7.97	0.39
Average (mean) value	\$	325,000	275,000	285,000	200,000
Capital value	\$bn	1813	657	2470	78
Rental value p.a. @ 4%	\$bn	73	26	99	3
Investment in housing p.a.	\$bn	Na	Na	50 ^c	Na

(a) These include dwellings that are not occupied or rented, eg. second homes.

(b) Excluding caravans, cabins and houseboats.

(c) A trend figure that includes expenditure on new houses and alterations and additions. It does not include land development and home maintenance costs that total about another \$10 billion.

⁶ Ten per cent of the total privately owned housing stock was unoccupied at the 2001 Census date.

⁷ Mean capital city values are typically about 8 per cent higher than median values.

Based on these data and assumptions, the capital value of the private housing stock in mid-2004 was \$2470 billion, including \$1813 billion in owner-occupied housing and \$657 billion in private rental housing. Annual investment in housing (including land development, building, renovation and maintenance) is about \$60 billion per annum. Allowing a 4 per cent gross rental rate, the gross rental value of all private housing is \$99 billion per annum, including \$73 billion in imputed rent for owner-occupied housing and \$26 billion in private rental housing.

Table 3 summarises the estimated values of housing subsidies and taxes per annum for the private owner-occupied and rental sectors based on the above assumptions notably with respect to the real income tax benchmark. The table also includes estimates of GST foregone by the lack of a consumption tax on rents, but these are partly offset by GST on capital improvements and maintenance. Local government rates are included because they are viewed here as a tax rather than a user charge. But developer charges are excluded because they are primarily user charges. Where a tax (such as local rates and stamp duty) applies to both sectors, it is attributed proportionally to the value of the stock in each sector except for GST on new homes which is assumed to be borne mostly by producers or consumers in the home owning sector. Note also that investors can deduct land taxes in their income tax return.

For all private housing, based on 2004 data, estimated subsidies total \$29.7 billion per annum and taxes total \$23.4 billion per annum, making a net subsidy of \$6.3 billion per annum. This net subsidy is equivalent to 6.4 per cent of estimated gross annual rental value of housing and about 0.8 per cent of GDP. Most of the subsidy accrues to the homeowner sector, which inclusive of landowners receives an estimated net subsidy of \$5.9 billion per annum. If, as argued below, original landowners pay most of the \$3.0 billion GST on new homes, homeowners receive a subsidy of nearly \$8.9 billion per annum. Allowing for second homes, this is equivalent to about \$1600 per homeowner per annum. Investors and renters of private

rental properties jointly receive an estimated net subsidy of only \$0.4 billion per annum. This rises to \$0.9 billion if GST on new homes is borne by the landowner, which equates to an estimated net subsidy of \$375 per rental property per annum.

Table 3 Estimated annual after-tax value of subsidies and taxes for private housing

Subsidy / tax	Owner-occupied housing		Private rental housing		All private housing ^a	
	\$bn	% annual housing value	\$bn	% annual housing value	\$bn	% annual housing value
Subsidies						
Imputed rent tax concession	8.0	11.0	Na	Na	8.0	8.1
No GST on imputed / actual rents	7.3	10.0	2.6	10.0	9.9	10.0
Capital gains tax concession	7.2	9.9	Na	Na	7.2	7.3
Asymmetric tax treatment of losses and gains	Na	Na	1.6	6.2	1.6	1.6
First home owner grant	1.2	1.6	Na	Na	1.2	1.2
Private rent subsidies	Na	Na	1.8	6.9	1.8	1.8
Total subsidies	24.7	32.4	6.0	23.1	29.7	30.0
Taxes						
Land taxes (state governments)	Na	Na	1.2 ^b	4.6	1.2	1.2
Land taxes (local government)	6.0	8.2	1.2 ^b	4.6	7.2	7.3
Stamp duties	7.0	9.6	2.0	7.7	9.0	9.1
GST on land / new houses	3.0	4.1	0.5	0.5	3.5	3.5
GST on major renovations and additions	1.8	2.4	0.7 ^c	0.7	2.5	2.5
Total taxes	17.8	24.3	5.6	21.5	23.4	23.6
Subsidies - Taxes	5.9	8.1	0.4	1.6	6.3	6.4

(a) Excluding caravans, cabins and houseboats.

(b) Estimated net tax for investors after allowing for lower income tax at a marginal tax rate of 40 per cent.

(c) A small part of this may be allowed as a tax deduction.

3 Subsidies, Taxes and Housing User Costs

The analysis above suggests that homeowners receive an *average* subsidy equivalent to about 8 per cent of their imputed gross rents. To assess how this subsidy may affect the demand of housing, it is instructive to consider how it affects individual housing user costs. Housing user cost (H_{uc}) can be expressed as:

$$H_{uc} = P_h (r + m + t_h - \pi_h) \quad (1)$$

where P_h is the house price, r is the weighted nominal interest rate after tax, m is house maintenance cost as a percentage of house price, t_h is property taxes on housing as a percentage of house price, and π_h is the nominal rate of house price inflation. The weighted nominal rate of interest after tax is:

$$r = \alpha i(1-t_r) + (1-\alpha)mr \quad (2)$$

where α is the owner's equity in his house, i is the rate of interest on this equity foregone, t_r is the owner's marginal tax rate, and mr is the mortgage rate payable on a housing loan. Thus actual housing user costs are:

$$H_{uc} = P_h [\alpha i(1-t_r) + (1-\alpha)mr + m + t_h - \pi_h] \quad (3)$$

On the other hand, if the homeowner faced a real income tax regime, he would pay tax on imputed rents from his equity in the home and on real capital gains, but he would not pay other property taxes. Thus real housing user costs (H_{ruc}) would be:

$$H_{ruc} = P_h [\alpha i + (1-\alpha)mr + m - \pi_h + rg.t_r] \quad (4)$$

where the terms are as above, including rg which is the real percentage gain in house prices.

For our base case estimates of user costs, we assume the following values: $\alpha = 0.50$, $i = 6.0$, $mr = 7.0$, $t_r = 0.30$, $m = 1.5$, $t_h = 0.66$, $\pi_h = 3.0$, $rg = 1.0$, and $P_h = \$300,000$. In the results reported in Table 4, we also consider three main variations (one at a time relative to the base case). We vary the home equity rate (α) to 20 per cent and 100 per cent; we examine the

effect of an increase of one per cent in the interest rates (i and mr); and we consider the impacts of a marginal tax rate (t_r) of 20 per cent and 40 per cent. Changing the house price affects the size of the subsidy but not the relative rates of return shown in the base case.

Drawing on the base case assumptions, real housing user costs for homeowners are 5.30 per cent of house price, but actual user costs after subsidies fall to 4.76 per cent of house price. There is a saving of \$1620 for a \$300,000 house (which is similar the average noted above). The last two columns provide estimates of the present value of the annual savings over 20 and 30 years respectively discounted at 5 per cent per annum relative to the capital value of housing. In the base case, the present values of the savings equal 7.73 per cent and 8.30 per cent of the house price respectively (again in line with the analysis above). These savings rise substantially with the proportion of equity in the home and with an increase in marginal tax rates and they also rise though by a smaller amount with an increase in interest rates (holding other variables constant). Conversely the savings are small for a homeowner who is heavily geared or who has a low marginal tax rate.

Table 4 Home owner housing user costs under various assumptions

Housing Assumptions	H_{uc} %	H_{ruc} %	$H_{uc} - H_{ruc}$ %	H_{uc} \$	H_{ruc} \$	$H_{uc} - H_{ruc}$ \$	PV saving % P_h^a	PV saving % P_h^b
Base case^c	4.76	5.30	0.54	14,280	15,900	1,620	6.73	8.30
Equity								
$\alpha = 0.2$	5.60	5.60	0.0	16,800	16,800	0	0	0
$\alpha = 1.0$	3.36	4.80	1.44	10,080	14,440	4,320	17.95	22.14
Interest rates								
$i = 7\%, mr = 8\%$	5.06	5.20	0.14	16,830	18,900	2,070	8.60	10.61
Tax rate								
$t_r = 20\%$	5.06	5.30	0.14	15,180	15,600	1080	1.74	2.15
$t_r = 40\%$	4.76	5.40	0.94	13,380	16,200	2700	11.71	14.45

(a) Present value of annual savings over 20 years discounted at 5% p.a. as a percentage of house price.

(b) Present value of annual savings over 30 years discounted at 5% p.a. as a percentage of house price.

(c) For definition of base case, see text.

Evidently the present value of life cycle housing user costs depends not only on market conditions such as interest rates but also, for each household, on the initial level of gearing and the rate at which this is reduced, applicable tax rates, and private discount rates. However a typical profile starting with high gearing and modest tax rates and finishing with high equity and high tax rates generates a present value of savings close to that shown in the base case, namely with a value of 7-8 per cent of house price.

4 Fiscal Measures and the Housing Market

We now examine how these fiscal measures affect house prices and housing consumption in the owner-occupied and rental sectors. We start by describing how a homeowner subsidy would affect demand in the homeowner and rental sectors and the supply of housing overall and derive price and consumption results for the homeowner and rental sectors. We then use demand and supply equations to derive results with various demand and supply elasticities.

Effects of fiscal measures affecting owner occupied housing

As investors, homeowners must expect to earn the same rate of return on their housing investment as on other possible investments. This equilibrium relationship can be expressed as:

$$R_h / P_h = \rho = r + m + t_h - \pi_h \quad (5)$$

where R_h is the value of the rental services per period in owner-occupied homes, ρ is the nominal after-tax rate of return on non-housing investment, and the other terms as before. In this equation, R_h is determined by household demand in conjunction with the housing stock. The right-hand side variables are exogenous.⁸

⁸ If Equation (5) is expressed in terms of consumption instead of investment: $R_h = (r + m + t_h - \pi_h) P_h$. In this case, the real value of consumption in any period must equal the *user cost* of the asset.

Thus the price of housing has to adjust to bring the owner-occupier (investor) market into equilibrium with other assets. This implies:

$$P_h = R_h / (r + m + t_h - \pi_h) \quad (6)$$

If the owner-occupied housing stock is constant, house prices rise/fall pro rata with changes in the proportion of subsidies/taxes to gross rental values.

We now introduce the demand for rental housing and total housing supply. For the purposes of illustration, effects are assumed to occur instantly and homeowners and renters are assumed to occupy equivalent standards housing units. Figure 1 shows an initial equilibrium in homeowner and rental markets with a dwelling unit price of \$300,000. Including vacant dwellings, there are 5.58 million owner-occupied dwellings and 2.39 million private renter dwellings. A homeowner subsidy of 10 per cent of gross rent raises the demand curve of homeowners from D_0 to D_{0s} and, absent any interaction with the rental market, owner-occupier dwelling prices would rise by 10 per cent to \$330,000.

The renter demand curve for housing is assumed to be independent and unchanged. It slopes down because lower house prices imply lower rents and increased housing consumption. At a market price of \$330,000 and with a demand price elasticity of -1.0, rental household consumption would fall by 10 per cent to 2.15 million housing units. However, this would result in 0.24 million unoccupied housing units. With unitary demand elasticity also in the owner-occupied market and no increase in overall supply, the new equilibrium market price is \$321,000 per housing unit. Owner-occupier dwellings would increase from 5.58 million to 5.74 million and renter dwellings fall from 2.39 million to 2.23 million.

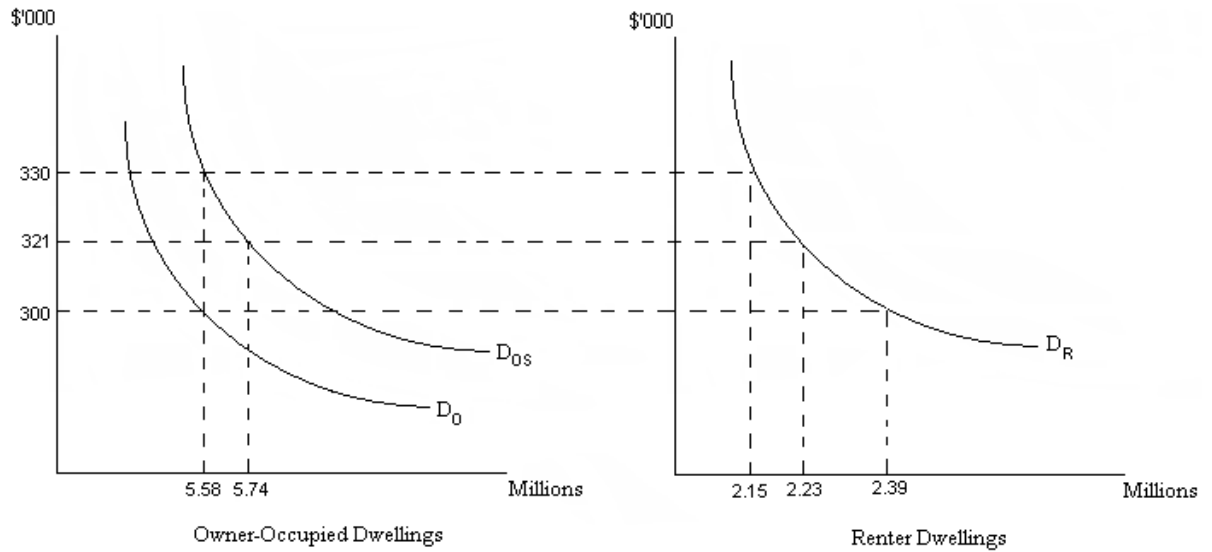


Figure 1 Effects of 10 per cent subsidy to home owners on home owner and rental markets with fixed total supply of housing

Figure 2 introduces a housing supply response. It shows the total market demand curve for owner-occupiers and renters ($D_o + D_R$) along with the market supply curve. The higher demand curve ($D_{os} + D_R$) allows for a 10 per cent subsidy to homeowners. With unitary demand and supply elasticities, the new equilibrium price would be \$310,320. The total housing stock increases to 8.24 million dwellings, including 5.93 owner-occupied dwellings and 2.31 investor owned dwellings. In this new equilibrium, both housing consumption and house prices rise by 3.4 per cent. However house ownership has risen by 6.3 per cent and rental dwellings have fallen by 3.3 per cent.

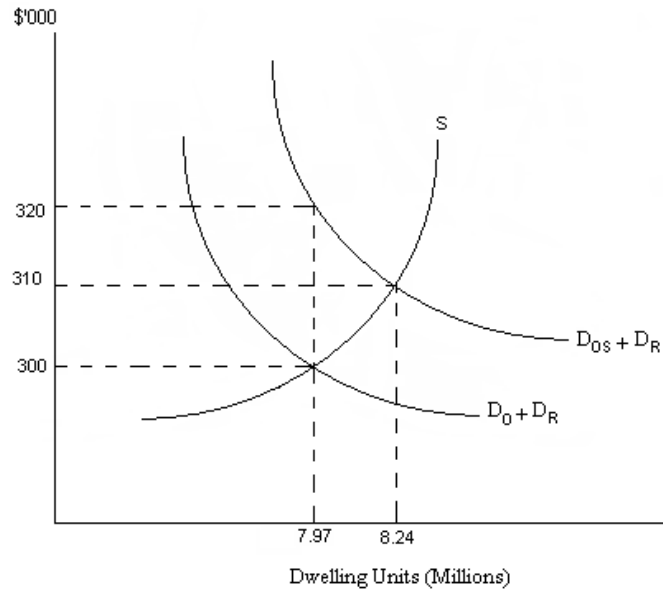


Figure 2 Effects of subsidy to home owners with unit elasticity supply response

The above estimates are based on solving for the following four equations, which are designed to fit the observed data, and where the demand or supply price elasticity (the β coefficient) is assumed to be unitary.

$$\text{Initial owner housing demand:} \quad \ln H_{od1} = 7.42 - \beta \ln P \quad (7)$$

$$\text{Subsidised owner housing demand}^a: \quad \ln H_{od2} = 7.52 - \beta \ln P \quad (8)$$

$$\text{Rental housing demand:} \quad \ln H_{rd} = 6.58 - \beta \ln P \quad (9)$$

$$\text{Housing supply:} \quad \ln H_s = -3.63 + \beta \ln P \quad (10)$$

(a) Allowing for a 10 per cent homeowner subsidy.

The outcomes depend of course on housing demand and supply price elasticities. There does not appear to be any authoritative estimate of Australian demand price elasticity. However, there is substantial international evidence for unitary demand price elasticity (O'Sullivan, 2003). Supply price elasticities are more problematic. Much tax incidence literature assumes that the supply price elasticity for commodities is high because capital is mobile. This may well apply to housing renovations and to a slightly lesser extent to new houses in marginal

urban areas where land values for housing are close to values for other uses. However, most new houses are constructed adjacent to urban areas where housing land values far exceed land opportunity costs. Here, planning regulations determine the supply of land for new housing and the number of new houses constructed. Planners are influenced only weakly by house prices. The Berger-Thompson and Ellis (2004) study suggests that the price elasticity of new housing supply is low.

Table 5 shows estimated market outcomes with various homeowner subsidies and demand and supply elasticities. For a given homeowner subsidy and supply price elasticity, the greater is the price elasticity of demand, the greater is the increase in owner-occupied dwellings and the higher the rise in prices. Holding demand price elasticity constant, a high supply elasticity increases housing consumption but reduces the rise in house prices.

Table 5 Market outcomes from fiscal measures for home owners

Market assumptions							
Owner subsidy / tax (%) ^a	+10.0	+10.0	+10.0	+10.0	+10.0	+20.0	-10.0
Demand elasticity	-1.00	-0.50	-1.50	-1.00	-1.00	-1.00	-1.00
Supply elasticity	+1.00	+1.00	+1.00	+0.50	+1.50	+1.00	0.00
Market outcomes							
New house price (\$)	310320	306800	312520	313840	308230	320320	279000
% change in house price	3.4	2.3	4.2	4.6	2.7	6.8	-7.0
Total housing (mn)	8.24	8.15	8.30	8.15	8.30	8.51	7.97
Owner housing (mn)	5.93	5.79	6.05	5.87	5.97	6.27	5.40
Rental housing (mn)	2.31	2.36	2.25	2.28	2.33	2.24	2.57
% change: all housing	3.4	2.3	4.2	2.3	4.1	6.8	0.0
% change owner housing	6.3	3.7	8.8	5.1	7.1	12.4	-3.2
% change rental housing	-3.3	-1.1	-5.9	-4.4	-2.7	-6.3	7.5

(a) A “+” denotes a subsidy; “-” is a tax.

Effects of fiscal measures affecting investor / rental housing

The effects of fiscal measures in the rental market depend on whether the subsidy or tax is targeted on investors or renters. Investors face a similar asset choice to homeowners. In equilibrium the return from housing must equal the return on other assets.

Figure 3 depicts a shift in the investor supply curve from S to S_t as a result of a new 10 per cent tax on rental incomes. Given that homeowners own 70 per cent of dwellings and an assumed price elasticity of demand in homeowner and rental markets of -1, the equilibrium price for houses would fall by 3 per cent to \$291,000. To recover the 10 per cent increase in costs, investors raise rents by 7 per cent and pay 3 per cent less for the properties. The rise in rentals reduces rental property consumption by 7.2 per cent, so rental properties fall from 2.39 million to 2.22 million. On the other hand, owner-occupied dwellings increase by 3.1 per cent from 5.58 million to 5.75 million. Note that this assumes no contraction of housing supply.

On the other hand, a 10 per cent reduction in taxes on investors in rental properties would lead initially to a 3 per cent increase in property prices, which would in turn induce some increase in supply. As shown in Table 5, with unitary demand and supply price elasticities, the estimated final equilibrium price would be \$304,460. Rental property consumption would rise by 8.4 per cent and owner-occupied housing would fall by 1.5 per cent.

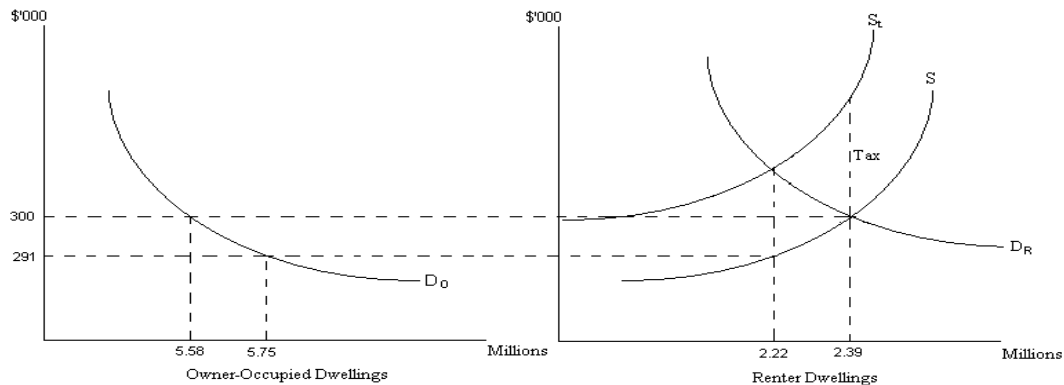


Figure 3 Effects of 10 per cent tax on rental income with fixed housing supply

Table 5 Market outcomes from fiscal measures for investors

Market assumptions		
Owner subsidy / tax (%) ^a	-10.0	+10.0
Demand elasticity	-1.00	-1.00
Supply elasticity	0.00	+1.00
Market outcomes		
New house price (\$)	291000	304460
% change in house price	-3.0	+1.5
Total housing (mn)	7.97	8.05
Owner housing (mn)	5.75	5.50
Rental housing (mn)	2.22	2.59
% change: all housing	0.0	+1.5
% change owner housing	+3.1	-1.5
% change rental housing	-7.2	+8.4

(a) A “+” denotes a subsidy; “-” is a tax.

Turning to subsidies for renter households, the key point is that the average rent subsidy of \$2500 per annum per household (\$50 per week) is *less than* the rent that most households pay. In these circumstances the rent subsidy is effectively an untied income cash benefit. If all rent subsidies are in effect untied general grants and households spend a quarter of the subsidy on housing, a subsidy of \$1.8 billion to private renters increases expenditure on private rental housing by \$0.45 billion, which is only 1.9 per cent of estimated gross private rentals of \$24 billion. Assuming unitary demand and supply elasticities, the estimated equilibrium house price across the market would rise by only 0.28 per cent from \$300,000 to \$300,850 and there would be a similar rise in gross rents. Renter dwellings would rise from 2.39 million to 2.43 million and there would be a very small fall in owner-occupier dwellings from 5.58 million to 5.56 million dwellings.

Effects of fiscal measures on new houses

The Housing Industry Association (HIA, 2003) argues that all taxes on new houses, which can be up to \$70,000 per new house, are passed forward to the consumer. This would occur if the demand for new housing were perfectly inelastic and supply perfectly elastic. Market conditions are almost the exact opposite. The demand for new houses is highly price elastic because existing houses are a close substitute for new houses. Also, generally sales of existing houses far outnumber sales of new houses. On the other hand, the supply of new houses is determined principally by planning regulation and is price inelastic. The HIA (2003) reported that, even with developer changes, the price of a typical greenfield building site ranged from \$25,000 in Perth to \$60,000 in Melbourne, \$67,500 in Brisbane, and \$110,000 in Sydney. These land values indicate that market forces have little effect on the supply of new houses.

The outcome is illustrated in Figure 4. A tax on new housing would shift the supply curve only marginally to the left. Thus, there would be only a small increase in the price of new houses. In these conditions, most taxes are passed backward to land owners rather than forward to consumers. Taxes and subsidies affect new house prices only when land prices for housing are close to opportunity cost and fiscal measures affect the supply of housing.

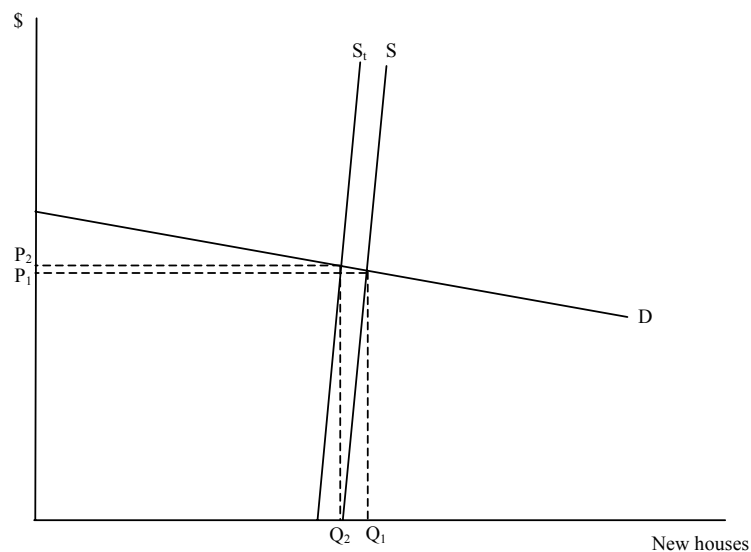


Figure 4 **The effect of a tax on new houses**

4 Fiscal Measures and Economic Efficiency

There are various concerns about the efficiency effects of fiscal measures on the housing market. A major concern, as noted at the start of the paper, is that housing subsidies cause excess resources to be allocated to housing and too few resources to allegedly more productive activities. A second concern relates to use of the housing stock. Transaction taxes may affect not only the amount of housing but also how it is used. Thirdly, unequal fiscal treatment between owned and rented property may distort tenure choice decisions.

I examine below the possible deadweight costs in relation to each of these concerns, inclusive of some important second best considerations. However, the paper does not attempt to estimate the value of possible positive externalities of house ownership or occupation.

Efficiency effects of fiscal measures affecting investment in housing

Dealing first with the effects of fiscal measures on housing consumption, the paper adopts the classic public finance approach and compares the marginal benefits of housing based on the demand curve with the real opportunity costs of housing supply. Figure 5 shows a competitive housing market, where the supply curve is also a marginal cost schedule. Subsidies shift the demand curve for new housing from D to D_s . Housing supplied increases from Q_1 to Q_2 and the price for housing rises from P_1 to P_s . In the absence of positive externalities, the area BCF is a deadweight loss.

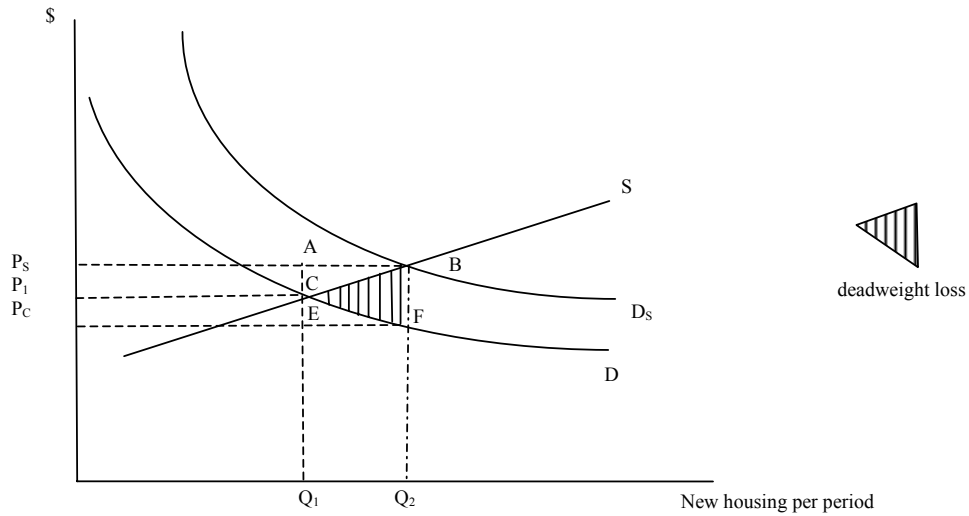


Figure 5 Effects of a housing subsidy on housing quantity and price with competitive housing and land markets

As shown in the public finance literature⁹, this deadweight loss (DWL) can be estimated approximately by:

$$DWL = 0.5t_h^2 Q_h P_h / ((1/\eta_d) + (1/\eta_s)) \quad (11)$$

Where t_h = the marginal tax (or subsidy) rate on housing

Q_h = the number of new dwellings constructed with no subsidy

P_h = the price of housing before taxes or subsidies

η_d = the demand price elasticity for housing

η_s = the supply price elasticity for housing

If Q_h equals 150,000 new dwellings per annum (including units), P_h is \$300,000, the subsidy is 10 per cent, and there are unitary demand and supply elasticities, the deadweight loss from construction of new housing is \$225 million per annum.

$$DWL_{NH} = [0.5 (0.10)^2 \times \$300,000 \times 150,000 \text{ dwellings}] / 2 = \$225 \text{ million per annum}$$

⁹ For derivation of Equation (8), see for example Rosen (2002, p.292)

The deadweight loss would rise to \$450 million if the supply of new dwellings were perfectly price elastic. On the other hand, the loss tends to zero as the supply price elasticity for new houses tends to zero.

However, three other significant issues need to be considered: expenditure on housing renovations; the real opportunity cost of resources used in housing; and the deadweight cost of raising tax revenue.

Annual capital expenditure on housing includes about \$20 billion on renovations as well as \$30 billion on construction of new housing and \$5 billion on land development. To estimate the deadweight cost of renovations in the absence of convenient housing units, we substitute expenditure on housing renovation for $Q_h P_h$ in Equation (11). The supply of renovations is assumed to be perfectly price elastic. Assuming again a subsidy of 10 per cent and a demand price elasticity of 1, the deadweight cost associated with expenditure on renovations is:

$$DWL_R = 0.5 (0.10)^2 \times \$20 \text{ billion} = \$100 \text{ million per annum}$$

Returning to the supply of new houses, ignoring externalities, the difference between the price for a greenfield housing site and the land opportunity costs is a direct indication of the difference between the price of a house and its real opportunity cost. Drawing on the HIA (2003) land price figures cited above and allowing say \$10,000 for the real opportunity cost of housing land, the real surplus from housing development varies from \$15,000 in Perth to \$50,000 in Melbourne, \$57,500 in Brisbane, and up to \$100,000 in Sydney. Evidently, the supply curve in Figure 5 is not a marginal cost curve. Figure 6 shows the housing market with a marginal cost curve below the market price reflecting the regulation of new housing. In this case, a housing subsidy increases investment in housing from Q_1 to Q_2 and there is an *efficiency gain equal to area ABCD*. This is the difference between the price that consumers are willing to pay for housing and the real cost of providing the housing.

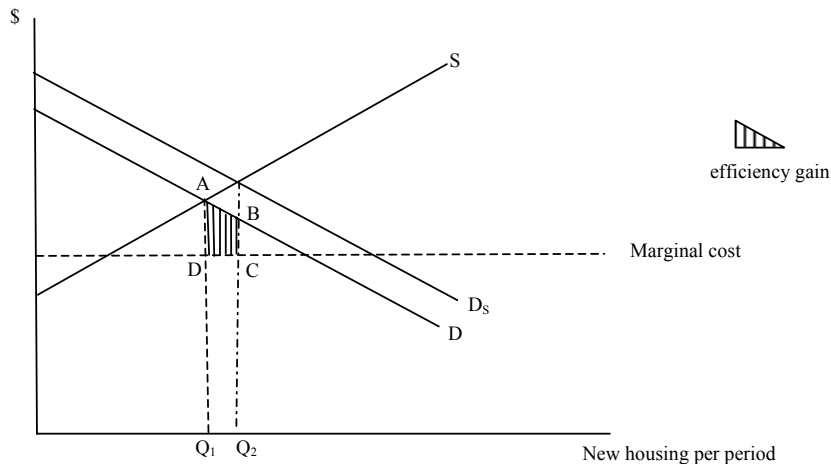


Figure 6 Efficiency gain from increased housing when supply is regulated

Of course, if there is no supply effect of a housing subsidy, there would be no efficiency gain. If Q_1 without a subsidy equals 150,000 new dwelling units per annum (an average building rate in Australia), there is a 10 per cent housing subsidy and a modest supply price elasticity of 0.25, the subsidy would produce 3750 extra housing units a year. With an average social surplus of say \$50,000 per unit, there is an efficiency *gain* of \$187.5 million per annum from the induced supply of new housing.¹⁰

These results are quite different from previous estimates of the deadweight costs of housing (see the review by Yates, 2000) that generally ignored housing renovations, but which more importantly failed to allow for the effects of a regulated supply of new houses. Two other points should be noted.

First, a 10 per cent subsidy on gross housing rents of \$91 billion would be \$9.1 billion. Although such a large subsidy appears to have low direct efficiency costs and indeed may

¹⁰ If a housing subsidy causes builders to build larger houses than they otherwise would, there would be a small offsetting deadweight loss.

have net efficiency benefits, significant deadweight costs may be associated with raising this amount of revenue from taxation. Drawing on Campbell and Bond (1997) and allowing a deadweight cost of only 20 cents for each dollar of taxation raised to fund the subsidy, the deadweight cost of the subsidy would still be in the order of \$1.8 billion per annum.

Second, the analysis has been in a partial equilibrium framework given our estimates of benchmark taxation regime. These estimates imply judgements about a normal tax regime. This led us to the view that housing, especially the homeowner sector, receives substantial subsidies. Arguably housing is not subsidised compared with the major alternative vehicle for household savings, namely superannuation funds. If fewer funds were invested in superannuation, the demand for housing would be higher and there would be an even smaller case for arguing that expenditure on housing is excessive.

Efficiency costs from fiscal measures affecting use of housing

Transaction taxes, which are an estimated 9.9 per cent of gross user costs (see Table 3), create two sets of deadweight costs. They tax and so deter housing consumption and they deter housing exchange. The latter deadweight cost is assessed here. This deadweight cost is a function of the number of house exchanges that are deterred.

Figure 7 illustrates the deadweight cost of transfer taxes. We assume that the price of exchanging a \$300,000 house is \$30,000 plus stamp duties. These costs include estate agent fees on the sale, legal costs, moving costs, and some allowance for private time costs. At this exchange price, one in seven dwellings (1.138 million housing units) is sold each year. Stamp duty on a \$300,000 house typically adds about \$10,000 to the cost of exchange. Thus the tax rate on the exchange price is 33 per cent. We assume that the price elasticity of demand for house exchange is low (0.2) since many households have strong reasons for moving and the moving decision is not price sensitive. On these assumptions, 6.6 per cent of transactions

would be deterred and there would be 1.063 million exchanges per annum. The deadweight cost is shown by the triangle ABC in Figure 7. The deadweight cost of stamp duties (DWL_{SD}) would be \$375 million per annum (see Equation 8). Even with a very inelastic demand for housing exchange, the deadweight cost of present transaction taxes is substantial.

$$DWL_{SD} = 0.5 \times 75,000 \times 10,000 = \$375 \text{ million} \quad (8)$$

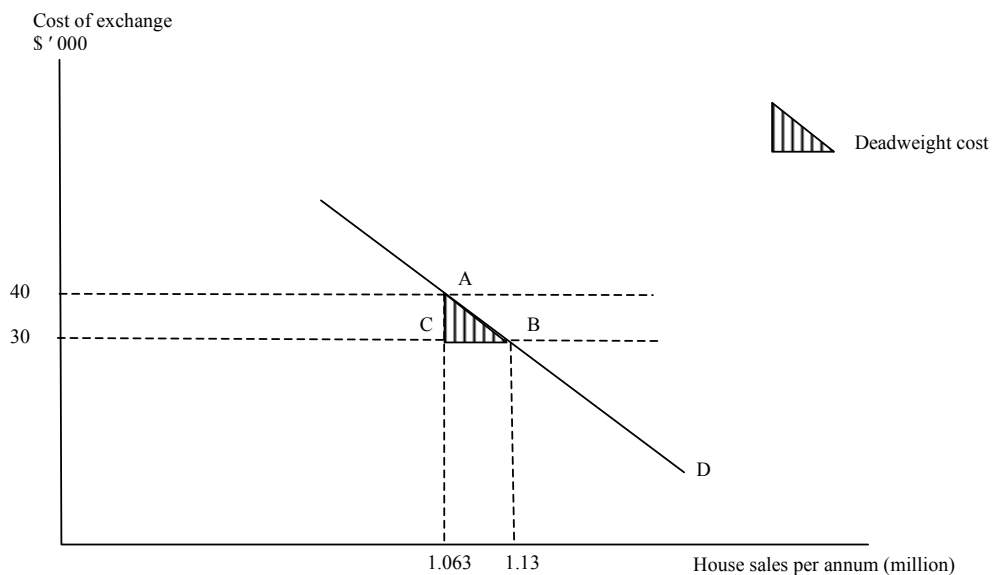


Figure 7 Deadweight cost of transactions tax due to inefficient use of housing

Turning to *tenure choice* distortion, suppose that initially house owners and renters face user costs of \$12,000 per annum (4 per cent of \$300,000) for the same house. Many households who choose to rent would do so because of the advantages of flexibility of house size, structure, location and so on. Now if house owners receive a 10 per cent subsidy and their user cost falls to \$10,800, some renters will convert to house owners even though, without the subsidy, they would prefer to rent. The deadweight loss is illustrated in Figure 8. The demand curve is the demand for homeownership. We observe that with a 10 per cent subsidy the user cost is \$10,800 per annum and there are 5.58 million home owner dwellings. This includes some households who would otherwise have been renters. Suppose that the 10 per cent

subsidy induces 5 per cent of renters to switch to home ownership. Without the discriminatory subsidy, renter dwellings would rise from 2.39 million to 2.52 million and there would be 0.13 million fewer home owner dwellings. The deadweight loss due to distorted tenure choice (DWL_{TC}) is shown by triangle ABC. This would equal \$78 million per annum.

$$DWL_{TC} = 0.5 \times 13,000 \times 1200 = \$78 \text{ million} \quad (9)$$

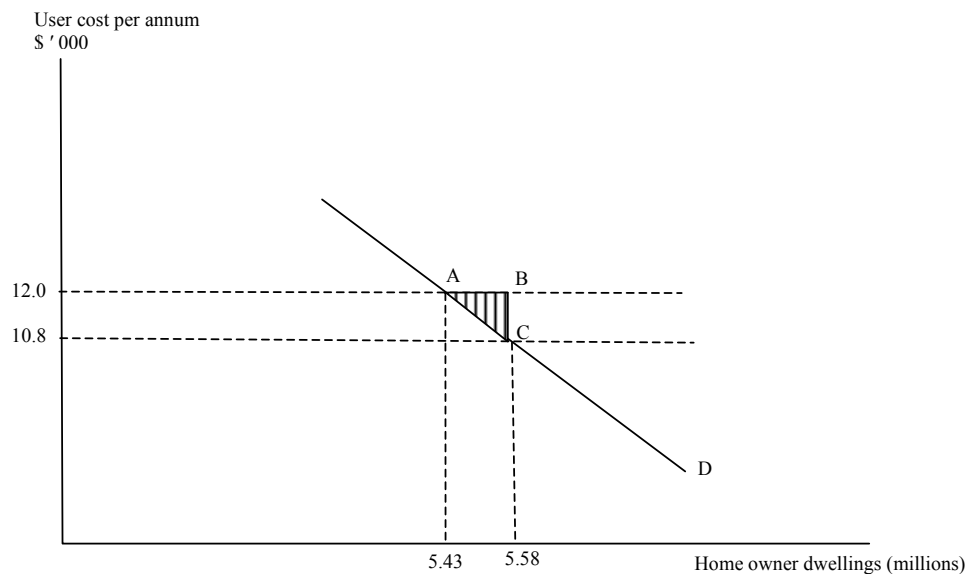


Figure 8 Deadweight cost of homeowner subsidy due to inefficient use of housing

5 Conclusions

The private housing sector as a whole receives an estimated net subsidy of \$7.0 billion per annum, which equals 7.7 per cent of the gross annual rental value of housing. Virtually all this net subsidy accrues to homeowners who receive an estimated benefit of about \$2000 per household per annum. Public housing tenants receive about \$4000 per household. On the other hand, investors and renters of private rental properties jointly receive an estimated net subsidy of only \$250 per rental property per annum.

With unitary housing demand and supply elasticities, a 10 per cent subsidy to *homeowners* raises the average Australian house price by an estimated 3.4 per cent from \$300,000 to \$310,320 and increases housing consumption also by 3.4 per cent, although homeowners increase by more than this and renter housing declines. The price increase is greater with a higher price elasticity of demand or a lower price elasticity of supply. The consumption response increases with a high price elasticity of demand or supply.

Taxes on rental housing increase housing rents but reduce house prices and rental consumption. On the other hand, subsidies for private renters have little effect on housing consumption or house prices because they are primarily an income support grant. Also, taxes on new houses have minimal impact on house consumption or house prices because most of the impact is borne in lower land prices.

Turning to efficiency effects, the paper estimates that a general housing subsidy of 10 per cent produces deadweight losses from expenditure on renovations in the order of \$100 million per annum. On the other hand, it produces *net welfare gains* from expenditure on new housing in the order of \$187 million a year. These results differ markedly from most previous estimates of the deadweight costs of housing which overlooked housing renovations and failed to allow for the regulated nature of the new housing market. On the other hand, there could be a high deadweight cost of nearly \$2.0 billion associated with funding a net subsidy of some \$7 billion per annum.

Finally the paper estimates the efficiency cost from misuse of the housing stock. The estimated deadweight cost of transaction taxes are a substantial \$375 million per annum. The estimated deadweight cost of the unequal treatment of homeowners and renters is a further \$78 million per annum. Although these costs are quite high, it may be observed that the deadweight losses are low relative to revenue raised.

References

Abelson, P. and D.Chung, 2004, 'House Prices in Australia: 1970 to 2003', Macquarie Economics Research Papers, No. 9/2002, Macquarie University.

Australian Bureau of Statistics, 2000, *Australian Housing Survey, housing characteristics, costs and conditions*, ABS Cat. No. 4182, Canberra.

Australian Institute of Health and Welfare, 2005a, *Commonwealth-State Housing Agreement national data reports 2003-04: House purchase assistance*, AIHW cat no. HOU 124, Australian Institute of Health and Welfare, Canberra.

Australian Institute of Health and Welfare, 2005b, *Commonwealth-State Housing Agreement national data reports 2003-04: Private rent assistance*, AIHW cat no. HOU 125, Australian Institute of Health and Welfare, Canberra.

Berger-Thompson, L. and L. Ellis, 2004, 'Housing Construction Cycles and Interest Rates', RDP 2004-08, Reserve Bank of Australia.

Bourassa, S.C and P.H.Hendershott, 1992, *Over-investment in Housing?*, Background paper for National Housing Strategy, Commonwealth Department of Health Housing and Community Services.

Campbell, A. and K.Bond, 1997, 'The cost of public funds in Australia', *Economic Record*, 74, 22-34.

Housing Industry Association, 2003, *HIA Submission to the Productivity Inquiry into First Home Ownership*, HIA Canberra.

Kennedy, A., and E.Robertson, 2003, *2001 Census: Housing*, Census Paper No. 03/02, Australian Bureau of Statistics, Canberra.

O'Sullivan, A., 2003, *Urban Economics*, 5th ed., McGraw-Hill Irwin, New York.

Productivity Commission, 2004, *First Home Ownership*, Report no. 28, Melbourne.

Reserve Bank of Australia, 2003, *Submission to Productivity Commission Inquiry into First Home Ownership*, Reserve Bank, Sydney.

Rosen, H.S., 2002, *Public Finance*, 6th edition, New York.

Wang, H., Wilson, D., and J.Yates, *Measuring the distributional impact of direct and indirect housing assistance*, AIHW cat.no HOU 108, Australian Institute of Health and Welfare, Canberra.

Yates, J., 2000, 'Housing and Taxation: An Overview, pp.503-33', in eds: J.G.Head and R.Krever, *Taxation towards 2000*, Australian Tax Research Foundation, Melbourne.