



Australian Housing
and Urban Research Institute

Fundamental tax reform and its impacts on alternative providers of rental housing

Final Report

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TABLE OF CONTENTS

	Page
Introduction	1
Policy Context and Literature Review	5
Method	11
Research Findings	15
References	22
Appendix A	25
Appendix B	29
Appendix C	39
Appendix D	48

LIST OF TABLES

	Page
Table 1: Proprietor After-Tax Economic Returns and Marginal Tax Rates	4
Table 2: Proprietor After-Tax Economic Returns and Capital Gains Tax Reform	4
Table 3: Of GST Provisions In The Rental Housing A Summary Sector	9
Table 4: Reform To Tax Rates And Tax Brackets	10
Table 5: Mean Percentage Increase In Annual Reservation Rents ¹	16
Table 6: Mean Percentage Increase In Annual Reservation Rents By Holding Period And Income; Established Boarding Houses, Base Scenario ¹ . %	17
Table 7: Mean Rental Rate Under New And Old Tax Systems ¹	18
Table 8: Mean Reservation Rental Rates By Holding Period And Income; Established Boarding Houses, Base Scenario ¹ . %	18
Table 9: Mean Contributions Of Capital Gains Tax And Goods And Services Tax To Change In Rent Under The New Tax System ¹	20
Table 10: Mean Contributions Of Capital Gains Tax And Goods And Services Tax To Change In Rent By Holding Period And Income. Established Boarding Houses, Base Scenario ¹ (%)	20

EXECUTIVE SUMMARY

Introduction

The Australian Government has recently introduced a new tax system that aims to reduce the tax burden on ordinary incomes by shifting some of the tax burden onto consumption. The most prominent feature of the new tax system is the Goods and Services Tax (GST). However, there are other significant reforms to the tax regime. These reforms include;

- Abolition of wholesale sales tax
- Cuts to marginal tax rates and changes to income tax brackets
- Reforms to capital gains tax provisions.

Under the GST regime private rental housing, including boarding houses and caravan parks that meet the long-term accommodation criterion, is input taxed. This means that proprietors and landlords are not required to charge tenants or residents a 10% GST on top of their rent. However, proprietors and landlords are not able to claim a credit for the GST they are charged on inputs purchased in the course of carrying out their business.

The Commonwealth government expects a typical increase in rents of 2.3% following introduction of the new tax system. This project questions government assessment of impacts on the grounds that it ignores the consequences for investors' cost of capital and capital gains tax liabilities. The research focuses on the proprietors' of boarding houses and caravan parks.

Method

We offer empirical evidence in the form of microsimulations conducted with respect to a sample of boarding houses and caravan parks offered for sale in the months immediately before and after the introduction of the GST. The analysis is based upon measurement of proprietors' after-tax economic costs. These economic cost measures are comprehensive and include operating and transaction costs (the costs of buying and selling), as well as capital costs and capital gains tax liabilities, all defined on an after-tax basis. The rent that would exactly cover these after-tax economic costs is a critical measure employed in the analyses of impacts. We compare these rents under the old and new tax systems. The comparison is conducted under two scenarios;

- The first baseline scenario, assumes the continuation of interest rates and property price inflation rates at their pre-reform values.
- The second favourable scenario assumes that the new tax system raises the long run growth potential of the economy so that interest rates can fall below pre-reform levels. It also assumes a higher property price appreciation rate.

Microsimulations are conducted for the sample of Caravan Park and boarding houses, and the sensitivity of estimates to alternative assumptions about key parameters is explored. In particular, alternative assumptions are invoked with respect to;

- Proprietors' marginal income tax rates.
- Proprietors' holding periods, these being the length of time the proprietor expects to operate her business.

Research Findings

Average increases in rents required by proprietors if they are to cover all after-tax economic costs are estimated to be;

- Between 14% and 15% under the baseline scenario.
- Between 5% and 6% under the favourable scenario.

These estimates are well in excess of official government projections of 2.3%. It should be pointed out that there is a wide variation in estimates around this average and it is impossible to offer a precise single measure of impacts. However, the weight of evidence does support the view that impacts are larger than government projections. Only in a few particular circumstances do our microsimulations yield estimates of increases in rents at or below those made by government agencies.

Our research also emphasises the variation in impacts across regions and cities. This variation is due to the capital gains tax reforms. The latter will, roughly speaking, increase the capital gains tax liabilities of proprietors owning properties whose rate of price appreciation is less than double the rate of inflation. In areas with sluggish property prices the new capital gains tax system will hit proprietors with higher tax bills as compared to the old tax system. On the other hand, proprietors in areas with rapid property price appreciation rates might even gain under the new capital gains tax system. This emphasis on the consequences of capital gains tax reforms is justified despite the lack of attention these reforms have attracted. Our empirical work suggests that these changes rival the GST reform package in terms of their impact on after-tax economic costs.

Finally, we have also examined the extent to which proprietors of boarding houses and caravan parks can pass on increases in after-tax economic costs to residents. The analysis assumes that proprietors are to some extent competing with other providers of long-term rental accommodation, and in particular private rental landlords. The market rents obtained by the latter are typically between 6% and 7% of capital values. Our microsimulation estimates suggest that only proprietors from the highest income tax bracket (old tax system) could remain competitive and cover after-tax economic costs at these market rental rates.

Conclusions And Policy Implications

This last finding is particularly important. It implies that proprietors from lower tax brackets will exit the market. Indeed our empirical work suggests that if a favourable scenario does not eventuate in the longer term, even proprietors from the highest tax bracket will struggle to pass on cost increases eventuating as a result of the new tax system. A prediction of future contraction in the supply of accommodation in this segment of the market will come as no great surprise, as this merely continues a trend that has been apparent for some considerable time with respect to boarding houses. However, this project offers firm evidence that this form of accommodation provider is uneconomic given current tax arrangements, and therefore hints at an appropriate policy response.

The supply of low-income rental housing has attracted increasing attention in recent years. There is growing concern that though the need for such housing is increasing, its supply is contracting. It seems that the new tax system will accentuate these supply problems. There are measures that government can take to help retain the stock of low-income housing. One such measure that has been implemented in the USA is a low-income housing tax credit. This is a targeted tax credit programme introduced in the USA in 1987. In the USA a landlord of an existing rental building

can claim a tax credit of 4% of the building structure's value in each year for ten years, provided the property was constructed ten or more years ago. The tax credit entitles the landlord to a one-dollar reduction in tax liability for each dollar of tax credit. For example, suppose a landlord has a \$100000 building. He can claim a \$4000 tax credit each year for 10 years that will reduce his tax bill by \$4000 each year, provided his taxable income is high enough to make use of the credit. Entitlement to the tax credit is also conditional on the building being occupied by low-income tenants who receive rental subsidies.

In view of our findings such a programme has considerable appeal. The project's principal researcher has conducted microsimulations for private rental investors, assuming that eligibility is conditional on charging weekly rents of less than \$100. The tax credit successfully reduces the after-tax economic costs of those landlords of housing that is most vulnerable to an adverse change in market circumstances. Furthermore, the restriction on weekly rent targets assistance on low-income rental housing. The case for consideration of measures of this kind is compelling.

1. INTRODUCTION

The Australian Government has recently introduced a new tax system that aims to reduce the tax burden on ordinary incomes by shifting some of the tax burden onto consumption. The most prominent feature of the new tax system is the Goods and Services Tax (GST). However, there are other significant reforms to the tax regime that are important in the present context. The introduction of a GST is to some extent balanced by the abolition of Wholesale Sales Tax and some State and Territory taxes. Also helping to offset the GST is cuts to marginal income tax rates and changes to income tax brackets. Reforms to the capital gains tax provisions introduced in September 1999, 9 months before the GST package, are also an important feature of the new tax system¹. In aggregate these reforms represent a fundamental reform of the tax system. The potential impacts on the housing sector are an important subject for research.

Under the Goods and Services Tax (GST) introduced in July 2000, private rental housing is input taxed, and this includes boarding houses and Caravan Park sites that offer predominantly long-term accommodation and which elect to be input taxed². This means that proprietors are not required to charge tenants or residents a 10% GST on top of their rent. However, proprietors are not able to claim a credit for the GST they are charged on inputs purchased in the course of carrying out their business. For example, repairs that are carried out to properties or sites are a taxable supply. Goods in this category include the GST in their price and this is paid to the supplying firm in the act of purchase. With respect to caravan parks and boarding houses, the Government claimed that after taking into account the effects of abolishing wholesale sales tax, "long-term accommodation charges may increase slightly, as providers pass their increased costs on to residents by adjustments to accommodation charges"(Australian Competition and Consumer Commission, 2000b, GST Talk 9). In an illustrative example offered by the ACCC for long-term residents of caravan parks, site fees increase by 2.1%.

This project subjects this estimate to critical scrutiny. We do not question the government estimates of the increase in proprietor input (operating) costs. But we nevertheless argue that government projections may seriously underestimate the impact on rents and proprietor returns. This is because they ignore the consequences for proprietors' cost of capital and capital gains tax liabilities. The former are the costs of financing acquisition of boarding houses or caravan park sites, and a critical determinant is the proprietor's marginal rate of tax (Wood and Watson, 2001 forthcoming). As part of the tax reform package most proprietors will experience a reduction in their marginal rate of income tax. This, paradoxically, will increase a proprietor's cost of capital. Consider a proprietor who is an outright owner of a boarding house. Their cost of capital is the after-tax return sacrificed on the next best alternative investment; if this were a term deposit with a financial institution the return sacrificed is the interest payments expected on the term deposit, minus the taxes payable on the interest return. With cuts to marginal tax rates the after-tax return sacrificed by the proprietor increases. If expected rates of capital gain are

¹ The official government guide to the new tax system ("The Tax Reform (and Tax Cuts) Booklet"), delivered to all Australian households in the lead up to the GST implementation featured the capital gains tax changes already implemented.

² The situation is more complex for proprietors of predominantly short-term accommodation. When a stay in such accommodation extends beyond 28 days, a two-tier GST rate applies; the full 10% rate on the first 27 days and a concessional rate for 28 days onwards. See the position paper no ? for details. In this paper we will limit our attention to predominantly long-term accommodation that has chosen to be input taxed.

unchanged the rent required in order to match the after-tax return on the alternative investment must increase. If the proprietor cannot increase rent then an economic loss can eventuate; the proprietor would be better off realising her property asset and investing the proceeds in a term deposit.

A hypothetical illustration can help to explain what initially appears to be a puzzling conclusion. Consider a boarding house that has just been purchased for \$560,000. The \$560,000 price is not an arbitrary choice. It is the price at which an 18-bedroom boarding house was offered for sale in Fremantle, WA in January 2001 (Fremantle Herald, 27th Jan, p.18). Suppose the new proprietor has a taxable income of \$50,001, and a marginal tax rate of 47% under the 'old' tax system. In table 1 the gross rental yield, financing costs and capital gains take on representative values, and transaction costs are ignored. If the proprietor can borrow or save at the same prevailing interest rate (7.8%), capital (financing) costs are the same regardless of whether the purchase is loan or equity financed³. Suppose that the purchase is 100% debt financed. It is assumed the new proprietor will sell the boarding house after 1 year. These simplifying assumptions can be relaxed without altering the conclusions⁴. Given operating costs of \$23,615 the proprietor has a pre-tax deficit on net rental income of \$32,015. This deficit can be deducted from other sources of income at the proprietor's 47% marginal rate of tax, which yields a much smaller after-tax deficit. This smaller after-tax deficit arises because the proprietor gains a tax saving from sheltering other sources of income. With capital gains of \$19,600 there is a capital gains tax bill of \$2,632 under the 'old' tax system, which represents an effective capital gains tax rate of only 13.4%⁵. The high tax bracket proprietor is therefore acquiring an asset where part of the return (the capital gain component) is lightly taxed. This is a tax conversion benefit⁶. A zero after-tax economic return is the overall outcome. The rental income of \$35,280 (see table 1) is then just sufficient to cover all economic costs including the proprietor's cost of capital. It can be termed the reservation rent.⁷

Under the new tax system cuts in marginal tax rates accompany the introduction of the GST. Table 1 ignores the GST impact on operating costs, and concentrates on the 'tax rate effect'. With an income of \$50,001 our proprietor will experience a cut in her marginal tax rate to 42%. The tax shelter saving from the pre-tax deficit on net rental income is now smaller, and the post-tax deficit correspondingly larger at \$18,569. *Ceteris paribus* an after-tax economic loss of \$1,321 now eventuates despite a cut in the marginal tax rate. Regardless of any increase in operating costs due to the GST, the proprietor needs a 3.7% or \$1,321 increase in gross rental income to reverse the financial deterioration.

But the new tax system also features another important change that impacts on our proprietor. The 1999 Review of Business Taxation (Ralph Report) advocated changes to the taxation of capital gains that were subsequently introduced in

³ In such circumstances the interest payments on debt will be the same as the interest sacrificed if the proprietor used her own savings to finance the acquisition.

⁴ See appendix A where a model is developed that represents a general statement of the financial arithmetic in table 1.

⁵ The effective capital gains tax rate is measured here as capital gains tax liabilities (\$2,632) divided by capital gain (\$19,600). If the proprietor operates the business for more than one year, the appropriate measure of the effective rate is more complex (see Wood and Yong, 2001).

⁶ Investing in an appreciating asset rather than a financial asset that provides all its return in the form of ordinary taxable income such as interest, allows the investor to convert a heavily taxed income stream into one that is lightly taxed.

⁷ So called because it is the minimum rent at which the proprietor is able to match the after-tax return on her next best alternative investment.

September 1999. Under the 'old' tax system the cost base used to calculate taxable gains was indexed to the rate of inflation as measured by the percentage increase in the Consumer Price Index⁸. Tax liabilities were obtained by multiplying the proprietor's marginal tax rate by the taxable capital gain.⁹ The new system abandons indexation. Instead only 50% of capital gains are taxed at the proprietor's marginal tax rate. It can be shown that unless rates of property price appreciation are more than double the rate of inflation, proprietors will face a higher capital gains tax liability in the 'new' tax system¹⁰.

In table 1 the rate of inflation is set at 2.5%, which is more or less the current rate, and the rate of property price appreciation is assumed to be 3.5%, an annual real gain of 1% per annum. This is a real rate of increase typical of simulation studies (Berry, 2000). The effects of capital gains tax reform are illustrated in table 2. Capital gains tax liabilities increase from \$2352 (see column 3, table 1) to \$4116, so that effective capital gains tax rates rise from 12.0% to 21.0%. The after-tax economic loss widens alarmingly to \$3085 because of this increase in capital gains tax liabilities.

Unless rental income is increased by 8.7% or \$3085, the proprietor is better off selling up and investing the net proceeds in a savings deposit earning a pre-tax interest return of 7.8%, and a post-tax return of 4.5%. If the proprietor is able to pass on increases in after-tax economic costs, weekly rents from each of the 18 bedrooms must increase from \$37.69 per week, under the old tax system, to \$40.99 per week under the new tax system. The equivalent fortnightly rent of \$81.98 lies below the thresholds at which families with children are entitled to rent assistance¹¹. In this particular case, rent assistance would not protect low-income families.

Recall the ACCC estimate of the typical impact of the GST, which is described as slight, and put at 2.1% in an illustrative example of effects on caravan park site fees. Our analysis suggests that the official view presents a partial view of the impacts attributable to the New Tax System, and may significantly underestimate impacts on rents, site fees and/or returns to proprietors¹². This is because it ignores the consequences of cuts in marginal income tax rates and changes to capital gains tax arrangements that adversely affect proprietor returns. Our principal research question is whether these other features of the new tax system have significant impacts under alternative assumptions about key parameters such as proprietor income, property price appreciation rates, interest rates and the length of time the proprietor expects to run the business before realising the asset (the holding period).

⁸ Taxable capital gains are obtained by subtracting a cost base from the sales proceeds. In the 'old' tax system the cost base was the acquisition cost indexed to the rate of inflation.

⁹ Averaging provisions have been ignored (see Wood 2000, for an explanation).

¹⁰ See Wood (2000). Transitional arrangements have been ignored. The new tax system also features another change that is relevant to investors financing the construction of new residential property. In October 1997 changes to the building write-off allowance were introduced. For proprietors financing the construction of (say) a boarding house, 2.5% of construction costs can be deducted from annual taxable income. Under the new arrangements, the deduction continues, but when the boarding house is sold, write-off allowances are deducted from the cost base used to calculate taxable capital gains. This change is analysed in our microsimulation model.

¹¹ From 20 March to 19 September 2001 the threshold for couples with 1-2 children is \$151.90, and for singles with 1-2 children it is \$102.62.

¹² Note that the proprietor in our example experiences losses as a result of the new tax system. If the market cannot sustain a rent increase the short run impacts could be in the form of a loss of such accommodation. In fact the boarding house used in this example remains unsold as of June 2001, 6 months after it was first offered for sale.

Table 1: Proprietor After-Tax Economic Returns And Marginal Tax Rates (MTR) ¹		
	Marginal Tax Rate 47%	Marginal Tax Rate 42%
1. Property Value \$	560000	560000
2. Gross Rental Income	35280	35280
3. Finance Costs \$	43680	43680
4. Operating Costs \$	23615	23615
5. Net Rent \$ = (2) - (3) - (4)	(32015)	(32015)
6. After-tax Net Rent \$ = (1-MTR)*(5)	(16968)	(18569)
7. Capital Gain \$	19600	19600
8. After-tax Capital Gain \$ = (7)- MTR*(q - p)*(1)	16968	17248
9. After-tax Economic Return = (6) + (8)	0	(1321)
<p>1. The gross rental yield has been set equal to 6.3% the mean gross yield in the private rental sector according to the ABS (1993) Rental Investors Survey. Financing costs assume an interest rate for saving and borrowing of 7.8%, the interest rate for housing loans in July 2000. The parameter q is the rate of property price appreciation and has been set equal to 3.5%. The general rate of inflation p is assumed to be 2.5%. Figures in parenthesis represent negative numbers.</p>		

Table 2: Proprietor After-Tax Economic Returns and Capital Gains Tax Reform ¹		
	Before Capital Gains Tax Reform	After Capital Gains Tax Reform
1. Property Value \$	560000	560000
2. Gross Rental Income	35280	35280
3. Finance Costs \$	43680	43680
4. Operating Costs \$	23615	23615
5. Net Rent \$ = (2) - (3) - (4)	(32015)	(32015)
6. After-tax Net Rent \$ = (1-MTR)*(5)	(18569)	(18569)
7. Capital Gain \$	19600	19600
8. After-tax Capital Gain ² \$	17248	15484
9. After-tax Economic Return = (6) + (8)	(1321)	(3085)
<p>1. See Note (1) table 1. 2. Capital gains tax liabilities before reform are calculated from $MTR*(q - p)*(1)$ where q is the rate of house price appreciation, p is the rate of inflation. Capital gains tax liabilities after reform are calculated from $0.5 * MTR*(7)$. The marginal tax rate before and after capital gains tax reform is 42%.</p>		

The findings are potentially significant from a policy perspective. Boarding houses and caravan parks are a significant source of affordable housing for low-income groups. Increases in the rents and site fees charged by proprietors will then have important ramifications for the supply of low-income housing. It could also have implications for the incidence of homelessness. Evidence from the USA indicates that the levels of rents in low-income housing are a significant determinant of the incidence of homelessness across US metropolitan cities (Honig and Filer, 1993).

2. POLICY CONTEXT AND LITERATURE REVIEW

A New Tax System (NTS) is progressively being introduced in Australia¹³. In 1999 the Review of Business Taxation recommended a range of reforms including changes to capital gains tax arrangements, that were introduced in September 1999. The centrepiece of the NTS is the GST, based on the 'value added tax' model, and its introduction in July 2000 was balanced by abolition of Wholesale Sales Tax and cuts to marginal income tax rates.

The GST is a 'broad-based tax of 10 percent on most supplies of goods and services consumed in Australia' (Australian Taxation Office (ATO) 2000b:9). The consumer will pay the cost of the tax, although the liability for the payment of the GST to the ATO lies with the supplier of the goods and services (ATO 2000b:9). Thus, the supplier is responsible for transferring the cost of the tax on the good supplied onto the consumer. The cost of the tax will be determined largely by the taxation category under which the particular good lies, of which there are three under the NTS.

Taxable Supplies

A stated intention of the NTS is that sales from one business to another will be effectively tax free (Costello 1998:80). This is achieved through the *input tax credit* system. GST is payable by businesses and registered organisations on most goods and services that they sell or supply. Such supplies are referred to as *taxable supplies*. Goods in this category include the GST in their cost (it may not be shown separately) and this is paid to the supplying firm in the act of purchase. The supplying firm is then responsible for the payment of this tax to the ATO. Purchases made by a firm will then include GST, and this GST can be claimed as an input tax credit from the ATO, provided that these purchases are *creditable acquisitions*. A purchase by a firm is regarded as being a creditable acquisition only if purchased for a *creditable purpose*. It cannot be claimed as an input tax credit if it is for making input taxed supplies (see below) or for a private purpose (ATO (1) 2000b:12). The difference between the GST payable on a firm's sales, and the GST included in their purchases (input tax credits) is the amount owed to or refundable from the ATO (ATO 2000b:10).

GST Free Supplies (Zero-rated)

Goods and services that are regarded as GST free will include no GST in their sale price, but input tax credits can still be claimed for creditable acquisitions. GST free supplies include basic foods, sewerage, exports, water and drainage, non-commercial charitable activities, childcare and most education and health services. (ATO 2000b:14).

¹³ The reform of business taxation is not yet complete.

Input Taxed Supplies

Similarly, there is to be no GST charged on input taxed supplies. However, no input tax credit can be claimed for purchases of taxable supplies. It is under this category that rented residential premises fall, along with most financial supplies. (ATO 2000b:14). Residential premises are categorised in this manner so as to ensure comparable changes in costs with owner-occupiers (Costello 1998:96)¹⁴.

How the GST Applies to Rental Housing

The GST is applied differently in different rental housing situations. There is a distinction between private residential property and commercial residential property

Private Residential Property

A private residential property investor is one who typically does not derive most of their income from residential housing investments, and does not manage the property as part of a trading business. As private residential rents are an input taxed supply, GST is not to be included in these rents. GST that is paid by landlords on any goods and services used in association with the rental property cannot be claimed as input tax credits. This applies to all repairs and maintenance, replacement of appliances, and management, advertising, legal and accountancy services (ACCC 2000a:1). Furthermore, landlords are not able to claim an input tax credit for GST paid on the construction of property for residential rental (ATO 2000a:27). This puts private rental housing landlords on the same footing as their counterparts in the UK, where the broad based value added tax (VAT) applies. In the UK VAT is not applied to residential rents, but landlords are not able to claim a credit for VAT charged on taxable supplies. Though tax treatment in relation to the broad based consumption tax is the same in the two countries, the income tax treatment of rents and capital gains differ (see Wood and Kemp, 2001).

Commercial Residential Property

The renting of commercial residential property is a somewhat more complex matter. A variety of premises, including boarding houses, some boarding schools, caravan parks, mobile home parks, camping grounds, hotels, motels, and hostels may be described as commercial residential properties (ACCC 2000b:2). Commercial residential properties are described as premises used 'typically for short-term accommodation' (ATO 2000a:28). But such premises can provide either short-term (less than 28 days) or long-term (28 days or more) accommodation, or both.

A commercial residential property is defined as providing predominantly short-term accommodation if less than 70 per cent of the property's occupants stay for 28 days or more. Short-term accommodation is treated as a taxable supply and the business must levy the full GST rate of ten percent. When a resident stays for a period longer than 27 days, the business will include the full GST rate of 10% for the first 27 days, and then must choose between either input tax status or a concessional rate of GST. If the concessional rate is chosen, GST will be calculated from the 28th day onwards at the 10% rate on half the GST-inclusive price charged over the first 27 days. To

¹⁴ Owner-purchasers pay no GST on loan repayments, and outright owners have no GST liability on the *imputed rental value* of the housing services they consume. But they must pay GST on supplies, such as repairs and improvements, and a tax credit cannot be claimed on these taxable purchases. This puts owner occupiers on the same footing as landlords of private rental housing.

illustrate, suppose the GST – inclusive price over the first 27 days is \$220 per night. The base or GST –exclusive rate is then \$200 per night. “From day 28 onwards, GST will be calculated on half the GST-inclusive price. Half \$220 is \$110. 10% of \$110 is \$11, which is then added to the base rate.” (Australian Competition and Consumer Commission, 2000b, p3). From day 28 onwards a charge of \$211 will apply.

In the case of a property where the occupants are predominantly long-term residents, long-term accommodation can be treated in two different ways¹⁵. The supplier may choose to treat the supply of long-term accommodation as an input taxed supply. As in the case of private residential housing, the provider will not be able to claim input tax credits for the GST they would have paid in providing that accommodation.

Alternatively, the provider of the long-term accommodation may charge a concessional rate of GST for the entirety of the long-term resident’s stay. This concessional rate is the 10% rate applied to half of the normal GST inclusive price (ACCC 2000b:2). The provider of this accommodation can then claim input tax credits on the creditable purchases made in providing this accommodation.

For example, suppose the base rate for a caravan park is a site fee of \$100 per week. This base rate incorporates any savings from the New Tax System, and is \$5 lower than the weekly site fee (\$105) prior to the introduction of GST. The GST-inclusive charge is \$110 per week for short-term accommodation providers; the GST for long-term accommodation providers opting for the concessional rate is worked out on \$55, and will be \$5.50. This is then added to the base rate of \$100 to obtain a site fee of \$105.50 per week (Australian Competition and Consumer Commission, 2000b, p2). There is then a net increase of \$0.50, or 0.5%.

Public and Community Housing

The GST is intended to be an activity not entity based tax. Thus public sector organizations must comply with the same requirements as private organizations. Public rental housing is typically long-term accommodation and is therefore categorized as an input tax supply as is private rental housing.

The difference between public and private rental housing providers is that the former cannot pass-on increases in operating costs into rents. Rents are set at between 20 and 25 percent of tenants’ income depending upon state or territory. State governments have quarantined pension and benefit increases introduced as part of the compensation package for low-income households. Critics have noted that this implies an outflow of resources from the public housing sector that curbs the ability of agencies to maintain and supply public housing. However, the Commonwealth government increased funding under the Commonwealth and State Housing Agreement by \$269 million over three years to offset the increase in operating costs (Shelter WA 1999:1).

Community housing provided by housing associations not endorsed as non-profit organizations and who supply long-term accommodation will be input taxed. In this case, the issues are the same as those raised in connection with public housing.

If endorsed as a charitable, religious or non-profit organization the GST category depends upon whether accommodation is charged at less than 75 percent of the market value or cost of supply. If these conditions are met, community housing

¹⁵ A commercial residential property is defined as providing predominantly long-term accommodation if at least seventy percent of the property’s guests stay for 28 days or more.

agencies accommodation supplies will be GST-free. Since these organizations were exempt from WST, their position is unchanged. If accommodation is supplied at 75 percent or more of market value or cost of supply, accommodation supplies will be input taxed. The abolition of WST provides no benefits to endorsed community-housing organizations, thus the impact of input tax status on operating costs will be greater than that on private rental landlords.¹⁶

Table 3 below offers a summary of the GST provisions that are applied to the different providers of rental housing.

Estimates of the Impact of the GST on Residential Rents

The Government has estimated that housing rents generally would increase by approximately 2.3 percent (Costello 1998:159,172). However, this estimate makes no distinction between private residential rental properties and commercial residential properties with predominantly long-term residents.

The ACCC did, however, make a distinction. With an example of costs commonly faced by a landlord in the supply of private residential property and the changes induced as a result of the GST, there is an increase in the rent of 2.2 percent (ACCC 2000a: 2).

An example of the change in costs faced by a long-term resident in a commercial residential property (a caravan park) with predominantly long-term residents is also provided (ACCC 2000b:2-3). The owner of the site is faced with a 3.2 percent reduction in the pre-tax site fee, as a result of the accompanying changes in the NTS. With the incorporation of the GST, there is an overall increase in rent of approximately 2.1 percent. In another example involving long-term lodgings it is estimated that removal of WST and use of input tax credits cause a reduction in costs of 4.8 percent. When the concessional rate of GST is applied to this situation, there is a net increase of only 0.3 percent (ACCC 2000b:3).

The example of a long-term resident staying in lodgings predominantly utilised by short-term lodgers provides a slightly different outcome. The lodger is confronted by the full GST for the first 27 days, and a net increase of five percent. After this point, the lodger faces the concessional rate which translates to a net increase of only 0.9 percent (ACCC 2000b:3).

Critics have argued (see submissions to Senate Community Affairs References Committee, 1999) that official estimates are erroneous. In the public housing context, critics have pointed out that, although public housing agencies are input taxed like private landlords, they will be unable to pass on all of the increase in operating costs into rents. This is because most tenants have low incomes, and most state government rent setting policies limit rents to a percentage of household income. Unable to pass on increase in operating costs, the consequence is a leakage of

¹⁶ There are also potential impacts from the GST tax treatment of donations, grants and sponsorships accepted by endorsed organizations (ATO, 2000c).

Provider		GST Tax Status	GST Tax Rate	Eligible for Input Tax Credit	Benefit From WST Removal
Private Landlord		Input Taxed Supply	Zero	Not Eligible	Yes
Commercial Residential Property ¹	Short-Term Accommodation Provider; opts for concessional rate	Taxable Supply if <28 days	10% for first 27 days; concessional rate thereafter	Eligible	Yes
	Short-Term Accommodation Provider; opts for input tax status	Taxable Supply if <28 days	10% for first 27 days; Input tax status thereafter	Eligible	Yes
Public Housing		Input Taxed Supply	Zero	Not Eligible	No
Community Housing	Endorsed Charitable Status	GST Free (Zero Rated) ²	Zero	Eligible	No
	Not Endorsed	Input Taxed Supply	Zero	Not Eligible	Yes

Notes:

1. Includes Boarding Houses and Caravan Parks.

2. Conditional on rents charged at less than 75% of market rents or cost of supply. If not, then input taxed.

resources out of public housing that curbs the ability of authorities to maintain and supply public housing.

Community Housing Organizations (CHO) are said to be discriminated against, as their charitable status meant that previously they were exempt from Wholesale Sales Tax (WST). The abolition of WST is of no benefit to CHO. If they are input taxed, operating costs will rise relative to those of other input taxed supplies of long-term accommodation (NSW Federation of Housing Associations, 2001).

Changes to Marginal Rates of Tax and Tax Brackets

To cushion the impact of GST on household living standards, the government accompanied the introduction of the GST with reductions in the income tax burden. The marginal rates and tax bands under old and new tax systems are listed in table 4.

It is evident from table 4 that cuts in marginal rates of tax are greatest in the taxable income range \$38001 - \$50000, where a reduction of 13 percentage points has been introduced. On the other hand, *marginal* rates of tax are unchanged for the lowest taxable income range under the old tax system, and unchanged for the highest taxable income range under the new tax system.

Old Tax System			New Tax System		
Taxable Bracket \$	Income	Marginal Tax Rate %	Taxable Bracket \$	Income	Marginal Tax Rate %
0 – 5400		0	0 – 6000		0
5401 – 20700		20	6001 – 20000		17
20701 – 38000		34	20001 – 50000		30
38001 – 50000		43			
50001+		47	50001 – 60000		42
			60001+		47

Reforms to Capital Gains Tax Provisions

The Review of Business Taxation (Ralph Report) advocated some important changes to capital gains tax arrangements. The Commonwealth Government implemented these changes in September 1999. Prior to the Review taxable capital gains had been calculated by subtracting the indexed acquisition cost from the sale proceeds. The acquisition cost was indexed to the consumer price index. Instead of all capital gains being taxable, the effect of the indexing is to remove the purely inflationary component leaving only real gains to be taxed at the investor's marginal rate¹⁷. Under the new tax system indexing is no longer applied to the acquisition cost. Capital gains tax liabilities are calculated by adding 50% of all capital gains to other sources of income, and treating this amount as the 'top slice' of income that is taxed according to the new system income tax schedule as set out in table 4. A 'rough rule of thumb' is that capital gains tax liabilities will be higher under the new tax system if the investor holds an asset that is appreciating at a rate less than double the rate of inflation.

The modeling of impacts has concentrated on providers' operating costs, on the implicit assumption that rents are determined by operating costs. However, long-term survival of private proprietors is conditional on rents covering both operating costs and capital costs, as was shown in the introduction.¹⁸ The New Tax System introduced in the period 1999-2000 covers a range of changes in addition to the GST. These changes will impact on capital costs. This aspect of the issue has been neglected, yet these other changes can have a potentially more profound impact on the financial position of private landlords and proprietors. The impacts on proprietors of boarding houses and caravan parks are of particular importance because these proprietors are an important source of low income private rental housing (Foley, 1997). Recent research by Yates and Wulff (2000) has shown that low-income private rental housing is in decline in Australia. Wood and Watson (2001, forthcoming) offer evidence to suggest that tax factors are one reason for this decline. Wood and Watson's (op cit) research focuses on the individual landlords of residential housing. This project extends that research to the proprietors of caravan parks and boarding houses.

Our research question is concerned with measurement of the effects on rents of these changes, and whether their inclusion makes any significant difference to estimates of the overall impacts of the New Tax System. The analysis is particularly relevant to landlords of private rental housing and proprietors of boarding houses and caravan parks. Public and community housing bodies are exempt from ordinary income tax on all their income. Thus our empirical work focuses on boarding house and caravan park proprietors.

¹⁷ Averaging provisions applied to prevent gains pushing investors into higher tax brackets. These were also abolished by the reforms (see Wood, 2000).

¹⁸ In the case of public and community housing providers, rents and subsidies (grants) must cover the sum of operating and capital costs.

3. METHOD

The critical step in the empirical analysis is measurement of reservation rents. Recall from the introduction that reservation rents are the gross rental income that is just sufficient to cover all after tax economic costs, once account has been taken of capital gains.¹⁹ In appendix A we offer a general mathematical derivation of reservation rents under the old and new tax systems. These mathematical expressions are calibrated using estimates of as many components of economic costs as it is practical to measure. Microsimulations are then conducted using alternative values of the key parameters determining proprietors' economic costs. This approach is commonly invoked to measure the impacts of fiscal measures in US and Canadian housing markets. The studies by Brueggeman, Fisher and Stern (1982), De Leeuw and Ozanne (1981), Dotzour and Levi (1995), Fisher and Lentz (1986), Gordon, et al. (1987), Follain, Hendershott and Ling (1987), Hendershott and Ling (1984), Hendershott, Follain and Ling (1987), Ling (1992), and MacNevin (1997a, 1997b) are typical of the approach²⁰. This project has a methodological strength relative to the North American studies. The latter base measurement on a 'typical' hypothetical residential housing development. Our measurement exercise is based on actual boarding houses and caravan parks that have been offered for sale in the months during which the new tax system was implemented. In addition the Office of Housing Policy, Ministry of Housing, WA made available records of boarding houses that they manage.²¹

Data Collection and Measurement of Operating and Transaction Cost Components of Economic Cost

Data regarding boarding houses and caravan parks was collated from a variety of sources. The principal source was back issues of the real estate sections of both the Melbourne Age and the West Australian newspapers. These were examined for the period between March 2000 and March 2001 with a view to identifying boarding houses (lodging rooms and hostels) and caravan parks offered for sale in the time immediately prior to and following the introduction of the GST reform package. From the advertisements we sought information with respect to; the offer price; number of bedrooms; number of powered sites (caravan parks); number of on-site vans and other forms of accommodation (caravan parks); the state in which the property was offered for sale; the region (urban or non-urban); date presented for sale and the facilities associated with the property.

Identification of boarding houses from advertisements posed particular difficulties. It was often difficult to distinguish between what might have been a boarding house from what might have been some other form of accommodation. We erred on the side of caution, and only sampled adverts that explicitly described the property as a boarding house. To overcome sample size problems, the Ministry of Housing (WA) was approached and they supplied us with details of boarding houses they managed. Internet sources, particularly the Caravan Park Brokers of Western Australia (<http://www.caravanparkbrokers.com.au>), were used to supplement the sample of caravan parks.

¹⁹ When expressed as a proportion of capital value it is referred to as the reservation rental rate.

²⁰ A review of these studies is contained in the appendix to the position paper no ? for this project.

²¹ We are grateful to Ian Hafekost for his assistance. Our microsimulations for these boarding houses pose a hypothetical question. If a private proprietor owned these boarding houses, what rental income would she require to cover all after-tax costs?

The resulting database comprised 16 boarding houses that met the informational requirements, all located within Western Australia. A database of 66 caravan parks that were offered for sale was compiled. This consisted of caravan parks from Victoria (38), Western Australia (24), Queensland (3) and the Northern Territory (1).

It is the market value as measured by the offer price (or 1999 capital valuation in the case of Ministry data), which is the critical piece of information. It allows us to compute the rental income that a proprietor requires from her property if she is to cover all after-tax economic costs, including the cost of capital, maintenance, property taxes, land taxes, transaction costs and management fees (the reservation rent). The methods employed mirror those used by the author in research work conducted using the ABS Rental Investors Survey (See Wood and Watson, 2001, forthcoming).

In this section we concentrate on measurement of operating and transaction cost parameters. Stamp duties and land taxes that a proprietor would incur have been computed using the duty schedules available in Commonwealth Grant Commission annual reports. Measurement of land taxes requires estimates of land values. In the case of boarding houses typical building structure to value ratios obtained from the Commonwealth Grant Commission annual reports are used to infer taxable land values. Land tax schedules are then applied to compute land tax liabilities. In the case of caravan parks a different procedure was deemed necessary. The number of vans or lodges as a ratio of powered sites has been multiplied by offer price to impute taxable land value. Land tax schedules are once again referred to in order to measure land tax liabilities.

Brokerage fees are estimated using the regulated rates that prevailed just before de-regulation in the early 1990s (see Wood, 1996 for these schedules). A more competitive environment in the real estate industry following de-regulation should have resulted in fee reductions. We reduce fee charges to two-thirds of their regulatory levels to take the effects of de-regulation into account. Research conducted into private rental housing suggests that property taxes (rates) and annual equivalent maintenance outlays²² vary little as a proportion of capital value (Wood and Watson, 1999, table 1). We have calculated the mean values of these parameters from the ABS Rental Investors Survey and used these in our microsimulations.

Management costs are problematic in the absence of survey information. We have calculated the fees that would be charged by real estate agents if the management and letting of boarding houses were contracted out to agents, and used this as a proxy for management costs. The fee schedules used for property management and letting of private rental housing have been used. The procedure adopted in Wood and Watson (1999) has been followed. Under the new tax system relevant operating cost and transaction cost parameters have been increased by percentage amounts that equal official government estimates of the net effect of GST (ACCC, GST Talk 4, April 2000). These are listed below:

Type of cost	New Tax System Effect
Agent's management fees	+8.7%
Letting Fees	+8.7%
Brokerage fees	+8.7%
Maintenance	+9.0%

²² Maintenance outlays are lumpy. If we amortise outlays over the ownership period, they are referred to as annual equivalent. It is the amount as a proportion of capital value whose present value is equal to the present value of actual outlays.

Property Taxes (Rates)	GST free
Stamp Duty	GST free
Land Taxes	GST free

The emphasis in this project is not on whether the above estimates are accurate. Our contribution is to point out that other features of the new tax system are relevant and deserve attention.

The Microsimulation Approach

There remain some key parameters that are particularly relevant to measurement of after-tax capital costs and capital gains tax liabilities. These are parameters where it is not possible to measure a property specific value, either because we need to know the identity of the proprietor (eg marginal tax rate and holding period), or because the same value applies to all properties and proprietors, but choosing an accurate value for the parameter is problematic (eg interest rates and inflation rates). A sensible approach to these difficulties is to choose alternative values for these parameters and examine the sensitivity of results to alternative values. This is the essence of the microsimulation approach.

The reservation rental rate is measured for holding periods ranging from 10 years to 30 years, and in all income tax brackets where there is a positive marginal tax rate under the old tax system. We know little about the socio-economic and demographic background of boarding house and caravan park proprietors, so it is impossible to make any firm judgements about the most relevant tax bracket for analysis. Jope (2000) reports the results of interviews with 13 boarding house proprietors in the city of Yarra, Victoria, but no income data was elicited. However, she does report evidence on holding periods, claiming that the boarding houses had been in the proprietor's family ownership for an average of 40 years. We do not extend our microsimulations beyond 30 years, because they are not particularly sensitive to extended periods longer than 30 years²³.

The general approach to interest rates and inflation rates is to take the levels prevailing at the time of the reform as baseline values. Alternative 'favourable' values are also experimented with. For the baseline values we use an interest rate of 7.8%, which was the standard variable rate on housing loans originated by large bank housing lenders in July 2000 (ABS, Australian Economic Indicators, Cat. No. 1350.0, April 2001). An annual inflation rate of 2.5% has been applied to index acquisition costs for the purposes of capital gains tax liabilities. A low inflation rate environment has persisted for some time now, and it seems reasonable to assume that this will continue for the foreseeable future. Annual rates of property price appreciation have been set at 3.5%. This implies a real rate of appreciation of 1 per cent per annum, a figure also employed in other Australian studies (Berry, 2000). The real rate of appreciation as measured from the ABS weighted average house price indices for the 8 capital cities for the period June 1986 to June 2000, is 1.9% per annum.²⁴ While the ABS index controls for changes in composition, it is not a constant quality index. Improvements in building standards, and capital expenditures by owners of existing buildings, will ensure some quality improvement. The baseline values assume a typical 0.9 per cent per annum quality improvement.

²³ Note that Jope's small sample is further hampered by censoring. By not observing proprietor's who have exited the industry, the average holding period in her sample will be biased upwards.

²⁴ We are grateful to Richard Watson for this estimate. He estimated a semi log regression model to obtain this rate of appreciation.

This may exaggerate quality improvement. We therefore also conduct microsimulations under favourable values for this key parameter, as well as interest rates. A rate of property price appreciation of 4.0 per cent per annum is experimented with. This implies a typical rate of quality improvement of less than 0.5%. We combine this higher rate of property price appreciation with a lower interest rate of 7.3% in the favourable scenario. If the new tax system is expected by financial markets to increase the long run growth potential of the economy, interest rates could fall to levels below what they would otherwise have been if the old tax system had been retained.

For each property we have calculated three reservation rents (and reservation rental rates):

1. A reservation rent relevant to the proprietor's financial position under the 'old' tax system – that is before the changes to capital gains tax arrangements, the introduction of the GST, the abolition of wholesale sales tax and accompanying marginal tax rate cuts.
2. A reservation rent relevant to the proprietor's financial position after the introduction of the new tax system.
3. A reservation rent measure based on the rent required by proprietors after the introduction of capital gains tax reforms only.

The difference between the first and second reservation rent measures represents the change in *required* rental income attributable to introduction of the new tax system. The difference between the first and third reservation rent measures represents the change in *required* rental income attributable to introduction of the capital gains tax reforms only. The difference between the second and third reservation rent measures represents the change in *required* rental income attributable to introduction of the GST reform package, inclusive of cuts to marginal income tax rates and abolition of wholesale taxes. It is important to bear in mind that proprietors may find that the market will not accept the increases in rents necessary to meet increases in after-tax costs. If economic losses ensue, exit from the market should be anticipated in the long run. A completely specified economic model of the demand and supply sides of the market is needed in order to measure the extent to which proprietors are able to shift costs into market rents. Official government estimates are based on 100% shifting of costs into rents.

A number of assumptions have been made in computing these reservation rents. Firstly, our boarding houses and caravan parks are assumed to provide predominantly long-term accommodation, where 70 per cent of residents stay 28 days or more. This assumption is made because our research is concerned with low-income rental housing, not short-term visitor accommodation. Secondly, providers of predominantly long-term accommodation can elect for input tax status, or taxable supply status at a concessionary GST rate. It is assumed that proprietors choose input tax status as compliance appears easier, and from the researchers point of view, it is preferable because more accurate estimates of impacts can be calculated.²⁵ Thirdly, we ignore changes to business taxation other than reforms introduced with regard to capital gains tax²⁶. There is special tax treatment of capital gains for small businesses; these tax privileges have not been taken into account. These tax privileges will help offset the changes to capital gains tax introduced by the Review of Business Taxation, and our microsimulation estimates will be biased upwards for proprietors who are eligible to take advantage of these tax privileges.

²⁵ Under the concessionary GST rate we would need to make an assumption about the length of a residents stay. This is unnecessary when input tax status is assumed.

²⁶ Changes to the building write-off allowance have been analysed because they affect capital gains tax provisions in the new tax system.

Finally, we should point out that rental income deficits could push proprietors into lower tax brackets. This possibility is not allowed for in the empirical work that follows²⁷.

4. RESEARCH FINDINGS

In table 5 we report the sample mean percentage increase in rental income that is required by proprietors if they are to exactly cover all their post-tax economic costs. These sample means are unweighted averages calculated with respect to all income tax brackets and holding periods. In appendix B we report the detailed results from which these sample means are calculated.

The sample means are reported separately for boarding houses and caravan parks. Note also that two sets of microsimulations have been executed for boarding houses. One set of microsimulations is conducted 'as if' the boarding houses had been newly constructed, and the proprietor is entitled to a building write-off allowance of 2.5% of construction costs per annum. These microsimulations are important because the new tax system includes an important change to the treatment of these allowances. Under the changed rules write-off allowances claimed by proprietors are recaptured at sale, and taxed as capital gains.²⁸ Table 5 also reports measures of reservation rent increases for baseline values (the base scenario) and favourable values (the favourable scenario) for the interest rate and property price appreciation parameters. As explained in the method section, the favourable scenario assumes that interest rates are lower, and real rates of property price appreciation are higher.

The results for the base scenario show increases in reservation rents that are significantly above the official estimates offered by government. Indeed they are all above 10 per cent. There is little difference in percentage increases experienced by boarding houses and caravan parks. There is, however, a bigger percentage increase for newly constructed boarding houses, and this reflects the change to write-off allowances that are not relevant to established boarding houses. The favourable scenario yields lower percentage increases, as expected, but they are still well above official estimates. For caravan park sites and established boarding houses increases of between 5 and 6 per cent are projected.

²⁷ Consider table 1 where the entire rental income deficit is deducted from other sources at the same rate of 47% under the old tax system. This is because taxable income was assumed to be \$50001, implying that the deficit has reduced taxable income from \$82016 to \$50001. Had taxable income been \$45000, some of the deficit would be deductible from assessable income at 47%, and some at the lower rate of 43%.

²⁸ This change was in fact introduced in 1997, so it preceded the major reforms heralded as part of the New Tax System. However, the present government introduced them, and they are particularly relevant in the present context.

Table 5: Mean Percentage Increase In Annual Reservation Rents ¹		
	Base Scenario ²	Favourable Scenario ³
Boarding House – Existing	14.83	5.39
Boarding House – New	19.26	9.26
Caravan Park	14.84	5.59
<p>(1) This mean is calculated across all income tax brackets where the MTR is positive, and for a range of holding periods from 10 to 30 years.</p> <p>(2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.</p> <p>(3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.</p>		

There is a difficulty with interpreting these results, because normally we would consider the mean as a measure of central tendency. However, we do not know the distribution of proprietors over income tax brackets, and little is known about the typical periods over which businesses are run. The mean cannot necessarily be considered as ‘typical’ or representative or midway between two extremes. It turns out that our estimates vary over wide ranges when we consider proprietors with different incomes and holding periods. Consider table 6 where mean percentage increases are presented by income and holding period for established boarding houses (see appendix B for very similar findings with respect to caravan parks). If we fix the latter at say 10 years, we find that the sample mean increase ranges from 7.7 % for proprietors with incomes of \$15000, to 23.7% for proprietors with incomes of \$38001.²⁹ This variation arises because the size of marginal tax rate cuts varies according to income tax bracket. The biggest marginal tax rate cut is in the old tax system \$38001 – \$50000 bracket (see table 4). In the highest tax bracket (new tax system) marginal rates are unchanged. The middle-income proprietor thus suffers a relatively high increase in her after-tax cost of capital. Suppose we now fix income at \$60001. Mean percentage increases in reservation rents now vary from 17.2% for a 10-year holding period to 9.9% for a 30-year holding period. Reservation rent increases are lower the longer the holding period because capital gains taxes are paid on asset realisation, not as they accrue. If a proprietor delays realisation, payment of capital gains tax liabilities is postponed and their present value declines.³⁰ Furthermore, the tax liability is amortised over a longer period. Thus the capital gains tax reform component of the new tax system has a smaller impact on reservation rents the longer the holding period.

Under a favourable scenario the pattern of increases is the same, but the size of the increases is smaller as indicated in table 5. For proprietors of boarding houses and caravan parks in the 20% income tax bracket (old tax system), with holding periods of 15 years or more, the favourable scenario actually produces a *reduction* in reservation rents (see tables B5 and B10, appendix B)³¹. But in almost all the other permutations of holding period and income tax bracket, the projected increases in reservation rents are higher than the 2.3% government forecast, regardless of

²⁹ The income levels in table 6 have been chosen because they yield at least one income level from each of the tax brackets where marginal tax rates are positive.

³⁰ Delaying payment is equivalent to receiving an interest free loan from the tax authorities.

³¹ A fall in reservation rents is possible because interest rates are assumed to be lower under the new tax system, thus reducing pre-tax capital costs, and real rates of property price appreciation are higher, which curbs increases in capital gains tax liabilities under the new tax system.

Table 6. Mean Percentage Increase In Annual Reservation Rents By Holding Period And Income; Established Boarding Houses, Base Scenario ¹ . %					
Proprietor Income \$					
Holding Period	15000	20701	38001	50001	60001
10 Years	7.7	12.5	23.7	21.9	17.2
15 Years	7.3	11.6	23.1	20.1	14.6
20 Years	7.0	10.8	22.6	18.7	12.7
30 Years	6.7	9.9	22.0	16.7	9.9

Note (1). See notes below tables B1 to B5, Appendix B.

whether a favourable scenario is assumed (see table 6 and tables B1 to B10, Appendix B); and the overall average increase under a favourable scenario is 5.4% for established boarding houses and 5.6% for caravan parks. Though we cannot provide a definitive and precise estimate of the new tax system's impact on rents, the weight of evidence confirms the analysis in tables 1 and 2 above.

A different but equally important question is addressed in table 7. Given the increase in reservation rents projected under alternative holding period and income tax bracket permutations, can proprietors pass these on to residents/tenants? In private rental housing market rents are typically between 6% and 7% of capital values. If reservation rents are significantly higher as a percentage of capital values, proprietors will not be able to pass on increases in after-tax economic costs, and we can expect there exit from the market in the longer run.

Table 7 suggests that in the old tax system survival is contingent on a real rate of property price appreciation somewhat higher than the 1% assumed for the base scenario. Average after-tax economic costs for boarding houses could be covered at market rental rates of between 6% and 7% given a real rate of appreciation of 1.5% (see column 3, table 7). But under the new tax system average reservation rental rates are in all but one case (newly constructed boarding houses) higher than 7%, regardless of base or favourable scenarios. At these average rates proprietors will be uncompetitive with private rental housing³²; indeed at the base scenario parameter values proprietors seem to be uncompetitive under the old tax system.

These findings suggest that this sector of the rental housing market will decline, though once again we must stress the wide variation in outcomes around these average figures as depicted in table 8. In tables C1 to C3 and C13 to C14 Appendix C, it is evident that proprietors from the highest two tax brackets are competitive in the favourable scenario, particularly if they intend to own their business for 30 years or more. It should also be pointed out that significant spatial variation in outcomes can be anticipated. Real rates of property appreciation vary between state capitals. We observed earlier that the annual real rate of appreciation (June 1986-June 2000) was 1.9% as estimated from a weighted average 8 state capital house price index. The figures for the 8 state capitals are³³;

Darwin	Sydney	Brisbane	Perth	Melbourne	Canberra	Hobart	Adelaide
3.7	2.9	2.6	1.7	1.4	0.9	0.4	-0.7

³² Unless the new tax system raises market rental rates in private rental housing.

³³ Once again we are grateful to Richard Watson for these estimates.

	Old Tax System		New Tax System	
	Base Scenario ²	Favourable Scenario ³	Base Scenario ²	Favourable Scenario ³
Boarding House – Existing	7.5	6.8	8.6	7.2
Boarding House – New	7.0	6.3	8.3	6.9
Caravan Park	8.1	7.4	9.2	7.8

(1) This mean is calculated across all income tax brackets, and for a range of holding periods from 10 to 30 years.
(2) Base scenario values are an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
(3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.

	Proprietor Income \$									
	15000		20701		38001		50001		60001	
Holding Period	OTS	NTS	OTS	NTS	OTS	NTS	OTS	NTS	OTS	NTS
10 Years	9.1	9.8	8.2	9.3	7.5	9.3	7.1	8.7	7.1	8.4
15 Years	8.8	9.5	8.0	9.0	7.2	9.1	6.8	8.3	6.8	7.9
20 Years	8.7	9.4	7.8	8.7	7.1	8.7	6.7	8.0	6.7	7.6
30 Years	8.5	9.2	7.7	8.4	6.9	8.5	6.5	7.6	6.5	7.2

Note (1). See notes below tables C1 to C10, Appendix C.

The higher the rate of property price appreciation relative to the rate of inflation the lower are capital gains tax liabilities under the new tax system. At an assumed inflation rate of 2.5%, proprietors in Darwin, Sydney and Brisbane will benefit from reduced capital gains tax liabilities if their properties match the average rate of price appreciation in their state capitals. Proprietors in the other state capitals can expect increased capital gains tax liabilities if past rates of appreciation continue. The New Tax System will have an uneven spatial impact. The low-income housing markets in Hobart and Adelaide are likely to be particularly adversely affected.

In the present context we can decompose the changes introduced by the new tax system into two components. In the first there are the changes to capital gains tax arrangements. The major changes in this component are abolition of indexing, recapture of the building write-off allowance and taxation of one-half of all capital gains on realisation. The second component involves changes introduced as part of the GST package in July 2000. The major changes in this component are introduction of the GST itself, abolition of wholesale sales tax, cuts to marginal tax rates and changes to income tax brackets. Which of these two components has made the more significant contribution to increases in reservation rents? Table 9 presents the sample average contributions across holding period and income tax bracket permutations for which microsimulations have been undertaken (see Appendix D). Though reforms to capital gains tax arrangements have attracted little attention compared with the GST reform component, it rivals the latter in importance according to the figures in table 9. With respect to established boarding houses and

caravan parks the capital gains tax reforms account for 45% of the total increase in reservation rents. Due to inclusion of changes to the building write-off allowance, the capital gains tax component becomes marginally more important for newly constructed boarding houses. The capital gains tax reforms clearly deserve closer scrutiny than they have received.

Once again there is significant variation around these averages (see table 10, and Appendix D). This time there are some clearly discernible patterns to the variations around the average. Keeping the proprietor holding period fixed at any given level, the capital gains tax component becomes more important the higher the tax bracket of the proprietor. This is because relatively lightly taxed capital gains make a more important contribution to the after-tax return of high-income proprietors. The new tax system raises the effective tax rate on capital gains unless property price appreciation is more than double the rate of inflation. Thus reforms to capital gains tax have a particularly adverse impact on high-income proprietors investing in properties whose rate of appreciation is less than double the rate of inflation. Keeping proprietor income fixed it is evident from table 10 that the capital gains tax contribution becomes less important the longer the proprietor intends to own and operate her business. This is because capital gains tax is collected on realisation, not as the liabilities accrue. As explained on page 29 above, the impact of capital gains tax reforms is then smaller the longer the holding period.

Conclusion and Policy Implications.

In this final report we have argued that measurement of the new tax system's impacts on boarding house and caravan park proprietors should take into account consequences for both operating costs and capital costs. It should also recognise the important changes to capital gains tax arrangements that feature in the new tax system. Official government estimates of impacts are unlikely to be accurate because they have ignored the effects on proprietors' capital cost and capital gains tax liabilities.

We offer empirical evidence in the form of microsimulations conducted with respect to a sample of boarding houses and caravan parks offered for sale in the months immediately before and after the introduction of the GST. Considerable effort has been put into arriving at accurate measures of after-tax economic costs. These economic cost measures are comprehensive and include operating and transaction costs, as well as capital costs and capital gains tax liabilities, all defined on an after-tax basis. The rent that would exactly cover these after-tax economic costs is termed a reservation rent, and this is the critical measure employed in the analyses of impacts. We compare reservation rents under the old and new tax systems. The comparison is conducted under two scenarios. The first baseline scenario, assumes the continuation of interest rates and property price inflation rates at their pre-reform values. The second favourable scenario assumes that the new tax system raises the long run growth potential of the economy so that interest rates can fall below pre-reform levels. It also assumes a higher property price appreciation rate.

Table 9: Mean Contributions Of Capital Gains Tax And Goods And Services Tax To Change In Rent Under The New Tax System¹

	CGT contribution (%)	GST contribution (%)
Boarding House – Existing	44.5	55.5
Boarding House – New	50.4	49.6
Caravan Park	44.83	55.17

(1) This mean is calculated across the three highest income tax brackets where the MTR is positive, and for a range of holding periods from 10 to 30 years. Contributions sum to 100 percent as these two components are the only sources of change in Annual Required Rents in this research exercise.

Table 10. Mean Contributions Of Capital Gains Tax And Goods And Services Tax To Change In Rent By Holding Period And Income. Established Boarding Houses, Base Scenario¹ (%)

Holding Period	38001		50001		60001	
	CGT	GST	CGT	GST	CGT	GST
10 Years	40.6	59.4	55.3	44.7	70.6	29.4
15 Years	32.5	67.5	47.6	52.4	65.5	34.5
20 Years	26.3	73.7	41.0	59.0	60.3	39.7
30 Years	16.8	83.2	29.1	70.9	49.0	51.0

Note: (1) See table 9. GST represents good and services tax. CGT represents capital gains tax.

Analyses of impacts for alternative proprietor marginal tax rates are conducted. The length of time a proprietor is expected to run her business before disposing of the property is also allowed to vary in the microsimulations. Even under the favourable scenario sample average increases in reservation rents are between 5% and 6%, which is well in excess of the official government estimate that housing rents would typically increase by 2.3%. It should be pointed out that there is a wide variation in estimates around this average and it is impossible to offer a precise single measure of impacts. However, the weight of evidence does support the view that impacts are larger than government estimates. Only in a few particular circumstances do our microsimulations yield estimates of increases in reservation rents at or below those made by government agencies.

Our report also emphasises the spatial variation in impacts arising from the new tax system. The spatial variation is due to the capital gains tax reforms. The latter will, roughly speaking, increase the capital gains tax liabilities of proprietors owning properties whose rate of price appreciation is less than double the rate of inflation. In areas with sluggish property prices (Adelaide and Hobart, for example) the new capital gains tax system will hit proprietors with relatively large tax bills on sale of their properties. On the other hand, proprietors in areas with rapid property price appreciation rates (Sydney, for example) might even gain under the new capital gains tax system. This emphasis on the consequences of capital gains tax reforms is justified despite the lack of attention these reforms have attracted. Our empirical work suggests that these changes rival the GST reform package in terms of their impact on after-tax economic costs.

Finally, we have also examined the extent to which proprietors of boarding houses and caravan parks can pass on increases in after-tax economic costs to residents. The analysis assumes that proprietors are to some extent competing with other providers of long-term rental accommodation, and in particular private rental landlords. The market rents obtained by the latter are typically between 6% and 7%

of capital values. Our microsimulation estimates suggest that only proprietors from the highest income tax bracket (old tax system) could remain competitive and cover after-tax economic costs at these market rental rates.

This last finding is particularly important. It implies that proprietors from lower tax brackets will exit the market. Indeed our empirical work suggests that if the favourable scenario does not eventuate in the longer run, even proprietors from the highest tax bracket will struggle to pass on cost increases eventuating as a result of the new tax system. A prediction of future contraction in the supply of accommodation in this segment of the market will come as no great surprise, as this merely continues a trend that has been apparent for some considerable time with respect to boarding houses. However, this project offers firm evidence that this form of accommodation provider is uneconomic given current tax arrangements, and therefore hints at an appropriate policy response.

The supply of low-income rental housing has attracted increasing attention in recent years. There is growing concern that though the need for such housing is increasing its supply is contracting. It seems that the new tax system will accentuate these supply problems. There are measures that government can take to help retain the stock of low-income housing. One such measure that has been implemented in the USA is a low-income housing tax credit. This is a targeted tax credit programme introduced in the USA in 1987. In the USA a landlord of an existing rental building can claim a tax credit of 4% of the building structure's value in each year for ten years, provided the property is ten years or older. The tax credit entitles the landlord to a one-dollar reduction in tax liability for each dollar of tax credit. For example, suppose a landlord owns a \$100000 building that is more than 10 years old. He can claim a \$4000 tax credit each year for 10 years that will reduce his tax bill by \$4000, provided his taxable income is high enough to make use of the credit. Entitlement to the tax credit is also conditional on the building being occupied by low-income tenants who receive rental subsidies (Case, 1991; Smith, 2000).

In view of our findings such a programme has considerable appeal. Wood and Watson (2001, forthcoming) have conducted microsimulations for private rental investors, assuming that eligibility is conditional on charging weekly rents of less than \$100. They find that the tax credit successfully reduces the after-tax economic costs of those landlords of housing that is most vulnerable to an adverse change in market circumstances. Furthermore, the restriction on weekly rent targets assistance on low-income rental housing. The case for consideration of measures of this kind is compelling.

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APPENDIX A

The Model: Derivation of The Reservation Rent Expressions

We begin by deriving a benchmark reservation rent (user cost of capital) expression is derived assuming symmetric treatment of ordinary income and capital gains. This assumes that:

- There is no building write-off allowance.
- All capital gains are taxed as they accrue.
- Tax liabilities on capital gains are calculated by the ‘top slice’ method, ie. capital gains are added to ordinary income, and taxed at the marginal rate t_y .
- A transaction cost of s per dollar of acquisition cost is incurred, and can be deducted from taxable capital gains that accrue in the first year of ownership.
- A transaction cost of β per dollar of sale proceeds is incurred, and these can be deducted from taxable capital gains that accrue in the final year of the holding period.³⁴

The following variable and parameter definitions are employed:

m	=	mortgage, where amortization of outstanding debt is not required
$p(o)$	=	asset price of housing in year zero
q	=	housing capital
N	=	investor’s holding period
k	=	$\rho + \pi$
ρ	=	investor’s rate of time preference
π	=	constant rate of general inflation
t_y	=	effective marginal income tax rate
π_h	=	constant rate at which house prices and rents appreciate
δ	=	$\pi_h - k$
s	=	transaction costs on purchase as a fraction of asset price
β	=	transaction costs on sale as a fraction of asset price
ϕ	=	agency costs (management and letting fees) as a proportion of gross rent $[r(t)q]$
$r(t)$	=	$r(o)e^{\pi_h t}$ is the rental price of housing in year t
μ	=	maintenance as a proportion of asset price
t_r	=	property taxes as a proportion of asset price
l	=	the borrower’s interest rate
ω	=	$\psi\gamma_s$
ψ	=	the rate of building write-off as a fraction of construction costs
λ_s	=	the ratio of the value of the building structure to the asset price.

³⁴ We also assume that if transaction costs exceed real estate capital gains in the year of deduction, the investor is entitled to deduct the unused deduction from other sources of taxable income.

The present value function (V) is then

$$\begin{aligned}
V = & (m - p(o)q) + (p(N) - m) e^{-kN} \\
& - \int_0^N t_y \pi_h p(o) q e^{\delta t} dt - p(o) q (1 - t_y) \left(s + \beta e^{\delta N} \right) \\
& + \int_0^N (1 - t_y) \left[(1 - \phi) r(t) q - (\mu + t_r) p(t) q - im \right] e^{-kt} dt
\end{aligned} \tag{1}$$

The third term represents the present value of capital gains tax liabilities given a holding period of N years. The solution of this integral is

$$\frac{t_y \pi_h p(o) q (e^{\delta N} - 1)}{\delta} \tag{2}$$

The fifth term represents the present value of net rental income over the N year holding period.³⁵ The solution is

$$\begin{aligned}
& \frac{(1 - \phi)(1 - t_y) r(o) q}{\delta} [e^{\delta N} - 1] - \frac{(1 - t_y)(\mu + t_r) p(o) q}{\delta} [e^{\delta N} - 1] \\
& - \frac{(1 - t_y) im}{k} [1 - e^{-kN}]
\end{aligned} \tag{3}$$

where $\delta = \pi_h - (\rho + \pi)$ and $k = \rho + \pi$

Thus the present value function can be re-written as

$$\begin{aligned}
V = & (m - p(o)q) + (p(N)q - m) e^{-kN} - \frac{(1 - t_y) im}{k} [1 - e^{-kN}] \\
& + (1 - t_y) \left[\frac{(1 - \phi) r(o) q - (\mu + t_r) p(o) q}{\delta} \right] [e^{\delta N} - 1] \\
& - \frac{t_y \pi_h p(o) q}{\delta} (e^{\delta N} - 1) - p(o) q (1 - t_y) [s + \beta e^{\delta N}]
\end{aligned} \tag{4}$$

On factoring q and m and re-arranging we obtain

$$\begin{aligned}
V = & m \left[1 - \frac{(1 - t_y) i}{k} \right] [1 - e^{-kN}] - p(o) q (1 - t_y) [s + \beta e^{\delta N}] \\
& q \left[\frac{(1 - t_y) \{ (1 - \phi) r(o) - \alpha p(o) \} - t_y \pi_h p(o)}{\delta} + p(0) \right] [e^{\delta N} - 1]
\end{aligned} \tag{5}$$

³⁵ Land taxes have been ignored.

where $\alpha = (\mu + t_r)$. In equilibrium $V = 0$. Sufficient conditions for $V = 0$ are:

$$\left[\frac{(1-t_y)\{(1-\phi)r(o) - \alpha p(o)\} - t_y \pi_h p(o)}{\delta} + p(o) \right] [e^{\delta V} - 1] - p(o)(1-t_y)[s + \beta e^{\delta V}] = 0 \quad (6)$$

and

$$1 - \frac{(1-t_y)}{k} = 0 \quad (7)$$

Equation (6) can be re-written as

$$\frac{(e^{\delta V} - 1)(1-t_y)(1-\phi)r(o)}{\delta} = p(o) \left[\frac{(1-t_y)\alpha + t_y \pi_h}{\delta} - 1 \right] (e^{\delta V} - 1) + p(o)(1-t_y)[s + \beta e^{\delta V}] \quad (8)$$

Divide (8) through by $(e^{\delta V} - 1)(1-t_y)(1-\phi)p(o)$ and multiply through by δ to obtain

$$\frac{r(o)}{p(o)} = \frac{\alpha}{(1-\phi)} + \frac{t_y \pi_h}{(1-t_y)(1-\phi)} - \frac{\delta}{(1-t_y)(1-\phi)} + \frac{\delta(s + \beta e^{\delta V})}{(e^{\delta V} - 1)(1-\phi)} \quad (9)$$

Note from (7) that

$$k = (1-t_y)i \quad (10)$$

and therefore $\delta = \pi_h - (\rho + \pi) = \pi_h - (1-t_y)i$.

On substituting for δ in the third term on the right hand side of (9) yields

$$\frac{r(o)}{p(o)} = \frac{i}{(1-\phi)} + \frac{\mu + t_r}{(1-\phi)} - \frac{\pi_h}{(1-\phi)} + \frac{\delta}{\lambda} [TRANSCOST] \quad (11)$$

where $\lambda = (e^{\delta V} - 1)(1-\phi)$ and $TRANSCOST = s + \beta e^{\delta V}$. The left hand side of (11) can be interpreted as the investor's reservation rental rate. The right hand side is the user cost of housing capital. Note that under symmetric tax arrangements, the reservation rental rate is independent of the investor's marginal tax rate. In addition, the sole source of lock-in effects is transaction costs as capital gains tax liabilities are paid as they accrue.

The Reservation Rent: New Tax System

Under post-Review of Business Taxation rules investors financing established residences that are leased are taxed on one-half of all capital gains using the 'top slice' method. For investors financing the construction of new residential buildings for rent, a special building write-off allowance is permitted, but allowances used by investors are subtracted from the cost base used to compute CGT liabilities. As Wood (2000) shows, the present value of CGT liabilities is

$$\frac{1}{2} t_y q p(o) \left[(1 - \beta) e^{\pi_h N} - \left\{ (1 + s) - \int_0^N \omega dt \right\} \right] e^{-kN} \quad (12)$$

where $\omega = 0$ if the investor financed an established residential building for rent. Equation (1) can be adapted to represent this change in taxation arrangements; to do so replace the third term in equation (1) by equation (12), and set $t_y=0$ in the fourth term. The reservation rental rate is now defined by (see Wood, 2000)

$$\frac{r(o)}{p(o)} = \frac{i + \alpha}{(1 - \phi)} - \text{CAO} + \text{AMORT}_x (\text{CAPTAX} + \text{TRANSCOST} - \text{WRITEOFF}) \quad (13)$$

$$\text{where } \text{CAP} = \frac{\pi_h}{(1 - t_y)(1 - \phi)}, \text{AMORT} = \frac{\pi_h - (1 - t_y) i}{(1 - t_y)(e^{\delta N} - 1)(1 - \phi)},$$

$$\text{CAPTAX} = \frac{1}{2} t_y \left[(1 - \beta) e^{\pi_h N} - (1 + s) + \omega N \right] e^{-kN}$$

$$\text{TRANSCOST} = s + \beta e^{\delta N} \text{ and } \text{WRITEOFF} = \frac{t_y \omega (1 - e^{-kN})}{k}.$$

The operating cost and transaction cost parameters are defined inclusive of GST and the marginal tax rate parameter t_y is also at post-GST values. This is the expression used to calculate reservation rental rates in column 4, table 3.

The Reservation Rent: Old Tax System.

Prior to the fundamental reforms ushered in by the Review of Business Taxation (Ralph Report) the ATO required investors to add real capital gains to taxable income on realisation of real estate investments. These real capital gains were then taxed at the investor's marginal income tax rate. The cost base used to compute real capital gains was the acquisition cost indexed to movements in the consumer price index. An important feature was the failure to subtract building write-off deductions from the indexed cost base.

As Wood (2000) shows, the present value of CGT liabilities is

$$t_y q \left[(1 - \beta) p(T) - (1 + s) p(0) e^{\pi T} \right] e^{-kT}. \quad (14)$$

To represent the old tax system the third term in the present value function (equation 1) should be replaced by the expression in equation (5), and set $t_y=0$ in the fourth term. From the equilibrium conditions we now obtain the reservation rental rate and user cost expression (see Wood, 2000);

$$\frac{r(o)}{p(o)} = \frac{i + \alpha}{(1 - \phi)} - \text{CAP} + \text{AMORT} \times (\text{CAPTAX} + \text{TRANSCOST} - \text{WRITEOFF}) \quad (15)$$

$$\text{where } \text{CAPTAX} = t_y \left[(1 - \beta) e^{\pi_h T} - (1 + s) e^{\pi T} \right] e^{-kT}.$$

Other terms are as defined above. The operating cost and transaction cost parameters are defined exclusive of GST. This is the expression used to calculate reservation rental rates in column 3, table 3.

APPENDIX B

Average Increase in Reservation Rents by Proprietor Holding Period and Income for Boarding Houses and Caravan Parks

Table B1 - Average increase in reservation rents by proprietor holding period for new and established boarding houses: proprietor's annual income is \$60001.								
	Established Boarding House				Newly Constructed Boarding House			
	Base Scenario		Favourable Scenario		Base Scenario		Favourable Scenario	
Holding Period (years)	Dollar Change	Percentage Change	Dollar Change	Percentage Change	Dollar Change	Percentage Change	Dollar Change	Percentage Change
10	8179.93	17.19	2997.32	6.77	10034.53	23.81	4675.70	12.27
15	6687.44	14.62	1857.43	4.35	8210.53	20.15	3127.93	8.52
20	5677.16	12.70	1158.65	2.74	6926.69	17.28	2086.71	5.76
30	4291.13	9.87	295.62	0.61	5128.85	13.0	694.79	1.87
<p>(1) An annual income of \$60001 entails a pre-reform marginal income tax rate of 47 percent and post-reform marginal income tax rate of 47 percent.</p> <p>(2) Base scenario values are an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent. Favourable scenario values include a pre-reform interest rate of 7.8 percent and a post-reform interest rate of 7.3 percent, an inflation rate of 2.5 percent, and a rate of capital appreciation of 4.0 percent.</p> <p>(3) Results are based upon a sample of 16 boarding houses.</p>								

Table B2 - Average increase in reservation rents by proprietor holding period for new and established boarding houses: proprietor's annual income is \$50001.								
	Established Boarding House				Newly Constructed Boarding House			
	Base Scenario		Favourable Scenario		Base Scenario		Favourable Scenario	
Holding Period (years)	Dollar Change	Percentage Change	Dollar Change	Percentage Change	Dollar Change	Percentage Change	Dollar Change	Percentage Change
10	10401.91	21.93	4746.12	10.95	12748.06	30.32	7060.37	18.75
15	9161.82	20.09	3577.96	8.64	11159.22	27.45	5536.54	15.31
20	8330.65	18.69	2818.67	7.00	10036.53	25.10	4482.79	12.66
30	7214.23	16.66	1841.94	4.74	8471.06	21.52	3059.04	8.84
<p>(1) An annual income of \$50001, entails a pre-reform marginal income tax rate of 47 percent and post-reform marginal income tax rate of 42 percent.</p> <p>(2) Base scenario values are an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent. Favourable scenario values include a pre-reform interest rate of 7.8 percent and a post-reform interest rate of 7.3 percent, an inflation rate of 2.5 percent, and a rate of capital appreciation of 4.0 percent.</p> <p>(3) Results are based upon a sample of 16 boarding houses.</p>								

Table B3 - Average increase in reservation rents by proprietor holding period for new and established boarding houses: proprietor's annual income is \$38001.								
	Established Boarding House				Newly Constructed Boarding House			
	Base Scenario		Favourable Scenario		Base Scenario		Favourable Scenario	
Holding Period (years)	Dollar Change	Percentage Change	Dollar Change	Percentage Change	Dollar Change	Percentage Change	Dollar Change	Percentage Change
10	11848.46	23.68	6854.13	14.98	14415.10	31.71	9375.63	22.83
15	11126.33	23.07	6215.65	14.20	13381.11	30.40	8411.50	21.27
20	10670.00	22.61	5839.25	13.70	12661.76	29.23	7762.31	20.03
30	10117.82	22.02	5434.00	13.21	11697.57	27.46	6933.95	18.30
<p>(1) An annual income of \$38001, entails a pre-reform marginal income tax rate of 43 percent and post-reform marginal income tax rate of 30 percent.</p> <p>(2) Base scenario values are an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent. Favourable scenario values include a pre-reform interest rate of 7.8 percent and a post-reform interest rate of 7.3 percent, an inflation rate of 2.5 percent, and a rate of capital appreciation of 4.0 percent.</p> <p>(3) Results are based upon a sample of 16 boarding houses.</p>								

Table B4 - Average increase in reservation rents by proprietor holding period for new and established boarding houses: proprietor's annual income is \$20701.								
	Established Boarding House				Newly Constructed Boarding House			
	Base Scenario		Favourable Scenario		Base Scenario		Favourable Scenario	
Holding Period (years)	Dollar Change	Percentage Change	Dollar Change	Percentage Change	Dollar Change	Percentage Change	Dollar Change	Percentage Change
10	6911.61	12.53	1896.65	3.67	8207.11	15.81	3178.81	6.68
15	6159.02	11.55	1216.59	2.44	7244.16	14.38	2286.69	4.98
20	5670.49	10.84	796.61	1.62	6584.11	13.28	1695.59	3.77
30	5049.42	9.87	299.43	0.60	5708.66	11.71	948.27	2.15

(1) An annual income of \$20701, entails a pre-reform marginal income tax rate of 34 percent and post-reform marginal income tax rate of 30 percent.

(2) Base scenario values are an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent. Favourable scenario values include a pre-reform interest rate of 7.8 percent and a post-reform interest rate of 7.3 percent, an inflation rate of 2.5 percent, and a rate of capital appreciation of 4.0 percent.

(3) Results are based upon a sample of 16 boarding houses.

Table B5 - Average increase in reservation rents by proprietor holding period for new and established boarding houses: proprietor's annual income is \$15000.

Holding Period (years)	Established Boarding House				Newly Constructed Boarding House			
	Base Scenario		Favourable Scenario		Base Scenario		Favourable Scenario	
	Dollar Change	Percentage Change	Dollar Change	Percentage Change	Dollar Change	Percentage Change	Dollar Change	Percentage Change
10	4691.91	7.73	106.76	0.14	5310.73	8.99	720.82	1.30
15	4310.93	7.31	-226.64	- 0.46	4824.36	8.39	281.93	0.52
20	4075.29	7.02	-419.39	-0.82	4504.99	7.95	6.18	0.00
30	3796.77	6.65	-625.63	-1.23	4106.98	7.36	-316.79	- 0.63

- (1) An annual income of \$15000, entails a pre-reform marginal income tax rate of 20 percent and post-reform marginal income tax rate of 17 percent.
- (2) Base scenario values are an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent. Favourable scenario values include a pre-reform interest rate of 7.8 percent and a post-reform interest rate of 7.3 percent, an inflation rate of 2.5 percent, and a rate of capital appreciation of 4.0 percent.
- (3) Results are based upon a sample of 16 boarding houses.

Table B6 - Average increase in reservation rents by proprietor holding period for caravan parks: proprietor's annual income is \$60001.				
Holding Period (years)	Base Scenario		Favourable Scenario	
	Dollar Change	Percentage Change	Dollar Change	Percentage Change
10	11406.58	17.43	4656.88	7.34
15	9331.42	14.79	3047.72	4.81
20	7945.08	12.84	2073.06	3.14
30	6062.41	9.97	881.70	0.94
<p>(4) An annual income of \$60001, entails a pre-reform marginal income tax rate of 47 percent and post-reform marginal income tax rate of 47 percent.</p> <p>(5) Base scenario values are an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent. Favourable scenario values include a pre-reform interest rate of 7.8 percent and a post-reform interest rate of 7.3 percent, an inflation rate of 2.5 percent, and a rate of capital appreciation of 4.0 percent.</p> <p>(6) Results are based upon a sample of 66 caravan parks.</p>				

Table B7 - Average increase in reservation rents by proprietor holding period for caravan parks: proprietor's annual income is \$50001.				
Holding Period (years)	Base Scenario		Favourable Scenario	
	Dollar Change	Percentage Change	Dollar Change	Percentage Change
10	14276.85	22.01	6823.81	11.25
15	12552.16	20.14	5193.89	8.87
20	11411.05	18.72	4147.48	7.18
30	9893.40	16.67	2183.83	4.87
<p>(1) Proprietor has an annual income of \$50001, meaning a pre-reform marginal income tax rate of 47 percent and post-reform marginal income tax rate of 42 percent.</p> <p>(2) Base scenario values are an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent. Favourable scenario values include a pre-reform interest rate of 7.8 percent and a post-reform interest rate of 7.3 percent, an inflation rate of 2.5 percent, and a rate of capital appreciation of 4.0 percent.</p> <p>(3) Results are based upon a sample of 66 caravan parks.</p>				

Table B8 - Average increase in reservation rents by proprietor holding period for caravan parks: proprietor's annual income is \$38001.				
Holding Period (years)	Base Scenario		Favourable Scenario	
	Dollar Change	Percentage Change	Dollar Change	Percentage Change
10	16075.93	23.54	9494.53	15.02
15	15066.77	22.94	8595.24	14.21
20	14436.85	22.48	8070.26	13.70
30	13681.26	21.89	7507.48	13.20

(4) Proprietor has an annual income of \$38001, meaning a pre-reform marginal income tax rate of 43 percent and post-reform marginal income tax rate of 30 percent.

(5) Base scenario values are an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent. Favourable scenario values include a pre-reform interest rate of 7.8 percent and a post-reform interest rate of 7.3 percent, an inflation rate of 2.5 percent, and a rate of capital appreciation of 4.0 percent.

(6) Results are based upon a sample of 66 caravan parks.

Table B9 - Average increase in reservation rents by proprietor holding period for caravan parks: proprietor's annual income is \$20701.				
Holding Period (years)	Base Scenario		Favourable Scenario	
	Dollar Change	Percentage Change	Dollar Change	Percentage Change
10	9574.06	12.55	2965.72	3.86
15	8524.19	11.54	2011.22	2.57
20	7851.27	10.81	1482.39	1.73
30	7003.81	9.84	743.64	0.67
<p>(1) Proprietor has an annual income of \$20701, meaning a pre-reform marginal income tax rate of 34 percent and post-reform marginal income tax rate of 30 percent.</p> <p>(2) Base scenario values are an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent. Favourable scenario values include a pre-reform interest rate of 7.8 percent and a post-reform interest rate of 7.3 percent, an inflation rate of 2.5 percent, and a rate of capital appreciation of 4.0 percent.</p> <p>(3) Results are based upon a sample of 66 caravan parks.</p>				

Table B10 - Average increase in reservation rents by proprietor holding period for caravan parks: proprietor's annual income is \$15000.

Holding Period (years)	Base Scenario		Favourable Scenario	
	Dollar Change	Percentage Change	Dollar Change	Percentage Change
10	6576.68	7.72	534.98	0.27
15	6041.04	7.28	61.50	0.00 ³
20	5713.92	6.98	-209.67	-0.75
30	5330.80	6.61	-498.65	-1.17

(1) Proprietor has an annual income of \$15000, meaning a pre-reform marginal income tax rate of 20 percent and post-reform marginal income tax rate of 17 percent.

(2) Base scenario values are an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent. Favourable scenario values include a pre-reform interest rate of 7.8 percent and a post-reform interest rate of 7.3 percent, an inflation rate of 2.5 percent, and a rate of capital appreciation of 4.0 percent.

(3) A percentage change expressed as zero may not be exactly, but rather, effectively zero.

(4) Results are based upon a sample of 66 caravan parks.

APPENDIX C

Reservation Rental Rates of Boarding Houses and Caravan Parks

Table C1- Average reservation rental rates for newly constructed boarding house by proprietor holding period: proprietor's income is \$60001.				
Holding Period	Base scenario parameter values		Favourable scenario parameter Values	
	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	6.35	7.92	5.71	6.46
15 years	6.14	7.43	5.49	6.01
20 years	6.04	7.14	5.38	5.74
30 years	5.99	6.80	5.30	5.44

(1) Marginal income tax rate is 47 percent under both tax systems.
 (2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
 (3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.
 (4) Results are based upon a sample of 16 boarding houses.

Table C2- Average reservation rental rates for established boarding house by proprietor holding period: proprietor's income is \$60001.				
Holding Period	Base scenario parameter values		Favourable scenario parameter Values	
	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	7.08	8.36	6.42	6.92
15 years	6.82	7.88	6.14	6.47
20 years	6.67	7.57	5.97	6.20
30 years	6.48	7.18	5.76	5.85

(1) Marginal income tax rate is 47 percent under both tax systems.
 (2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
 (3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.
 (4) Results are based upon a sample of 16 boarding houses.

Table C3- Average reservation rental rates for newly constructed boarding house by proprietor holding period: proprietor's income is \$50001.				
Holding Period	Base scenario parameter values		Favourable scenario parameter Values	
	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	6.35	8.33	5.71	6.83
15 years	6.14	7.88	5.49	6.38
20 years	6.04	7.61	5.38	6.11
30 years	5.99	7.29	5.30	5.79

(1) Marginal income tax rate is 47 percent under the OTS and 42 percent under the NTS.

(2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.

(3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.

(4) Results are based upon a sample of 16 boarding houses.

Table C4- Average reservation rental rates for established boarding house by proprietor holding period: proprietor's income is \$50001.				
Holding Period	Base scenario parameter values		Favourable scenario parameter Values	
	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	7.08	8.70	6.42	7.19
15 years	6.82	8.25	6.14	6.73
20 years	6.67	7.97	5.97	6.45
30 years	6.48	7.62	5.76	6.09

(1) Marginal income tax rate is 47 percent under the OTS and 42 percent under the NTS.

(2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.

(3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.

(4) Results are based upon a sample of 16 boarding houses.

Table C5- Average reservation rental rates for newly constructed boarding house by proprietor holding period: proprietor's income is \$38001.				
Holding Period	Base scenario parameter values		Favourable scenario parameter Values	
	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	6.87	9.01	6.22	7.70
15 years	6.65	8.72	5.99	7.32
20 years	6.54	8.51	5.87	7.01
30 years	6.47	8.26	5.77	6.84

(1) Marginal income tax rate is 43 percent under the OTS and 30 percent under the NTS.
(2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
(3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.
(4) Results are based upon a sample of 16 boarding houses.

Table C6- Average reservation rental rates for established boarding house by proprietor holding period: proprietor's income is \$38001.				
Holding Period	Base scenario parameter values ²		Favourable scenario parameter Values ³	
	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	7.49	9.32	6.83	7.92
15 years	7.23	8.95	6.55	7.54
20 years	7.08	8.73	6.38	7.31
30 years	6.89	8.47	6.16	7.04

(1) Marginal income tax rate is 43 percent under the OTS and 30 percent under the NTS.
(2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
(3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.
(4) Results are based upon a sample of 16 boarding houses.

Table C7- Average reservation rental rates for newly constructed boarding house by proprietor holding period: proprietor's income is \$20701				
Holding Period	Base scenario parameter values		Favourable scenario parameter Values	
	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	7.81	9.01	7.16	7.70
15 years	7.58	8.72	6.92	7.32
20 years	7.46	8.51	6.79	7.01
30 years	7.36	8.26	6.66	6.84

(1) Marginal income tax rate is 34 percent under the OTS and 30 percent under the NTS.

(2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.

(3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.

(4) Results are based upon a sample of 16 boarding houses.

Table C8- Average reservation rental rates for established boarding house by proprietor holding period: proprietor's income is \$20701.				
Holding Period	Base scenario parameter values		Favourable scenario parameter Values	
	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	8.23	9.32	7.58	7.92
15 years	7.97	8.95	7.30	7.54
20 years	7.83	8.73	7.14	7.31
30 years	7.65	8.47	6.94	7.04

(1) Marginal income tax rate is 34 percent under the OTS and 30 percent under the NTS.

(2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.

(3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.

(4) Results are based upon a sample of 16 boarding houses.

Table C9- Average reservation rental rates for newly constructed boarding house by proprietor holding period: proprietor's income is \$15000.				
Holding Period	Base scenario parameter values		Favourable scenario parameter Values	
	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	8.86	9.71	8.20	8.38
15 years	8.63	9.41	7.98	8.08
20 years	8.51	9.24	7.85	7.91
30 years	8.39	9.06	7.71	7.72

(1) Marginal income tax rate is 20 percent under the OTS and 17 percent under the NTS.

(2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.

(3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.

(4) Results are based upon a sample of 16 boarding houses.

Table C10- Average reservation rental rates for established boarding house by proprietor holding period: proprietor's income is \$15000.				
Holding Period	Base scenario parameter values		Favourable scenario parameter Values	
	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	9.06	9.82	8.42	8.49
15 years	8.82	9.52	8.16	8.18
20 years	8.69	9.36	8.02	8.01
30 years	8.54	9.17	7.85	7.82

(1) Marginal income tax rate is 20 percent under the OTS and 17 percent under the NTS.

(2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.

(3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.

(4) Results are based upon a sample of 16 boarding houses.

Table C11- Average reservation rental rates for newly constructed boarding house by proprietor holding period: proprietor's income is \$5401.

Holding Period	Base scenario parameter values		Favourable scenario parameter Values	
	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	8.86	10.31	8.20	9.05
15 years	8.63	10.09	7.98	8.82
20 years	8.51	9.98	7.85	8.71
30 years	8.39	9.87	7.71	8.60

- (1) Marginal income tax rate is 20 percent under the OTS and zero under the NTS.
- (2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
- (3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.
- (4) Results are based upon a sample of 16 boarding houses.

Table C12- Average reservation rental rates for established boarding house by proprietor holding period: proprietor's income is \$5401.

Holding Period	Base scenario parameter values		Favourable scenario parameter Values	
	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	9.06	10.31	8.42	9.05
15 years	8.82	10.09	8.16	8.82
20 years	8.69	9.98	8.02	8.71
30 years	8.54	9.87	7.85	8.60

- (1) Marginal income tax rate is 20 percent under the OTS and zero under the NTS.
- (2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
- (3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.
- (4) Results are based upon a sample of 16 boarding houses.

Table C13- Average reservation rental rates for caravan park by proprietor holding period: proprietor's income is \$60001.				
Holding Period	Base scenario parameter values		Favourable scenario parameter Values	
	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	7.75%	9.02%	7.09%	7.58%
15 years	7.46%	8.50%	6.78%	7.09%
20 years	7.30%	8.17%	6.60%	6.80%
30 years	7.10%	7.76%	6.37%	6.43%

(1) Marginal income tax rate is 47 percent under both tax systems.
(2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
(3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.
(4) Results are based upon a sample of 66 caravan parks

Table C14- Average reservation rental rates for caravan park by proprietor holding period: proprietor's income is \$50001.				
Holding Period	Base scenario parameter values ²		Favourable scenario parameter Values ³	
	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	7.75%	9.35%	7.09%	7.83%
15 years	7.46%	8.86%	6.78%	7.34%
20 years	7.30%	8.57%	6.60%	7.04%
30 years	7.10%	8.20%	6.37%	6.66%

(1) Marginal income tax rate is 47 percent under the OTS and 42 percent under the NTS.
(2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
(3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.
(4) Results are based upon a sample of 66 caravan parks

Table C15- Average reservation rental rates for caravan park by proprietor holding period: proprietor's income is \$38001.				
Holding Period	Base scenario parameter values		Favourable scenario parameter Values	
	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	8.16%	9.97%	7.50%	8.55%
15 years	7.87%	9.56%	7.19%	8.14%
20 years	7.71%	9.33%	7.01%	7.90%
30 years	7.51%	9.05%	6.78%	7.61%

(1) Marginal income tax rate is 43 percent under the OTS and 30 percent under the NTS.

(2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.

(3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.

(4) Results are based upon a sample of 66 caravan parks

Table C16- Average reservation rental rates for caravan park by proprietor holding period: proprietor's income is \$20701.				
Holding Period	Base scenario parameter values		Favourable scenario parameter Values	
	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	8.90%	9.97%	8.24%	8.55%
15 years	8.62%	9.56%	7.94%	8.14%
20 years	8.46%	9.33%	7.77%	7.90%
30 years	8.28%	9.05%	7.55%	7.61%

(1) Marginal income tax rate is 34 percent under the OTS and 30 percent under the NTS.

(2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.

(3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.

(4) Results are based upon a sample of 66 caravan parks

Table C17- Average reservation rental rates for caravan park by proprietor holding period: proprietor's income is \$15000.				
	Base scenario parameter values		Favourable scenario parameter Values	
Holding Period	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	9.73%	10.46%	9.09%	9.12%
15 years	9.47%	10.13%	8.81%	8.79%
20 years	9.32%	9.95%	8.65%	8.60%
30 years	9.16%	9.75%	8.47%	8.39%
<p>(1) Marginal income tax rate is 20 percent under the OTS and 17 percent under the NTS.</p> <p>(2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.</p> <p>(3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.</p> <p>(4) Results are based upon a sample of 66 caravan parks</p>				

Table C18- Average reservation rental rates for caravan park by proprietor holding period: proprietor's income is \$5401.				
	Base scenario parameter values		Favourable scenario parameter Values	
Holding Period	Old Tax System	New Tax System	Old Tax System	New Tax System
10 years	9.73%	10.94%	9.09%	9.68
15 years	9.47%	10.69%	8.81%	9.42
20 years	9.32%	10.57%	8.65%	9.30
30 years	9.16%	10.45%	8.47%	9.18
<p>(1) Marginal income tax rate is 20 percent under the OTS and 0 percent under the NTS.</p> <p>(2) Base scenario values entail an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.</p> <p>(3) Favourable scenario values are an interest rate of 7.8 percent for the OTS and 7.3 percent for the NTS, an inflation rate of 2.5 percent and a rate of capital appreciation of 4.0 percent. The reduced interest rate is not applied to the OTS estimates, as it is assumed that the reduction in interest rate is a direct result of the implementation of the NTS.</p> <p>(4) Results are based upon a sample of 66 caravan parks</p>				

APPENDIX D

Decomposition Analysis

Table D1: CGT and GST reform contributions to change in reservation rent for a newly constructed boarding house: Proprietorial Income of \$60001.

Holding Period (years)	Pre-reform Annual Required Rent (\$)	Post CGT reform Annual Required Rent (\$)	NTS Annual Required Rent (\$) ²	Contribution of CGT reform (\$)	CGT contribution as percentage	Contribution of GST reform (\$) ³	GST contribution as percentage
10	43243	50926	53278	7682	76.60	2352	23.40
15	41799	47755	5955	5955	72.57	2255	27.43
20	41091	45818	48017	4727	68.29	2200	31.71
30	40368	43363	45497	2995	58.44	2134	41.56

- (1) This entails a pre-reform marginal income tax rate of 47 percent and post-reform marginal income tax rate also of 47 percent. Simulation is conducted under 'base scenario', with an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
- (2) NTS Annual Required Rent is the rate of rent required under the 'New Tax System' (ie. after all tax reform), introduced in July 2000.
- (3) GST reform includes changes to marginal income tax rates.
- (4) Results are based upon a sample of 16 boarding houses.

Table D2: CGT and GST reform contributions to change in reservation rent for an established boarding house: Proprietorial Income of \$60001.

Holding Period (years)	Pre-reform Annual Required Rent (\$)	Post CGT reform Annual Required Rent (\$)	NTS Annual Required Rent (\$) ²	Contribution of CGT reform (\$)	CGT contribution as percentage	Contribution of GST reform (\$) ³	GST contribution as percentage
10	47972	53745	56152	5773	70.56	2407	29.44
15	46169	50548	52857	4378	65.46	2309	34.54
20	45143	48567	50820	3424	60.30	2253	39.70
30	43888	45994	48179	2106	49.04	2185	50.96

- (1) This entails a pre-reform marginal income tax rate of 47 percent and post-reform marginal income tax rate also of 47 percent. Simulation is conducted under 'base scenario', with an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
- (2) NTS Annual Required Rent is the rate of rent required under the 'New Tax System' (ie. after all tax reform), introduced in July 2000.
- (3) GST reform includes changes to marginal income tax rates.
- (4) Results are based upon a sample of 16 boarding houses.

Table D3: CGT and GST reform contributions to change in reservation rent for a newly constructed boarding house: Proprietorial Income of \$50001.¹

Holding Period (years)	Pre-reform Annual Required Rent (\$)	Post CGT reform Annual Required Rent (\$)	NTS Annual Required Rent (\$) ²	Contribution of CGT reform (\$)	CGT contribution as percentage	Contribution of GST reform (\$) ³	GST contribution as percentage
10	43244	50926	55992	7682	60.14	5066	39.86
15	41799	47755	52959	5955	53.27	5204	46.73
20	41091	45818	51127	4727	47.02	5310	52.98
30	40368	43363	48839	2995	35.29	5476	64.71

(1) This entails a pre-reform marginal income tax rate of 47 percent and post-reform marginal income tax rate of 42 percent. Simulation is conducted under 'base scenario', with an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
(2) NTS Annual Required Rent is the rate of rent required under the 'New Tax System' (ie. after all tax reform), introduced in July 2000.
(3) GST reform includes changes to marginal income tax rates.
(4) Results are based upon a sample of 16 boarding houses.

Table D4: CGT and GST reform contributions to change in reservation rent for an established boarding house: Proprietorial Income of \$50001.¹

Holding Period (years)	Pre-reform Annual Required Rent (\$)	Post CGT reform Annual Required Rent (\$)	NTS Annual Required Rent (\$) ²	Contribution of CGT reform (\$)	CGT contribution as percentage of total change	Contribution of GST reform (\$) ³	GST contribution as percentage of total change
10	47972	53745	58374	5773	55.32	4629	44.68
15	46169	50548	55331	4378	47.64	4783	52.36
20	45143	48567	53473	3424	40.97	4906	59.03
30	43888	45994	51102	2106	29.07	5108	70.93

(1) This entails a pre-reform marginal income tax rate of 47 percent and post-reform marginal income tax rate of 42 percent. Simulation is conducted under 'base scenario', with an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
(2) NTS Annual Required Rent is the rate of rent required under the 'New Tax System' (ie. after all tax reform), introduced in July 2000.
(3) GST reform includes changes to marginal income tax rates.
(4) Results are based upon a sample of 16 boarding houses.

Table D5: CGT and GST reform contributions to change in reservation rent for a newly constructed boarding house: Proprietorial Income of \$38001.¹

Holding Period (years)	Pre-reform Annual Required Rent (\$)	Post CGT reform Annual Required Rent (\$)	NTS Annual Required Rent (\$) ²	Contribution of CGT reform (\$)	CGT contribution as percentage	Contribution of GST reform (\$) ³	GST contribution as percentage
10	46663	53096	61078	6433	44.45	7982	55.55
15	45162	50109	58543	4947	36.84	8434	63.16
20	44403	48298	57065	3895	60.66	8767	69.33
30	43599	46025	55296	2426	20.69	9271	79.31

- (1) This entails a pre-reform marginal income tax rate of 43 percent and post-reform marginal income tax rate of 30 percent. Simulation is conducted under 'base scenario', with an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
- (2) NTS Annual Required Rent is the rate of rent required under the 'New Tax System' (ie. after all tax reform), introduced in July 2000.
- (3) GST reform includes changes to marginal income tax rates.
- (4) Results are based upon a sample of 16 boarding houses.

Table D6: CGT and GST reform contributions to change in reservation rent for an established boarding house: Proprietorial Income of \$38001.¹

Holding Period (years)	Pre-reform Annual Required Rent (\$)	Post CGT reform Annual Required Rent (\$)	NTS Annual Required Rent (\$) ²	Contribution of CGT reform (\$)	CGT contribution as percentage	Contribution of GST reform (\$) ³	GST contribution as percentage
10	50689	55523	62537	4834	40.57	7014	59.43
15	48887	52524	60013	3637	32.51	7490	67.49
20	47863	50684	58533	2821	26.30	7848	73.70
30	46617	48324	56735	1706	16.76	8411	83.24

- (1) This entails a pre-reform marginal income tax rate of 43 percent and post-reform marginal income tax rate of 30 percent. Simulation is conducted under 'base scenario', with an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
- (2) NTS Annual Required Rent is the rate of rent required under the 'New Tax System' (ie. after all tax reform), introduced in July 2000.
- (3) GST reform includes changes to marginal income tax rates.
- (4) Results are based upon a sample of 16 boarding houses.

Table D7: CGT and GST reform contributions to change in reservation rent for a caravan park: Proprietorial Income of \$60001.¹

Holding Period (years)	Pre-reform Annual Required Rent (\$)	Post CGT reform Annual Required Rent (\$)	NTS Annual Required Rent (\$) ²	Contribution of CGT reform (\$)	CGT contribution as percentage	Contribution of GST reform (\$) ³	GST contribution as percentage
10	80028	87906	91435	7878	70.38	3529	29.62
15	77451	83400	86783	5949	65.32	3383	34.68
20	75998	80643	83943	4645	60.21	3300	39.79
30	74243	77104	80305	2861	49.11	3202	50.89

- (1) This entails a pre-reform marginal income tax rate of 47 percent and post-reform marginal income tax rate also of 47 percent. Simulation is conducted under 'base scenario', with an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
- (2) NTS Annual Required Rent is the rate of rent required under the 'New Tax System' (ie. after all tax reform), introduced in July 2000.
- (3) GST reform includes changes to marginal income tax rates.
- (4) Results are based upon a sample of 66 caravan parks.

Table D8: CGT and GST reform contributions to change in reservation rent for a caravan park: Proprietorial Income of \$50001.¹

Holding Period (years)	Pre-reform Annual Required Rent (\$)	Post CGT reform Annual Required Rent (\$)	NTS Annual Required Rent (\$) ²	Contribution of CGT reform (\$)	CGT contribution as percentage	Contribution of GST reform (\$) ³	GST contribution as percentage
10	80028	87906	94305	7878	55.80	6399	44.20
15	77451	83400	90003	5949	48.06	6603	51.94
20	75998	80643	87409	4645	41.37	6766	58.63
30	74243	77104	84136	2861	29.46	7031	70.54

- (1) This entails a pre-reform marginal income tax rate of 47 percent and post-reform marginal income tax rate of 42 percent. Simulation is conducted under 'base scenario', with an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
- (2) NTS Annual Required Rent is the rate of rent required under the 'New Tax System' (ie. after all tax reform), introduced in July 2000.
- (3) GST reform includes changes to marginal income tax rates.
- (4) Results are based upon a sample of 66 caravan parks.

Table D9: CGT and GST reform contributions to change in reservation rent for a caravan park: Proprietorial Income of \$38001.¹

Holding Period (years)	Pre-reform Annual Required Rent (\$)	Post CGT reform Annual Required Rent (\$)	NTS Annual Required Rent (\$) ²	Contribution of CGT reform (\$)	CGT contribution as percentage	Contribution of GST reform (\$) ³	GST contribution as percentage
10	83608	90204	99684	6596	41.31	9479	58.69
15	81032	85974	96099	4941	33.08	10126	66.92
20	79583	83410	94019	3827	26.76	10610	73.24
30	77839	80157	91521	2318	17.11	11363	82.89

- (1) This entails a pre-reform marginal income tax rate of 43 percent and post-reform marginal income tax rate of 30 percent. Simulation is conducted under 'base scenario', with an interest rate of 7.8 percent, an inflation rate of 2.5 percent and a rate of capital appreciation of 3.5 percent.
- (2) NTS Annual Required Rent is the rate of rent required under the 'New Tax System' (ie. after all tax reform), introduced in July 2000.
- (3) GST reform includes changes to marginal income tax rates.
- (4) Results are based upon a sample of 66 caravan parks.