PROPOSED TAX CHANGES AND THEIR EFFECTS ON INVESTMENT IN HOUSING

R. Anstie

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Summary

This paper sets out to assess the effects of proposed taxation changes on the housing market. It uses a long-run equilibrium model for the analysis.

The features of the proposed tax regime that are of relevance are the lower marginal personal tax rates, the higher company tax rates, the tax on real capital gains, the quarantining of interest payments on geared rental property, and the depreciation allowance for new residential buildings.

The analysis shows that the taxation change which is most likely to bring about a change in the level of investment in housing is the quarantining of interest payments on geared rental property. It is shown that the new legislation actually introduces a further inconsistency into the tax law, by imposing a cost on some borrowers that is not borne by other borrowers. It is argued that this need not deter investment in the housing market. It may only deter negative gearing. The question as to the magnitude of the change in the level of investment in housing is too complex to be assessed by our model.

Several of the proposed changes affect all forms of investment and so are unlikely to have any impact on the level of investment in housing. The depreciation allowance should attract more individuals to invest in new residential buildings, and this could eventually lead to lowered rents.

The model is also used to analyse the effect of the changes on tenure choice, and it is shown that more individuals would be better off renting rather than buying. This is partly due to the fact that the subsidy to homeowners (by way of non-taxation of imputed rental income) is lowered when marginal personal tax rates are lowered.
1. Introduction

The present government is committed to reform of the taxation system and in the latter half of 1985 made two announcements detailing some of the decisions taken in line with this commitment. The purpose of this paper is to predict the effects of the proposed tax changes on the level of investment in housing, both principal residence and rental properties.

There are several features of the proposed tax regime which affect the return on residential investment. These are as follows:

- the lower marginal personal tax rates
- the higher company tax rates
- the tax on "real" capital gains
- the "quarantining" of interest payments on geared rental property
- the depreciation allowance for new residential accommodation.

The changes in the tax rates will result in a lowering of the marginal rate of personal tax for all levels of income, and the company tax rate will be increased to equal the highest personal marginal rate. (Table 1).

The model used for the analysis is that outlined in Anstie, Findlay and Harper (1983). This is a long-run equilibrium model of tenure choice. It assumes a single time period from $t_0$ to $t_1$ and that all transactions occur at either $t_0$ or $t_1$.

The notation used is as in Anstie et al. In particular, $\tau =$ marginal tax rate of the marginal lender, $r =$ real rate of interest (before tax), $i =$ nominal rate of interest, $p =$ fully
anticipated increase in the general level of prices, \( E \) = net rental payment, \( K \) = value of house at \( t_0 \).

There are two main sections of the paper. The first section examines the proposed changes and uses the model to predict their effects on investment in rental properties. It also briefly looks at a model developed by the Department of Housing and Construction which assesses the impact effects of the taxation changes. These impact effects are compared with the longer run effects predicted by our model. The second section uses the model to predict what effect the proposed changes might have on tenure choice.

The analysis in these sections requires the use of a market rate of interest. For completeness, we need to know what effect the proposed tax changes might have on this rate of interest. The assumptions of the model in Anstie et al. imply that \( i = (1 + \rho p + \rho r)/(1 - \tau) \), which is the rate predicted by the tax-adjusted Fisher equation. This equilibrium relationship remains unaltered by any of the proposed tax changes. Under the present tax structure, it is plausible to assume that \( \tau = .46 \), because this is the company tax rate (and the marginal tax rate for individuals with taxable income in the range of $19,501 to $28,000). With the proposed tax scales, the plausible value for \( \tau \) is .49 (the new company tax rate and highest personal rate). The effect of this change on \( i \) is not large. As an illustrative example, with \( p = .05 \), \( r = .04 \) and \( \tau = .46 \), the market rate of interest \( i = .135 \). Altering \( \tau \) to .49 gives the value \( i = .140 \), an increase of .5 percentage points.

The concluding section of this paper draws out the main predictions from the analysis and points to some of the limitations of the paper.
Table 1
Comparison of Present Tax Scales and Proposed Tax Scales

<table>
<thead>
<tr>
<th>Income $pa</th>
<th>Present Scale Marginal Rate (cents per $)</th>
<th>Income $pa</th>
<th>Proposed Scale Marginal Rate (1.787 cents per $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4,500</td>
<td>0</td>
<td>0-5,100</td>
<td>0</td>
</tr>
<tr>
<td>4,501-12,500</td>
<td>25</td>
<td>5,101-12,600</td>
<td>24</td>
</tr>
<tr>
<td>12,501-19,500</td>
<td>30</td>
<td>12,601-19,500</td>
<td>29</td>
</tr>
<tr>
<td>19,501-28,000</td>
<td>48</td>
<td>19,501-28,000</td>
<td>40</td>
</tr>
<tr>
<td>28,001-35,000</td>
<td>48</td>
<td>28,001-35,000</td>
<td>40</td>
</tr>
<tr>
<td>35,001 and over</td>
<td>60</td>
<td>35,000 and over</td>
<td>49</td>
</tr>
</tbody>
</table>

Company tax rate = 46

Company tax rate = 49

2. The Effects of Proposed Changes on Investment in Rental Properties

Negative Gearing

Negative gearing occurs when interest payments on borrowed funds used to finance rental property investments exceed net rental income from that property. Prior to 17 July 1985, these losses could be deducted from taxable income derived from other sources. New legislation will now require these losses to be quarantined - that is, the losses can no longer be deducted from other income. (They may be carried forward and allowed as a deduction against rental income or any taxable profit on disposal of the rental property in later years).

Although the model in Anstie et al. did not explicitly incorporate the negative gearing aspect of the tax law, it is straightforward to show that the equilibrium value of the net rental income, \( E = r(1 + p)K \), is not affected by doing so.\(^1\)

\(^1\) See Appendix.
In equilibrium, there is no additional gain to be made by borrowing to the extent of negatively gearing a property. This can be seen clearly by taking the case of an investor who borrows \((1 - \alpha)K\) to purchase a rental property of value \(K\) and who is negatively geared.

Net wealth at the end of the period can be expressed as \(W = (1+p)K - (1-\alpha)K + E - (1-\alpha)K + \tau^*[(1-\alpha)K - E]\), where \(\tau^*\) = marginal tax rate of the investor. There is no tax payable on \(E\) because of the loss. The tax `saved' by deducting this loss from other income is \(\tau^*[(1-\alpha)K - E]\).

Substituting \(E = r(1+p)K\) and \(i = (1+p)r + \rho(1-\tau)\) gives the result that\(^2\)
\[
W = (1 + \rho)\alpha K[1 + (1 - \tau)].
\]
Thus, there is a real after-tax return of \(r\), which is what can be obtained with funds of \(\alpha K\) invested elsewhere in the market.

Therefore, no matter how much this investor borrows (in pursuit of greater capital gains), he cannot increase the return on his assets (in equilibrium). What he does do by borrowing large amounts is to decrease his tax liability, and if that is the objective, rather than one of maximising wealth, then this could be achieved by making use of negative gearing.

\(^2\) For this result, we have assumed that \(\tau^* = \tau\). This is more likely to be the case with the new marginal tax rates (see later). At present, taxpayers with \(\tau^* > \tau\) make a gain by borrowing, if the interest rate is at the equilibrium level. It is not this gain we are concerned with, but rather, any additional gain which can be attributed to negative gearing of rental properties. Therefore, for clarity, we assume \(\tau^* = \tau\).
Another possible explanation of the attractiveness of negative gearing is that investors expect a real capital gain on rental properties. This, however, implies capital-market disequilibrium. In this case certainly there is a gain to be made by investing more in rental properties. The deduction previously allowed in the tax law for negative gearing merely means that there is no added cost to the investor if interest payments exceed net rental payments. Negative gearing is not then the motivating force in bidding up prices of homes, as is implied in the Treasurer's statement of 17 July 1985. There, he said that "it [negative gearing in the tax law] encourages wealthy investors to compete with each other in bidding up prices on the existing stock of homes, thereby excluding lower income people who may otherwise have been able to purchase". With or without negative gearing deductions, prices will be bid up as the market moves to an equilibrium in which there is no further real capital gain to be expected.

Now consider the effect of quarantining interest payments on geared rental property. This imposes a cost on negatively geared investors, to the extent of \( r^* \frac{\alpha K}{1-(1-\alpha)K} \), where \((1-\alpha)\) is the proportion of K that is borrowed.

Some notion of the kind of magnitude of this cost to negative geared investors can be gained by using an illustrative example.

**Example:** \( r^* = 0.49, i = 0.14 \), \((r = 0.04, p = 0.05)\), \(\alpha = 0.20\), \(K = 100,000\), \(E = 4,200\)

Cost of negative gearing = $3,430 (for 1 year).

This value varies directly with the amount borrowed and the market rate of interest.

The imposition of this cost of negative gearing lowers the effective return on the capital invested in rental properties to below what could be earned elsewhere in the
market. Because the legislation does not affect negative gearing arrangements in place before 17 July 1985, there should be no great movement of existing funds invested in rental properties.

Now when the market perceives a disequilibrium in which real capital gains in housing are expected, investors will not use negative gearing to purchase rental properties until the expected real capital gain is great enough to compensate them for the extra (tax) cost associated with negative gearing.

Capital Gains Tax

The proposed capital gains tax applies to real gains. As such, it will not affect the equilibrium value of rental payments. (The derivation of E assumed non-taxation of the general inflation component of the capital gain, which is still the case under the new legislation).

The equilibrium level of rent is set such that the landlord receives a real rate of return of \( r \), which is the real rate of return in the economy. Any real capital gain is an added bonus, so presumably the imposition of the proposed capital gains tax will not deter an investor from investing in rental property any more than in any other asset.

4% Depreciation Allowance

From 17 July 1985, there has been a 4% per year depreciation provision for investment in new residential buildings (as well as capital extensions, alterations and improvements). When introducing this provision the Treasurer said that "the new depreciation concession should encourage new building for rental housing purposes and thus provide a strong incentive for adding to the supply of such accommodation".
The new provision can be analysed in terms of the housing model. The return on a new property is increased by \(0.04\tau^*bK\) where \(bK\) is the value of the building (a proportion of the total value of the property \(K\)).

Net wealth at the end of the period can then be expressed as:

\[
W = (1 + r)K + (1 - \tau^*)E + 0.04\tau^*bK
\]

This must be equal to \(K + (1 - \tau)\) in equilibrium.

This implies:

\[
E^* = r(1 + p)K - 0.04\tau^*bK
\]

\[
= E - 0.04\tau^*bK.
\]

Thus, investors in new buildings are prepared to accept a rent as low as this value. To illustrate the effect of the depreciation allowance, let \(\tau^* = 0.49\), \(b = 0.50\) and \(K = 100,000\). Then \(0.04\tau^*bK = 980\). In the previous illustrative example, the net rental payment was \(4200\), so the investor in this example is now prepared to accept \(3200\) as net rental payment (for the same investment of \(100,000\) in rental property).

What we would expect is an excess supply at the higher rent, \(E\). Rents will then fall, to attract tenants, and this will cause a flow-on effect to established properties. Investors in these properties won't get their required return, so they will sell, causing a fall in prices. Thus, owners of established houses sustain a loss in their property values with the introduction of the 4\% depreciation allowance.

However, the allowance should have its desired effect of encouraging new building for rental purposes. It should also reduce rents to some extent.
Marginal Personal Tax Rate Changes

The proposed tax changes include a lowering of the marginal personal tax rate for all levels of taxable income. This change taken alone, will not alter the return on rental properties relative to other forms of investment. However, the lower marginal tax rate will lower the newly imposed cost to negatively geared investors. It will also lower the gain derived from the new 4% depreciation allowance. (The previous illustrative examples are based on the new marginal tax rates). Thus, the lower marginal tax rates do alter the relativity between rental properties and other forms of investment for negatively geared investors and those investing in new rental buildings.

Summary of Changes

1. **Negative gearing** - makes investment in rental housing less attractive relative to other forms of investment for those who are negatively geared - the more highly geared, the more this is the case.

2. **Capital gains tax** - affects all forms of investment in the same way, and therefore does not alter relativities.

3. **4% depreciation allowance** - makes investment in new residential buildings more attractive, relative to other forms of investment.

4. **Marginal personal tax rates** - affects income derived from all forms of investment in the same way, and therefore does not alter relativities.
In summary, the important changes with regard to investment in the private rental market are 1 and 3 above, because they alter relativities. The other changes will alter all forms of investment and so should not impact on the housing market in particular.

Any adverse effects of the changes will work through the negative gearing aspect. Even here, it will not necessarily induce highly-geared investors to move to alternative forms of investment. Firstly, the new provisions do not apply to negative gearing arrangements in place before 17 July 1985, so investors with such properties may be induced to hold on to their properties for longer than they otherwise would. Secondly, new investors can lower the costs of negative gearing by allocating more equity to housing, rather than by moving out of the housing market altogether. They can also reduce the costs by investing in new residential buildings, to gain the 4% depreciation allowance.

It is likely that there will be some long-term effect of the negative gearing proposal on the housing market, but it would be very difficult, if not impossible, to determine the magnitude of the effect. One would need to know the proportion of investors who are negatively geared, and to what extent they decide to withdraw from the housing market as a result of the abolition of the negative gearing deduction.

**Impact Effects of the Tax Changes**

A paper by G. Monahan of the Department of Housing and Construction presents a model developed by DHC, which assesses the impact of proposed tax changes on different investors by comparing after-tax internal rates of return. Some base-run assumptions are imposed (e.g. period of investment is assumed to be 7 years) and the
various tax proposals are incorporated into the model in different combinations, and for investors with different attributes.

This model, in effect, provides illustrative examples of the combined impact the various proposals might have on different investors. It is of interest to note the combined effect of the negative gearing provision and the 4% depreciation allowance that is generated by the model. Obviously, this depends on the extent of negative gearing. The examples given show that a highly geared investor is still considerably worse off after the changes. (At some point, of course, there must be balance, because investors in new dwellings with high levels of equity are better off after the changes). The paper by Monahan does not take into account any adjustments the investor makes to his investment portfolio in the light of altered relative returns resulting from the proposed tax changes.

To generalise the results of the examples presented in the paper, they are:

1. **Negative gearing** - the impact effect is that highly geared investors (less than 50% equity) will face lower returns, especially if real interest rates are high.
2. **4% depreciation allowance** - investors in new dwellings face a higher rate of return under the new tax regime.
3. **Capital gains tax** - all investors in the housing market face lower returns (assuming a positive real rate of property return).
4. **Marginal personal tax rate changes** - all investors face a higher rate of return under the new tax regime - the actual change in the IRR being dependent on the marginal tax rate of the investor.

A comparison of the impact effects and the longer-run effects can be made.
With regard to the capital gains tax and the marginal personal tax rate changes, the impact and longer-run effects are the same. This is because all forms of investment are similarly affected by the changes, and hence investors are not induced to move funds from one form of investment to another.

The impact effect of negative gearing changes are quite different from the equilibrium effects. In the longer-run, investors will avoid negative gearing, rather than accept the lower returns induced by the negative gearing proposals. (This does not imply that they will necessarily move out of the rental housing market).

The impact effect of the 4% depreciation allowance is that those investors who already had plans of investing in new dwellings receive a higher return under the new tax regime, whereas the longer-term effect is that more investors will be attracted to this sector of the market, with the ramifications that follow from that (see above).

3. Proposed Tax Changes and Their Effect on Tenure Choice

The model of tenure choice presented by Anstie, Findlay and Harper implies the existence of a critical equity ratio below which it pays to rent rather than own. This critical equity ratio ($\alpha$) was derived by comparing the two options:

A - rent house of value $K$ and purchase financial or physical assets to the value of $\alpha K$ (the value of assets)

B - borrow $(1-\alpha)K$, purchase a house of value $K$ and live in it.

Assuming that the goal is maximum wealth, the option an individual chooses depends upon which leaves him with the greater net wealth ($W$) at the end of the period.

It was shown that $W(A) > W(B)$ if:

$$\alpha < (\alpha^*) \frac{\rho}{[(1-t)]} = \alpha^*.$$

This is the critical value of $\alpha$ below which it pays to rent rather than own.
This critical value of $\alpha$ exists because of the interaction of inflation with the tax system. (If there is no inflation, then $\alpha^* = 0$). With non-taxation of imputed rental income, one would expect that owning would be preferable to renting a house. However, the presence of inflation implies higher interest rates, and the induced increase is not deductible for home-buyers (whereas it is for other borrowers). This then imposes a cost to home-buyers, which can outweigh the subsidy (non-taxation of imputed rental income).

The lower one’s marginal tax rate and level of equity, and the higher the inflation rate, the more likely it is that the cost outweighs the subsidy (i.e. that $\alpha < \alpha^*$). A change in the marginal tax rates will have an effect on $\alpha^*$. With $t^*$ to decrease in value and $t$ to increase in value, $\alpha^*$ rises unambiguously.\(^3\) This means that the proposed tax scale changes have the effect of increasing the critical equity ratio for all individuals. Thus, more people would be better off renting rather than buying. (The previous section showed that none of the tax changes lead to an increase in rental levels).

Some notion of the changes in magnitude of the critical equity ratio can be gained by calculating its value for a range of values of inflation ($p$) using the present tax scale and the proposed tax scale. The figures are presented in Table 2. For these calculations, the real rate of return ($r$) is assumed to be 4%. Note that under the proposed tax regime $t = .49$ (the new company tax rate).

\(^3\) There is a small increase in $i$, but this will have very little effect on $\alpha^*$. 
### Table 2

**Values of $\alpha^*$ - The Critical Proportion of Home-Buyers' Equity Under the Present and Proposed Tax Scales**

<table>
<thead>
<tr>
<th>Present tax scale</th>
<th>$\alpha^*$</th>
<th>.25</th>
<th>.30</th>
<th>.46</th>
<th>.48</th>
<th>.60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed tax scale</td>
<td>$\alpha^*$</td>
<td>.24</td>
<td>.29</td>
<td>.40</td>
<td>.40</td>
<td>.49</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Increase in price level $p$ (fully anticipated)</th>
<th>.02</th>
<th>.05</th>
<th>.10</th>
<th>.15</th>
<th>.20</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\alpha^*$</td>
<td>.88</td>
<td>1.27</td>
<td>1.49</td>
<td>1.58</td>
<td>1.63</td>
</tr>
<tr>
<td>$\alpha^*$</td>
<td>.73</td>
<td>1.05</td>
<td>1.24</td>
<td>1.32</td>
<td>1.35</td>
</tr>
<tr>
<td>$\alpha^*$</td>
<td>.48</td>
<td>.69</td>
<td>.81</td>
<td>.86</td>
<td>.89</td>
</tr>
<tr>
<td>$\alpha^*$</td>
<td>.48</td>
<td>.66</td>
<td>.77</td>
<td>.82</td>
<td>.85</td>
</tr>
<tr>
<td>$\alpha^*$</td>
<td>.60</td>
<td>.60</td>
<td>.77</td>
<td>.82</td>
<td>.85</td>
</tr>
<tr>
<td>$\alpha^*$</td>
<td>.49</td>
<td>.53</td>
<td>.70</td>
<td>.82</td>
<td>.89</td>
</tr>
</tbody>
</table>

A comparison of the pairs of figures in Table 2 shows that, for every tax bracket, the critical equity ratio under the proposed tax scale is higher than under the present tax scale.

There are two effects working to increase $\alpha^*$. The first is that the subsidy to homebuyers by way of non-taxation of imputed rental income, is lowered by decreasing the marginal tax rate. The second effect comes about because the altered relativities of
marginal tax rates mean that more individuals gain from lending. The market rate of interest \( i = (1 + p)r + p/(1 - t) \) is partly determined by the marginal tax rate of the marginal lender. For individuals with a marginal tax rate below this level, there is a gain from lending, because the market rate of interest is higher than necessary to compensate them for the interaction of inflation and the taxation system. Under the proposed tax scale, the company tax rate will be equal to the highest personal marginal tax rate of .49. It is plausible to assume that this is the tax rate of the marginal lender. Hence, all individuals will have a marginal tax rate \textit{at most} equal to that of the marginal lender. (This is not the case under the present tax scales). Any individual on a marginal tax rate less than .49 stands to gain by lending funds at the market rate of interest. This is why \( \alpha^* > 1 \) (in Table 2) for lower marginal tax rates, and especially when anticipated inflation is above about 10 percent. Those individuals with \( \alpha^* \geq 1 \) would be better off investing their funds at the market rate of interest, and renting a house, regardless of the level of equity such individuals could invest in a house.

4. \textit{Concluding Remarks}

The principal findings of this paper relate to negative gearing. The quarantining of interest payments on geared rental property has introduced a further inconsistency into the tax law, by imposing a cost on some borrowers that is not borne by other borrowers. (It is true to say that these borrowers are probably 'wealthy investors', but nevertheless, it is a cost imposed on them, and not the removal of a tax concession).

An investor may borrow up to the point where interest payments equal net rental receipts, without incurring this newly-imposed cost, but any greater borrowing incurs the cost. Thus, borrowers are treated inconsistently under the new tax law. The stated aim of the new legislation is to discourage wealthy investors from bidding up prices on
the existing stock of homes. However, it will only deter investors from borrowing to the extent of being negatively geared. If they expect a real capital gain through investment in housing, surely these 'wealthy investors' will be able to divert other funds to housing, thereby taking advantage of the perceived capital gain, and avoiding the new tax cost. Prices are bid up by the expectation of a real capital gain, not by the negative gearing arrangements in place prior to 17 July 1985. As such, the new legislation will be of very limited, if any, help to the lower income people that it is designed to help.

Another prediction of this paper is that none of the proposed changes should cause much alteration in rental payments. The new 4% depreciation allowance should encourage investment in new housing (as intended) and could eventually lead to some lowering of rents.

Finally, tenure choice is affected by the changes in marginal tax rates in such a way that more people would be better off renting rather than buying. Thus, what is seen as a gain to taxpayers in Australia (the lowering of the marginal tax rates) actually works against the government policy of subsidising home ownership.

The validity of the predictions of this paper may be limited by the fact that the model used is a long-run equilibrium model. In particular, the equilibrium market rate of interest generated by the model is the fully tax-adjusted Fisher equation. Evidence suggests that interest rates do not adjust to this extent (Carmichael and Stebbing (1982)). This limitation applies more to the second part of the paper on tenure choice. The first part of the paper (on investment in rental properties) compares the impact and longer-run effects, and there is not a great deal of difference in results, which suggests that the long-run equilibrium model is an adequate tool for assessing the effects of the proposed taxation changes.
Appendix

Negative Gearing and Rental Payments

In the derivation of the equilibrium value of net rental income $E$ in Anstie, it was assumed that the landlord did not borrow. To incorporate negative gearing, assume now that he borrows $(1-\alpha)K$. Repayments are $i(1-\alpha)K$, and these are deductible from taxable income (regardless of the source of that income).

Thus, the return to the landlord is $K(1+p)-(1-\alpha)K+E-i(1-\alpha)K-t[E-i(1-\alpha)K]$.

If $[E-i(1-\alpha)K] < 0$, then there is a loss on the rental business, and this loss is deducted from other income. This reduces tax liability on other income by $t[E-i(1-\alpha)K]$, so the loss $[E-i(1-\alpha)K]$ on the rental business is reduced by this amount.

If the landlord chooses instead to invest his wealth, $\alpha K$, in fixed interest assets, net wealth after tax is $\alpha K+(1-t)i\alpha K$.

Competition will be such that these values will be equal in equilibrium.

i.e. $\alpha K+(1-t)i\alpha K = K(1+p)-(1-\alpha)K+(1-t)[E-i(1-\alpha)K]$

i.e. $(1-t)E = (1-t)K - Kp$, as before.

Therefore, $E = r(1+p)K$. 
References


