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Revenue Cost and Incentive Effects of Tax Expenditures for Owner-Occupied Housing

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March 2008

ABSTRACT

This paper examines the effects of the mortgage interest deduction, the property tax deduction, and the absence of taxation on imputed rent on the effective cost of housing services, federal income tax revenues, and the distribution of tax liabilities. We consider how several changes in these tax provisions would affect taxpayer incentives, and we assess the potential revenue consequences of each. Our analysis recognizes that changing tax provisions such as the mortgage interest deduction would induce changes in homeowner behavior, both with respect to housing finance and the quantity of housing demanded. These changes can affect estimates of the revenue cost of housing-related tax expenditures. With regard to the mortgage interest deduction, for example, we estimate that without any behavioral response, income tax revenues would have been $69.8 billion higher in 2003. Allowing for portfolio adjustments in the financing of homes reduces this estimate to $63.4 billion, and the value could be lower still if we made alternative assumptions about financial changes. The results point generally to the importance of recognizing behavioral responses to tax incentives when calculating the revenue costs of tax expenditures.

We are grateful to Igar Fuki for outstanding research assistance, to Alan Auerbach, Edward Glaeser, and the participants in the NBER Tax Expenditure Project or helpful comments, and to the National Science Foundation (Poterba), the Smith Richardson Foundation, and the Research Sponsors Program of the Zell-Lurie Real Estate Center at Wharton (Sinai) for research support. Sections of this paper draw on Poterba and Sinai (2008).

Federal income tax policy affects the cost of homeownership for many households. While popular discussions of the favorable tax treatment of owner occupied housing focus on the tax-deductibility of mortgage interest and property tax payments and on the specialized tax rules that affect housing capital gains, academic studies emphasize the exclusion of the imputed rental income on owner-occupied housing as the key tax benefit for homeowners. Tax expenditures related to owner-occupied housing together represent one of the most important components of the tax expenditure budget. The Joint Committee on Taxation (2007) estimates that the revenue cost of the home mortgage interest deduction is $73.7 billion for fiscal 2007. The deduction for state and local property taxes is estimated to reduce federal individual income tax revenues by $16.8 billion, and the cost of the tax treatment of capital gains on owner-occupied housing at $28.5 billion.

This paper describes the various income tax provisions that contribute to the current tax subsidy to owner-occupied housing, and it uses household level data to describe the distribution of tax savings from each of these benefits. It then considers the revenue cost of these provisions, and explores the sensitivity of revenue estimates to alternative assumptions about how current tax rules affect taxpayer behavior. The paper also considers how altering the various tax provisions that affect homeowners would affect the user cost of owner-occupied housing, which ultimately affects housing demand.

We focus particular attention on the revenue and user cost effects of repealing the mortgage interest deduction. In an insightful recent paper, Gervais and Pandey (forthcoming) point out that if mortgage interest were no longer deductible, many households would adjust their portfolios to replace mortgage debt with housing equity and in the process draw down their holdings of other taxable assets. This process would reduce the tax collected on the income from

these other assets, and therefore reduce the revenue gain from repealing the mortgage interest deduction. While Gervais and Pandey (forthcoming) suggest that such portfolio adjustments might dissipate as much as two thirds of the revenue gains that are usually associated with repeal of the mortgage interest deduction, our analysis suggests more modest effects. More generally, our investigation of how behavioral responses alter the standard analysis of housing-related tax expenditures provides new evidence on the robustness of these estimates.

The paper is divided into five sections. Section one describes the user cost framework that underlies our analysis of the incentive effects of various tax policies. The next section describes the 2004 Survey of Consumer Finances and the NBER TAXSIM model, the two key inputs to our data analysis. This section also summarizes background information on key parameters that affect the user cost as well as the revenue cost of the mortgage interest and property tax deductions. Section three presents our estimates of the user cost of housing under the current tax regime as well as several alternatives. Section four addresses the tax expenditure for owner occupied housing directly, by presenting our estimates of the distribution of the tax benefits from the current tax treatment of owner-occupied housing as well as several alternative policy regimes. We use the changes in the user cost associated with various policies to evaluate how reforms might affect housing demand and thus the revenue collected under modified policies. A brief conclusion suggests several directions for future work.

1. Conceptual Framework for Analyzing the Tax Subsidy to Owner-Occupied Housing

Much of our analysis is concerned with the revenue consequences of various tax expenditure provisions, but before turning to those issues, it is important to sketch the conceptual framework that we use to analyze the tax treatment of owner-occupied housing. The user cost of capital is a standard tool for such analysis. Poterba (1992), Gyourko and Sinai (2004),

Himmelberg, Mayer, and Sinai (2005) (hereafter HMS), and many others have used this approach to describe homeowners' marginal costs of purchasing additional housing services. It is a guide to the marginal incentive effects of various tax policies. Because some tax changes may move taxpayers across tax brackets and because infra-marginal and marginal effects may differ, detailed analysis of the effect of tax provisions on the tax payments of various households do not necessarily match the estimated user cost effects.

If owner-occupied housing were taxed in the same way as other durable investments, homeowners would be taxed on their rental income and they would be able to deduct interest payments, depreciation and maintenance expenses, property taxes, and other costs of providing housing services. The current U.S. income tax structure does not tax homeowners on their imputed rental income, and it does not allow them to deduct depreciation or maintenance expenses. It does allow deductions for mortgage interest payments and property taxes. Other nations vary in their tax treatment of owner-occupied housing. While imputed rental income is rarely taxed, many nations disallow deductions for mortgage interest payments.

The failure to tax implicit rent creates a tax subsidy to owner-occupied housing. Its magnitude can be measured as the difference in the user cost under the current tax code and what the user cost would be if homeowners were subject to "landlord taxation." We define the user cost under the current tax regime, c, as:

$$(1) \qquad c = [1 - \{\tau_{ded}*\lambda + \tau_y*(1-\lambda)\}]*r_T - \tau_{ded}*\lambda*(r_M - r_T) + (1-\tau_y)*\beta + m + (1-\tau_{ded})*\tau_{prop} - \pi_e.$$

In this expression, λ is the loan-to-value ratio, r_T is the ten-year Treasury bond rate, r_M denotes the mortgage interest rate, and $\lambda*(r_M - r_T)$ is the cost of the default and refinancing options that the homeowner obtains by paying r_M rather than r_T as a mortgage interest rate. The pre-tax risk premium is denoted by β, m is the cost of depreciation and maintenance, τ_{prop} is the property tax

rate, and π_e is the expected nominal appreciation rate of owner-occupied homes.

The marginal income tax rate applicable to mortgage interest and property tax deductions may differ from that on investment income if a taxpayer does not itemize for federal income tax purposes. We therefore allow for two separate tax rates, τ_{ded} and τ_y, in our expression for the user cost. These tax rates are the marginal income tax rates on itemized deductions and on investment income, respectively. We assume that capital gains on homes are untaxed. Since 1997, married (single) homeowners have been able to realize $500,000 ($250,000) of capital gains tax-free after a holding period of two years. Relatively few accruing housing capital gains are likely to face taxation under this regime.

The only dimension on which our user cost expression diverges from most previous studies is in the treatment of the risk-adjusted cost of funds. Many past studies have used a loan-to-value weighted average of the mortgage interest rate and a return on an alternative asset to measure the cost of funds. The alternative asset return is often defined as the yield on a high-quality bond, such as a long-dated Treasury or an AAA corporate. Such return measures do not accurately capture the relevant cost of funds for a homeowner. HMS (2005) note that mortgage interest rates include not only the risk-adjusted required return on a housing loan, but also a premium for the refinancing and default options that the lender provides to the borrower. The conceptually appropriate measure of the required return on housing investments should not include either of these premia. Our user cost expression therefore removes the annual cost of purchasing these financial options from the mortgage interest rate. However, as in HMS (2005), we recognize that the cost of these financial options is tax-deductible for homeowners, so we subtract the tax subsidy to these options when we define the user cost.

In addition, the required returns on alternative assets do not reflect the risk premium that

investments in owner-occupied homes should command. Our approach follows Poterba (1992) and several other studies in adding a risk premium to the user cost calculation. Homeowners bear both asset-class risk and idiosyncratic, house-specific risk. Because it is difficult to diversify the house-specific risk of a housing investment, even house-specific risk that is unrelated to the aggregate housing market may raise the required return for a household.

If homeowners were taxed on their houses as if they were landlords, then the rental value of the house would be taxed and maintenance, depreciation, mortgage interest, and property taxes would be deductible at the tax rate τ_y. In this case the equilibrium condition for a household to be indifferent to owning another unit of housing would be:

$$(2) \qquad (1-\tau_y)*(R/P) = (1-\tau_y)*(r_T + m + \tau_{prop} + \beta) - \tau_y*\lambda*(r_M - r_T) - \pi_e.$$

If we set the user cost c' for this "landlord treatment" case equal to R/P, then we find

$$(3) \qquad c' = (R/P) = r_T + m + \tau_{prop} + \beta - [\tau_y/(1-\tau_y)]*\lambda*(r_M - r_T) - \pi_e/(1-\tau_y).$$

In equilibrium, this expression implies that the rent-to-value ratio, R/P, would vary across households. In practice, a tax policy that sought to tax households on imputed rental income would almost certainly require an assumption of constant R/P values.

The tax subsidy per dollar of owner-occupied housing is the difference between c' and c:

$$(4) \qquad c' - c = \{\tau_{ded}*\lambda + \tau_y*(1-\lambda)\}*r_T - \{[\tau_y/(1-\tau_y)] - \tau_{ded}\}*\lambda*(r_M - r_T) + \tau_y*\beta + \tau_{ded}*\tau_{prop} + \tau_y*\pi_e/(1-\tau_y).$$

This tax subsidy can be sub-divided into four components. First, there is a component due to mortgage interest deductibility: $\tau_{ded}*\lambda*r_M - \tau_y/(1-\tau_y)*\lambda*(r_M - r_T)$. The first part of this expression accounts for the standard deductibility effect, while the second part adjusts for differential taxation between homeowners and landlords of the mortgage default option. Second, there is a component due to property tax deductibility: $\tau_{ded}*\tau_{prop.}$ Third, there is a component due

to the return on the equity invested in the house being untaxed: $\tau_y*(1-\lambda)*r_T + \tau_y*\beta$. Finally, there is a component that reflects the favorable treatment of housing capital gains: $\tau_y/(1-\tau_y)*\pi_e$. For a landlord, the relatively light taxation of housing appreciation is capitalized into rent and taxed as income. Homeowners, however, are not taxed on their imputed rent and therefore benefit more from the light taxation of housing gains.

When evaluated using last-dollar tax rates, user cost measures such as (1) or (3) describe the price of an additional dollar of owner-occupied housing, and equation (4) measures the tax subsidy, relative to landlord taxation, to the consumer's last dollar of housing purchase. These last-dollar measures do not, however, measure the total value of the tax subsidy to owner-occupiers. This observation was made by Follain and Ling (1991) and many others. The total subsidy to homeownership for a given household can be computed by integrating equation (4) over the amount of housing consumed. The total subsidy can differ from the last-dollar subsidy times the house value because the tax rates can change between the first and last dollars of housing spending due to nonlinearities in the tax schedule, particularly those associated with the switch from the standard deduction to claiming itemized deductions. In practice, we calculate the tax value of each of components in (4) as the difference between the household's tax bill with that component set to zero, and the household's actual tax bill. For example, the tax value of the mortgage interest deduction is the difference between the household's tax bill with mortgage interest set to zero, and all other income items at their actual values, and the household's actual tax bill. The average tax rate applicable to mortgage interest is this tax difference divided by the total amount of mortgage interest.

At various points in our analysis below, we explore the effect of setting $\tau_{ded} = 0$ for mortgage interest or for property taxes, or taxing households using equation (3) rather than

equation (1). Any of these reforms would move the user cost of owner-occupiers closer to landlord tax treatment. An alternative to the landlord taxation benchmark that we consider is the "no taxation" benchmark. The user cost in this case would be:

(5) $$c'' = r_T + \beta + m + \tau_{prop} - \pi_e.$$

The landlord taxation benchmark seems like the more natural benchmark case to consider.

2. Household Data: The Survey of Consumer Finances and TAXSIM

Our primary source of information on household balance sheets and income flows is the 2004 Survey of Consumer Finances (SCF). The survey was carried out in early 2004 and asked households about their incomes for 2003, as well as their assets and liabilities, including owner-occupied homes and mortgages, in 2004. The SCF sample includes 22,595 household observations, based on five replicates for each of 4,519 underlying households. The sub-sample we analyze throughout this study excludes 1,475 observations corresponding to households that live on a farm or a ranch or in a mobile home, 812 additional observations for households headed by someone under the age of 25, 64 additional observations that report having mortgages but pay no mortgage interest, 11 additional observations with loan-to-value ratios above 1.5, and 64 additional observations with inexplicably high estimated marginal tax rates. This leaves a sub-sample of 20,169 observations. We rely on the households' self-reported incomes and demographic variables with the exception of capital income. We estimate marginal tax rates for the 2003 tax year using the NBER TAXSIM federal and state income tax calculators and Moore's (2003) mapping of SCF data to tax return items.

One difficulty with the SCF data is that households often fail to report capital income even when they report owning assets such as government, mortgage-backed, savings, corporate, foreign, and tax-free bonds; government or government-backed bond, tax-free bond, and other

bond mutual funds; money in savings, money market, and brokerage call accounts; and stocks and stock mutual funds that should generate capital income. In our data, 6,317 household-replicates, representing nearly 38 million weighted household observations, fit this description. To address this problem, we impute capital income based on asset stocks using their average market yields from 2003: cash accounts such as savings, money market, and brokerage call accounts are assumed to yield 1.06 percent; tax-exempt bonds and bond funds, 3.69 percent; government, mortgage, and savings bonds, 4.24 percent; and corporate and foreign bonds, 4.75 percent. We assume that stocks and stock mutual funds have a 2.0 percent dividend yield, and we assume that capital gains on stocks and equity mutual funds are not taxed. The latter assumption undoubtedly understates the taxes associated with equity assets.

In aggregate, we impute $231 billion in dividend and interest income; SCF households report $248 billion. The difference arises because while we impute capital income to many households that report having no income, we impute a lower mean number to those who do report income. When we compare the capital income generated by our imputation procedure to the self-reported capital income for those households who actually reported capital income, our imputation procedure generates average dividend and interest income of about $3200, compared with average self-reported income in these categories of about $3,800. Because of this, our imputation procedure raises aggregate capital income for households with incomes less than $125,000 and lowers it for higher-income households. In addition, our imputation tends to over-estimate the amount of interest income and underestimate the amount of dividend income.

Before turning to calculations of the average tax saving from the current tax rules affecting owner-occupied housing, we present background data on several attributes of the homeowner population that affect the value of the tax benefits of homeownership. Table 1

presents information on the average income tax rate, τ_y, on the average tax rate at which mortgage interest is deducted, τ_{ded}, on the fraction of homeowners who itemize on their income tax returns, and on the average loan-to-value ratio, λ. In each case we present information for households in four different age groups, divided on the basis of the age of the household head, and in five different income categories based on 2003 annual household income. Household income is defined as Adjusted Gross Income plus the following items: income from non-taxable investments, an estimate of employer contributions for FICA, payments from unemployment insurance and workers compensation, gross Social Security income, and any AMT preference items that can be estimated from the SCF.

The first panel of Table 1 shows, not surprisingly, that the average tax rate on the assets that represent the alternative investment relative to mortgage debt rises with income, generating a higher average subsidy per dollar of house for higher-income households. For the lowest income households, those with household income below $40,000, the average tax rate across all age groups was 0.095. For the highest income group, those with incomes above $250,000, it was 0.279. There is also important variation by age, with households headed by someone between the ages of 35 and 65 facing average tax rates about two percentage points higher on average than those for households under the age of 35. The average income tax rate for households headed by someone over the age of 65 is about six percentage points lower than that for households between the ages of 50 and 65.

The second panel presents the average tax rate that applies to mortgage interest and property tax deductions. It varies more widely than the average tax rate on dividend income. This tax rate rises with income and declines with age, and is notable for the very low values for households headed by someone over the age of 65. Within this group, the lowest-income

households receive almost no subsidy – just 0.1 cents per dollar – whereas the highest income households face a subsidy rate of 7.5 cents per dollar. In contrast, among the households aged 25-35, those in our lowest income category receive a 3.4 percent subsidy on mortgage interest and those in the $250,000-plus income category receive a subsidy rate of 31.5 percent. In this high-income category, the average tax rate applying to deductions is above 25 percent for all age groups except that over 65.

The average subsidy rate on deductions varies more with age and income than does the tax rate on dividend income because, in addition to the income-driven variation in the underlying tax rate, the subsidy rate on deductions is affected by whether the household itemizes tax deductions. It is worthwhile for a household to itemize when its total deductions exceeds the standard deduction. If total deductions are below the standard deduction, an additional dollar of deductions does not provide any marginal tax saving. Whether a household's deductions exceed the standard deduction is determined in part by how much in housing-related deductions it would claim, as well as the amount of other deductions such as charitable giving and state taxes.

The importance of the difference between the average tax rate and the last-dollar marginal tax rate can be seen in the third panel of Table 1, which reports the cell average of the last-dollar marginal subsidy rate on mortgage interest deductions. In every cell, the last-dollar rate is significantly higher than the average rate reported in the second panel, but especially for lower-income households and older households. That is because many of these households would not itemize if they did not have the deductions associated with homeownership. Some of their property tax and mortgage interest payments do not generate incremental tax savings, because they are combined with the household's other potential deductions in reaching the threshold at which itemization is warranted.

Itemization plays a large role in the difference in average and marginal tax rates between dividend income and mortgage interest deductions. The fourth panel of Table 1 shows our estimate of the fraction of homeowners in each age/income cell who itemize. We categorize a household as an itemizer if TAXSIM estimates that the household's federal income tax liability would be lower if it itemized than if it claimed the standard deduction *and* the household reported itemizing in the SCF. In the SCF, more households report that they itemize than actually do in Treasury Department statistics. Our procedure corrects for what appears to be misreporting. Both the TAXSIM-based imputed itemization rate and the self-reported rate from the SCF are 63.3 percent. This aggregate similarity masks considerable differences in estimated itemization rates by age: fewer households under age 50 report itemizing than TAXSIM estimates should; for the under-35 group, our imputed itemization rate is about 20 percentage points higher than the self-reported value. The difference for the over-65 group is of roughly equal magnitude but in the opposite direction. Thus the intersection of the two yields an itemization rate of just 50.9 percent, or 34.7 million itemizing households. The U.S. Department of the Treasury, Internal Revenue Service (2005) reports 43.9 million itemizers filed tax returns in 2003. For the entire 2004 SCF, not just the subsample we study, the number of self-reported itemizers is 52.7 million. The number who we would predict to itemize based on TAXSIM runs with and without itemized deductions is 47.2 million. Both self-reported and TAXSIM-based itemization therefore appear to overstate the number of itemizers.

In the fourth panel, poorer and older households are less likely to itemize. More than 89 percent of homeowners with income in excess of $125,000 were predicted to itemize in 2003, compared with only 14 percent of those with incomes below $40,000. Among households headed by someone over the age of 65, the itemization rate at incomes below $75,000 is about 28

percent. It is much lower, only 2.7 percent, for the over-65 households with family income below $40,000.

The fifth panel of Table 1 reports another factor that generates differences across age and income groups in the value of current tax subsidies: the value of the household's home. Average house value rises with age and income, ranging from $119,400 to $1,115,000. There is a strong positive relationship between household income and house value. Home value averages $201,700 for families with incomes of $40-75,000, compared with $427,800 for those with incomes between $125,000 and $250,000. The sole exception is in the highest-income category, where the oldest households own slightly less valuable houses than do the 50 to 65-year-olds. Because older households are overrepresented in the lower income categories, house values drop for households over the age of 65 when we do not condition on income.

In the user cost framework of the last section, the subsidy to owner-occupied housing depends on how much of the house is financed with mortgage debt. Debt finance yields deductible mortgage interest and saves τ_{ded} per dollar, while home equity foregoes a market return that would have been taxed at τ_y. These tax rates can be different; their relative weighting is determined by the loan-to-value ratio (LTV).

The last panel of Table 1 reports average loan-to-value ratios in our various age-income cells. LTVs decline with age across the income spectrum, with an average value of 68.9 percent for households headed by someone between the ages of 25 and 35 and a value of 11.6 percent for households headed by someone over the age of 65. The average LTV in our sample is 38.6 percent. The effect of the LTV on the overall tax subsidy to housing is complex, and depends on other parameters. The fact that the LTV is lower at older ages, for example, means that the low value of the mortgage subsidy rate at those ages has only a modest impact on the user cost.

The variation in the loan-to-value ratio shown in Table 1 provides some insight on the households that would be affected if the current limit on mortgages that qualify for deduction were further restricted. Table 2 provides more refined information on the share of households with mortgage debt above various thresholds, and it demonstrates that substantial reductions in the cap would be required for the lower cap to affect meaningful numbers of households. At present, taxpayers can deduct interest on no more than $1 million of debt, when it was used to purchase, construct, or renovate a house. In addition, interest on up to $100,000 of housing debt that was used for non-housing purposes can also be deducted. Table 2 shows that the current $1 million cap is binding for only 0.2 percent of the population overall and even among those households making more than $250,000 and who have more expensive houses, it is binding for no more than 6.9 percent of any age category. Reducing the cap to $500,000, in the second panel, would affect only 1.6 percent of households, and would affect almost none of the households with incomes below $125,000. This cap would only affect about 20 percent of the highest-income households.

A cap of $250,000 would bind for a larger percentage of households. If there were no changes in behavior, a $250,000 mortgage cap would affect almost 7 percent of U.S. homeowners. The limit would be more likely to bind on younger, high-income homeowners – the fraction with mortgage debt in excess of $250,000 ranges from 25 to 65 percent. Even if the mortgage interest deduction were eliminated, it would only affect 68.5 percent of all homeowners. For younger households, however, the effect would be widespread. Almost 95 percent of 25-35 year old homeowners have mortgages, compared with 28.1 percent of homeowners over age 65.

3. The Tax Expenditure for Owner-Occupied Housing

In this section, we estimate the various components of the tax expenditure on owner-occupied housing and how they are distributed by age and income. Then we consider the revenue consequences of various possible policy changes.

The first panel of Table 3 shows the total tax saving from current income tax provisions. We measure the pre-tax cost of funds as the risk-free medium-term interest rate plus a risk premium, and we use the ten-year Treasury bond rate as the riskless rate (r_T). We assume a pre-tax risk premium (β) of 200 basis points. This value follows earlier studies but is admittedly not well grounded in a calculation of risk and return trade-offs. The property tax rate, τ_{prop}, equals the national average property tax rate of 1.04 percent, the value used in HMS (2005). In 2003, the base year for our user cost calculations, the 10-year Treasury yield was 4.01 percent, the average mortgage interest rate was 5.82 percent, and the Livingston Survey showed expected CPI inflation of 1.4 percent. Real house price inflation between 1980 and 2002, measured by averaging state-level inflation rates computed from the OFHEO index, was 0.73 percent. We therefore assume an average nominal house price inflation rate of 2.13 (= 0.73 + 1.40) percent.

The average tax subsidy within the age and income cells that we construct ranges from $161 per household to $13,140, and averages just over $2000 per homeowner. Aggregating the household-level subsidy to homeownership across all the homeowners in the SCF, we estimate that the total tax subsidy was about $140 billion. This is substantially larger than the Joint Committee on Taxation (2003) estimate of a revenue cost of $109.8 billion for the mortgage interest, property tax, and capital gains treatment of owner-occupied housing.

Higher-income households enjoy larger tax subsidies than poorer households, with the average subsidy approximately doubling for each income category. For example, households

earning between $75,000 and $125,000 receive less than half the average subsidy ($2,041) of households earning between $125,000 and $250,000 ($4,372). In general, within income category, the average subsidy rises with age. However, in some income categories, the subsidy falls for the oldest households. This same pattern is reflected in the overall means by age in the last column of the table: the oldest households receive about half as much subsidy as do 50 to 65-year-olds, reflecting their overrepresentation in the lowest-income groups. Gyourko and Sinai (2004) find that the distribution of subsidy also varies considerably across states, cities, and towns, but the lack of geographic identifiers that are finer than large census regions makes studying this issue with the SCF virtually impossible.

Three factors shown in Table 1 – higher marginal tax rates, higher itemization rates, and higher home values at the higher income levels – contribute to the greater average value of the tax subsidy for those in the higher income brackets. Replacing the deductions for mortgage interest and property taxes with tax credits would address the first source of disparities, but not the second.

Changes to Mortgage Interest Deductibility

The next four panels of Table 3 focus on various reforms to the tax rules affecting mortgage interest. The first shows the effect of repealing the mortgage interest deduction without considering the possibility that households would adjust their debt levels when the deductibility of mortgage interest was eliminated. The average tax increase in this case is $1026, but there is substantial variation across age groups and income categories. Not surprisingly given the information shown in Table 1, the largest effect is on young, high-income households. For 25-35 year olds with income between $125,000 and $250,000, for example, the tax increase averages $3392. Our estimate of the total revenue collected by eliminating the mortgage interest

deduction is $69.8 billion. By comparison the Joint Committee on Taxation (2003) estimated the revenue cost of the tax expenditures for mortgage interest deductibility to be $69.9 billion for FY 2003. Our estimate is for the calendar year, not the fiscal year as in the JCT number, so the two values are not as similar as they appear to be.

Analyses like those presented in the second panel of Table 3 do not consider how changes in the after-tax prices of mortgage borrowing or property tax payments may affect the loan-to-value ratio. Holding the loan-to-value ratio fixed when the tax treatment of mortgage interest changes is implausible because such a tax change would mean that households with both financial assets and mortgages would be borrowing at the pretax rate of return but investing at the after-tax rate of return. A number of studies, including Ling and McGill (1998) and Dunsky and Follain (2000), suggest that mortgage borrowing responds to changes in its after-tax cost. Households with substantial financial asset holdings might choose to draw down those assets, and increase their home equity, if mortgage interest were no longer deductible. Some households, particularly younger households, might not be able to make such an adjustment because of their limited financial asset holdings.

Gervais and Pandey (forthcoming) note that if λ changes substantially in response to elimination of the mortgage interest deduction, then standard projections of the revenue increase associated with such a reform may overstate the actual adjustment by as much as a factor of three. To gauge the possibility that households will reduce their mortgage indebtedness by drawing down other financial assets, we compare household ownership of liquid financial assets with the current level of mortgage borrowing. Under the assumption that households would fully draw down their holdings of taxable financial assets to increase their home equity and avoid borrowing at the pre-tax return, the ratio of liquid assets to mortgage debt provides an indication

of the share of mortgage debt that would be replaced by asset liquidation.

Table 4 presents data on this ratio for homeowners in various age and income categories. For each household we compute the sum of liquid fixed income assets, such as checking accounts, money market funds, and Treasury and corporate bonds, as well as directly-held corporate stock and mutual funds. We aggregate these financial assets and calculate the ratio of this aggregate to outstanding mortgage debt. For all homeowners with mortgages, the median ratio of this liquid asset measure to mortgage debt is 41.4 percent. For many groups of households, however, the level of liquid assets and the corresponding capacity to replace mortgage debt by drawing down financial assets is much greater. For households with incomes between $125,000 and $250,000 and between the ages of 50 and 65, for example, the median ratio is 74.1 percent. For all groups of households with income of $250,000 or above, headed by someone over the age of 35, the median ratio is one – liquid assets exceed mortgage debt. For most households over the age of 65, not only the median within age-income groups but the 25th percentile value is unity. These statistics suggest that there are substantial numbers of households with the capacity to reduce the user cost effect of changes in the deductibility of mortgage interest by altering their portfolio structure.

The third panel in Table 3 considers the effect of portfolio adjustment on the revenue cost of the mortgage interest deduction. We assume that households would shift all available paper and liquid assets to pay down mortgage debt, up to the current cap of $1 million, if deductibility was eliminated. We assume that households whose assets exceed their mortgage debt would shift their lowest yielding assets first, then their next-lowest yielding assets, and continue with this progression. As a result of these portfolio adjustments, the average loan-to-value ratio falls from 38.6 percent to 30.7 percent.

The average tax increase is now $932, about 91 percent of the tax increase when we do not consider portfolio substitution, and the aggregate estimate of the cost of the mortgage interest tax expenditure is $63.4 billion. The relatively modest impact of portfolio substitution is due to the low rate of return on many of the assets that are liquidated to replace mortgage debt. If households sold high-yield taxable bonds, then they would experience a substantial tax saving as they replaced mortgage debt with housing equity. If they sold lightly taxed assets such as corporate stock, however, the principal effect on revenues would come from the disallowance of the current mortgage interest payment, not from reduced taxation of the income flows that accrued from the now-liquidated assets.

Just as in the previous panel which analyzed the repeal of the mortgage interest deduction without portfolio substitution, the estimates in the third panel of Table 3 show substantial variation. Among households between the ages of 50 and 65 with incomes between $125,000 and $250,000, for example, the average tax saving from the mortgage interest deduction is roughly $1800. For 25-35 year old homeowners with over $250,000 in income, the mortgage interest tax saving is nearly four times this level: $5917. Reflecting the lower housing tax benefits among the elderly, the average mortgage interest tax saving for homeowners over 65 is only $109, and even among those with incomes of $250,000 or more it is only $1091.

Our estimates of the effect of portfolio adjustment on the cost of the mortgage interest tax expenditure are substantially smaller than those reported by Gervais and Pandey (forthcoming). Two factors appear responsible for these differences. First, we assume lower rates of return on the various assets that are sold to replace mortgage debt. Since lower rates of return translate to less taxable income, the revenue through this channel is less significant. Second, we adopt a more restricted set of assets that we assume are drawn down to substitute for mortgage holdings.

The next two panels of Table 3 consider two restrictions on the mortgage interest deduction, the first a cap of $500,000 per household in mortgage indebtedness and the second a cap of $250,000. Anderson, Clemens, and Hanson (2007) discuss fixed nominal caps like these, as well as several other variants of limits on the mortgage interest deduction. Because the mortgage caps that we consider affect relatively few households, they have a much more modest effect on average tax payments than the repeal of the mortgage interest deduction, although once again the pattern shows larger effects for young, high-income households. We estimate the aggregate revenue gain after asset reshuffling from the $250,000 cap to be $14.0 billion. The revenue gain from the $500,000 cap is $7.0 billion.

Changes to the Property Tax Deduction

Table 5 considers eliminating the deductibility of property taxes. It shows that the average income tax saving from the property tax deduction varies across age and income categories, but less than the saving from the mortgage interest deduction. The upper panel shows the distribution of tax increases assuming that the property tax rate and all other tax rates remain the same. The lower panel assumes that the loss of federal income tax deductibility for property taxes would lead local governments to shift some of their revenue-raising to other, tax-deductible means such as local income taxes. Feldstein and Metcalf (1987) provide some evidence that sub-federal governments substitute revenue sources in response to tax incentives. We assume that the elasticity of a household's property taxes with respect to the net-of-tax rate is -1.0, so when the deductibility is eliminated, the use of property taxes falls. For our calculations, we assume that the marginal voter has a 20 percent tax rate and itemizes, so eliminating tax deductibility of property taxes increases the net-of-tax-rate from 0.80 to 1.00, a 25 percent rise. Given the -1.0 elasticity, this implies that localities would shift 25 percent of their property tax base to other

deductible forms. When we consider eliminating the property tax deductibility, then, we assume that only 75 percent of a property tax bill is disallowed.

The average income tax saving from this deduction peaks for middle-aged homeowners, rising from $313 for households under the age of 35 to over $425 for those between 35 and 65. For those over 65, the average property tax deduction falls to $151, reflecting both a decline in the deductions among older relative to younger households within each income group as well as a shift in composition of the households toward lower income categories. For this over-65 group, the tax savings from the property tax deduction substantially exceed those from the mortgage interest deduction.

Our estimates of the aggregate revenue cost of the property tax deduction are smaller than those reported by the Joint Committee on Taxation (2002). Without behavioral response, our estimate is $9.4 billion, compared with their $22.1 billion. We are exploring the source of this disparity, which may be attributable to our assumption concerning the average national property tax rate.

4. User Cost Estimates: Current Tax Law and Possible Reforms

We now shift from our focus on the tax expenditure cost of the various income tax provisions that affect homeowners to an analysis of the user cost of housing. The revenue estimates we considered above do not measure the effect of tax changes on the marginal cost of owner-occupied housing and thus housing demand. In a more dynamic analysis, one would even consider the revenue consequences of the reduction in housing demand from the increases in user cost that would stem from eliminating various deductions or taxing homeowners as landlords.

We use the user cost framework described in the first section and last-dollar marginal tax rates to compute the last-dollar user cost of owner occupied housing under the current tax

regime, which is described in (1), and under various alternatives. Last dollar tax rates are computed by adding $1000 to one of the mortgage interest deduction, the property tax deduction, or dividend income, and using TAXSIM to compute the resulting change in household taxes. This tax differential is divided by $1000 to find the last-dollar tax rate. We use the same parameter values as in the last section. We compute each household's last-dollar user cost and take the average across all households in each of the various age and income categories.

User Cost Calculations without Behavioral Response to Tax Reforms

Table 6 reports last dollar user cost calculations. The first panel shows estimates corresponding to the actual 2003 tax law. The average user cost is 6.1 percent, but the values for various sub-samples range from 4.8 to 7.2 percent. The progressive structure of the income tax and the variation in itemization rates generates non-trivial variation in the user cost across sub-categories. Those with the highest household incomes – more than $250,000 – display an average user cost of 5.1 percent, compared with 5.6 percent for households with incomes of $75,000-125,000 and 6.9 percent for households with incomes below $40,000. There is a 38 percent range between the highest and lowest income groups.

The second panel of Table 6 reports user costs assuming that the mortgage interest deduction is repealed. Once again, we begin with the simple case in which the loan-to-value ratio is unaffected by the tax change. In this case the user cost becomes:

$$(6) \qquad c' = (1 - \tau_y*(1-\lambda))*r_T + (1-\tau_y)*\beta + m + (1-\tau_{ded})*\tau_{prop} - \pi_e.$$

The results suggest an increase in the user cost of about seven percent, from 6.1 to 6.5 percent. The effect would be largest on the high-income, young homeowners with high loan-to-value ratios. We return to this policy change, and re-examine the user cost changes when portfolio adjustment takes place, in the next sub-section.

The third panel of Table 6 considers elimination of the property tax deduction. The average impact on the user cost is an increase of one-tenth of one percentage point, from 6.1 to 6.2 percent. There is less variation across subgroups for this tax reform than for elimination of the mortgage interest deduction because property taxes as a share of the cost of the last dollar of housing do not vary much with age or income whereas the mortgage interest payments' share of the cost varies with the loan-to-value ratio. The effects of repealing either the mortgage interest or the property tax deduction are greater at higher income levels than at lower levels, because of these taxpayers' higher marginal income tax and itemization rates. For those with incomes of $250,000 and above, for example, the average user cost rises from 5.1 percent to 5.3 percent when the property tax deduction is repealed.

The final panel of Table 6 reports the user costs that would prevail if homeowners were taxed as landlords, as in (3). The specific tax reform we consider includes gross rental income in adjusted gross income but allows deductions for interest payments, property taxes, maintenance, and economic depreciation. We assume that the current tax treatment of capital gains on owner-occupied housing would continue. User costs would rise substantially to 6.6 percent, but the increase is especially large for higher-income households. In contrast, the average user cost in the "no taxation" case described in (5) would be 7.4 percent.

The difference between the user cost entries in the bottom panel of Table 6, which correspond to c' in (3) above, and those in the top panel, which correspond to c from (1), measure the net subsidy to owner-occupation reported in (4). Averaged over all homeowners, the net subsidy is 0.5 percentage points, 6.6 – 6.1. The net subsidy is largest, on average, for high income households with the highest marginal tax rates. For households with incomes between $125,000 and $250,000, for example, the subsidy is 0.9 percentage points. For those

with incomes between $40,000 and $75,000, it is 0.5 percentage points. Relative to the 7.4 percent no-tax benchmark user cost, the tax-induced user cost drop is even more dramatic.

Allowing for Portfolio Adjustment When Mortgage Interest is Not Deductible

To explore the robustness of the user cost calculations to alternative assumptions about behavioral response, we consider how households might change their financing mix in response to a change in the tax deductibility of mortgage interest. Table 7 presents estimates of changes in user costs that incorporate the financial asset portfolio adjustment for homeowners with mortgage debt that we used to generate the results in Tables 3 and 4.

The upper panel in Table 7 shows the changes in user cost assuming no change in the loan-to-value ratio – it repeats the entries shown in Table 6. The next panel shows the changes in user costs assuming that that all liquid assets that can be sold to replace mortgage borrowing are sold, and the lowest-yielding assets are sold first. In this case, assuming the mortgages on the primary residence are paid down first, the average loan-to-value ratio drops from 38.6 percent to 30.7 percent. The user cost change as a result of eliminating the mortgage interest deduction is smaller than the change in the case without behavioral response, just 0.3 percentage points (0.064 – 0.061) versus 0.4 percentage points (0.065 – 0.061).

Our focus on user costs has not examined the potential changes in housing demand that are associated with each of these policies, but it is possible to sketch the effects. If the price elasticity of demand for housing is -1, than a reduction of ten percent in the user cost of housing will translate into a ten percent increase in housing demand. This could be absorbed through higher house prices, which raise a household's housing expenditure for a given bundle of housing services, or by an increase in the economy-wide stock of housing. In principle both effects may operate, and the relative magnitudes are likely to depend on local housing market

conditions. If we used the "no taxation" benchmark instead of the landlord taxation benchmark, the proportionate reduction in the user cost would be somewhat smaller than what we report, since the baseline user cost is higher.

5. Conclusion and Future Directions

This paper examines the tax expenditures associated with the deductibility of mortgage interest and property taxes on owner-occupied houses. It presents new evidence on the distribution of the tax saving associated with these deductions across age and income categories. It also explores the sensitivity of estimates about these tax savings to the degree of behavioral response on the part of taxpayers. We pay particular attention to changes in household portfolios that might be stimulated by elimination of the mortgage interest deduction. We find that the extent to which homeowners draw down their holdings of other assets when mortgage interest is no longer deductible, and replace debt finance with housing equity, is a key determinant of the revenue impact of changing this tax expenditure. The amount of income tax liability associated with the assets that homeowners sell is also a key factor.

Age- and income-related patterns of mortgage indebtedness are important for understanding the distributional effects of eliminating the tax expenditure for mortgage interest relative to those associated with elimination of the deduction for property taxes. Mortgage debt is concentrated among younger homeowners, and many older homeowners do not even have a mortgage. Consequently, many homeowners would face only a modest tax increase, if any at all, if the mortgage interest deduction were disallowed. In contrast, the vast majority of homeowners claim property tax deductions. Including imputed rental income in the definition of taxable income would also affect all homeowners. This suggests that the distribution of burdens from eliminating the property tax deduction is closer to the pattern associated with taxing imputed rent

than to that for reducing the mortgage interest deduction.

One key shortcoming of our analysis is the relatively ad hoc modeling of the set of assets that would be liquidated to replace mortgage borrowing, and of the degree of such portfolio substitution. Portfolio substitution effects can be an important determinant of the cost of tax expenditures, and our findings suggest the need to carry out empirical work to measure the key behavioral parameters related to them.

Our analysis considers both the household tax savings associated with various income tax provisions, as well as the effect of these provisions on the user cost of owner-occupied housing. We have not analyzed the changes in housing demand that would follow from tax expenditure reforms. Many estimates suggest that the demand elasticity for owner-occupied housing is between -0.75 and -1.0. Our findings suggest that particularly for high-income households in high marginal tax brackets, the user cost reduction associated with current tax policies is between ten and fifteen percent. Eliminating both the mortgage interest deduction and the property tax deduction would lead to a substantial decline in the demand for owner-occupied housing among these households. For lower- and middle-income taxpayers, the user cost changes and the associated changes in housing demand are more modest.

We have not incorporated changes in the demand for housing into our analysis of the revenue cost of current tax expenditures, but that is a natural next step in analyzing these tax code provisions. Rosen (1985) provides a detailed summary of the range of behaviors, including tenure choice, the quantity of housing consumed, and the financing of housing purchases, that may be affected by the income tax. Building behavioral responses along each of these dimensions into tax expenditure analysis is our long-term research objective.

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Table 1: Background Data on Parameters that Affect Tax Saving from Homeownership

	Annual Household Income					
Age of Household Head	<40K	40-75K	75-125K	125-250K	250+	All
	Average Dividend Tax Rate					
25-35	0.147	0.140	0.205	0.249	0.275	0.171
35-50	0.139	0.145	0.212	0.261	0.280	0.190
50-65	0.103	0.169	0.216	0.252	0.279	0.188
> 65	0.067	0.195	0.209	0.236	0.278	0.122
All	0.095	0.160	0.212	0.254	0.279	0.170
	Average Mortgage Interest Deduction Subsidy Rate					
25-35	0.034	0.078	0.165	0.258	0.315	0.109
35-50	0.038	0.086	0.154	0.270	0.307	0.141
50-65	0.028	0.073	0.126	0.217	0.267	0.115
> 65	0.001	0.022	0.042	0.093	0.075	0.016
All	0.017	0.069	0.133	0.231	0.252	0.097
	Average Last-Dollar Mortgage Deduction Marginal Subsidy Rate					
25-35	0.062	0.132	0.234	0.278	0.338	0.159
35-50	0.070	0.135	0.208	0.292	0.359	0.183
50-65	0.052	0.128	0.187	0.281	0.351	0.168
> 65	0.005	0.063	0.107	0.230	0.329	0.047
All	0.032	0.119	0.193	0.281	0.350	0.141
	Fraction Who Itemize (Last Dollar)					
25-35	27.4%	43.2%	74.5%	89.4%	100.0%	52.9%
35-50	26.7%	58.2%	77.2%	91.7%	96.9%	66.3%
50-65	25.4%	49.8%	78.3%	87.8%	96.0%	61.4%
> 65	2.7%	28.1%	44.1%	82.5%	96.8%	18.5%
All	14.2%	47.9%	73.2%	89.1%	96.6%	50.9%
	Mean Value of Owner-Occupied Home (000s)					
25-35	119.4	147.5	259.1	343.3	674.7	194.6
35-50	126.7	188.1	253.7	422.3	993.0	273.8
50-65	156.1	208.0	264.6	428.2	1155.0	313.4
>65	159.8	266.8	283.5	504.5	1060.6	233.8
All	149.6	201.7	261.8	427.8	1072.0	266.2
	Loan-to-Value Ratio					
25-35	60.5	72.8	71.2	67.3	57.7	68.9
35-50	51.2	60.0	55.3	53.2	36.7	55.0
50-65	29.3	29.6	37.3	34.8	29.5	32.5
> 65	9.8	13.5	18.4	12.7	7.2	11.6
All	25.9	44.9	47.4	42.6	29.4	38.6

Source: Authors' calculations using 2004 Survey of Consumer Finances and Moore's (2003) interface between NBER TAXSIM program and the SCF. Averages are weighted using the SCF's replicate weights.

Table 2: Levels of Mortgage Debt, By Age and Household Income

	Annual Household Income					
Age of Household Head	<40K	40-75K	75-125K	125-250K	250+	All
	Fraction of Homeowners With Home Acquisition Debt > $1,000,000					
25-35	0.000	0.000	0.000	0.000	0.013	0.000
35-50	0.000	0.000	0.001	0.000	0.069	0.003
50-65	0.000	0.000	0.001	0.001	0.051	0.004
> 65	0.000	0.000	0.001	0.005	0.005	0.001
All	0.000	0.000	0.001	0.001	0.049	0.002
	Fraction of Homeowners With Home Acquisition Debt > $500,000					
25-35	0.000	0.000	0.033	0.043	0.113	0.015
35-50	0.001	0.005	0.001	0.068	0.233	0.024
50-65	0.000	0.000	0.007	0.014	0.212	0.018
> 65	0.000	0.000	0.002	0.015	0.042	0.002
All	0.000	0.002	0.008	0.039	0.190	0.016
	Fraction of Homeowners With Home Acquisition Debt > $250,000					
25-35	0.020	0.012	0.121	0.362	0.654	0.078
35-50	0.014	0.046	0.087	0.246	0.444	0.106
50-65	0.006	0.023	0.065	0.121	0.490	0.078
> 65	0.000	0.003	0.028	0.051	0.094	0.009
All	0.005	0.026	0.078	0.183	0.420	0.069
	Fraction of Homeowners With Home Acquisition Debt > $0					
25-35	0.852	0.957	1.000	1.000	0.995	0.949
35-50	0.844	0.920	0.910	0.957	0.848	0.908
50-65	0.564	0.683	0.746	0.739	0.748	0.686
> 65	0.237	0.329	0.431	0.339	0.213	0.281
All	0.471	0.751	0.812	0.812	0.708	0.685

Source: Authors' calculations using 2004 Survey of Consumer Finances. Averages are weighted using the SCF's replicate weights.

Table 3: Tax Saving from Current Tax System and Impact of Changes in Mortgage Interest Deductibility

	Annual Household Income					
Age of Household Head	<40K	40-75K	75-125K	125-250K	250+	All
	Average Tax Subsidy to Owner-Occupied Housing					
25-35	161	640	1,902	3,522	7,523	1,188
35-50	313	997	2,017	4,430	11,813	2,263
50-65	639	1,345	2,147	4,347	13,140	2,716
> 65	579	1,701	2,014	4,746	11,251	1,428
All	510	1,168	2,041	4,372	12,235	2,059
	Tax Increase from Eliminating Mortgage Interest Deduction (Without Portfolio Adjustment)					
25-35	220	567	1,779	3,392	6,936	1,122
35-50	248	734	1,467	3,402	6,411	1,592
50-65	146	469	989	1,995	5,534	1,141
> 65	5	143	271	877	1,360	138
All	98	524	1,214	2,583	5,233	1,026
	Tax Increase from Eliminating Mortgage Interest Deduction (With Portfolio Adjustment)					
25-35	214	542	1,705	3,256	5,917	1,067
35-50	238	705	1,397	3,112	5,420	1,466
50-65	139	434	905	1,808	4,577	1,011
> 65	3	120	203	706	1,091	109
All	93	495	1,139	2,356	4,368	932
	Tax Increase from Capping Deductible Mortgages at $500,000 (With Portfolio Adjustment)					
25-35	14	22	90	249	1,258	70
35-50	10	25	90	305	1,559	158
50-65	7	33	58	171	1,152	133
> 65	1	7	35	105	211	16
All	5	24	73	228	1,145	103
	Tax Increase from Capping Deductible Mortgages at $250,000 (With Portfolio Adjustment)					
25-35	14	32	247	851	2,825	180
35-50	11	59	155	806	2,681	326
50-65	7	51	110	270	2,246	242
> 65	1	7	37	169	436	25
All	5	43	141	527	2,133	206

Source: Authors' calculations using 2004 Survey of Consumer Finances and Moore's (2003) interface between NBER TAXSIM program and the SCF. Averages are weighted using the SCF's replicate weights.

Table 4: Fraction of Mortgage Debt that could be "Replaced" with Equity from Liquid Fixed-Income Assets, Stocks, or Mutual Funds

		Annual Household Income (000s)					
Age	Quantile	< 40	40-75	75-125	125-250	> 250	All
25-35	25th	0.005	0.023	0.053	0.065	0.441	0.018
	50th	0.025	0.051	0.102	0.130	0.938	0.065
	75th	0.076	0.152	0.247	0.382	0.947	0.216
35-50	25th	0.006	0.021	0.042	0.068	0.556	0.026
	50th	0.023	0.061	0.137	0.306	1.000	0.118
	75th	0.378	0.318	0.480	0.979	1.000	0.603
50-65	25th	0.035	0.067	0.087	0.138	0.550	0.093
	50th	1.000	0.773	0.529	0.741	1.000	0.819
	75th	1.000	1.000	1.000	1.000	1.000	1.000
> 65	25th	1.000	1.000	1.000	1.000	1.000	1.000
	50th	1.000	1.000	1.000	1.000	1.000	1.000
	75th	1.000	1.000	1.000	1.000	1.000	1.000
All	25th	0.042	0.030	0.059	0.107	0.704	0.054
	50th	1.000	0.167	0.225	0.413	1.000	0.414
	75th	1.000	1.000	1.000	1.000	1.000	1.000

Source: Authors' calculations using 2004 Survey of Consumer Finances. Averages are weighted using the SCF's replicate weights.

Table 5: Local Public Finance Adjustment and the Revenue Effects of Repealing the Property Tax Deduction

Income:	<40K	40-75K	75-125K	125-250K	250+	All
	Repeal Property Tax Deduction – No Change in Local Government Behavior					
25-35	134	267	613	1,110	1,668	415
35-50	128	304	605	1,131	2,445	603
50-65	119	272	528	981	2,392	572
>65	60	202	267	778	2,305	202
All	92	271	540	1,035	2,372	468
	Repeal of Property Tax Deduction – Local Governments Shift Sources of Revenue					
25-35	103	202	463	827	1,219	313
35-50	97	235	457	835	1,776	451
50-65	89	214	403	722	1,711	425
> 65	43	160	206	599	1,638	151
All	68	210	410	765	1,705	350

Source: Authors' calculations using 2004 Survey of Consumer Finances and Moore's (2003) interface between NBER TAXSIM program and the SCF. Averages are weighted using the SCF's replicate weights. In the second panel, the elasticity of property tax revenues with respect to the net-of-tax price is assumed to be -1. We assume localities either do not spend the lost revenue or raise it with non-deductible tax instruments. The user cost elasticity of housing demand is assumed to be -0.75. We assume that changes in demand are fully capitalized into house prices and are accounted as additional housing equity.

Table 6: Last-Dollar User Cost of Owner-Occupied Housing Under Various Tax Policies

Household Income (000s):	<40	40-75	75-125	125-250	250+	All
Age of Household Head	2003 Law					
25-35	0.064	0.060	0.053	0.049	0.048	0.058
35-50	0.065	0.060	0.055	0.051	0.050	0.057
50-65	0.067	0.060	0.056	0.052	0.051	0.059
> 65	0.072	0.065	0.063	0.057	0.054	0.068
All	0.069	0.061	0.056	0.052	0.051	0.061
	Repeal of Mortgage Interest Deduction					
25-35	0.067	0.066	0.063	0.060	0.060	0.065
35-50	0.068	0.065	0.062	0.060	0.058	0.063
50-65	0.068	0.063	0.061	0.058	0.057	0.062
> 65	0.072	0.066	0.064	0.059	0.055	0.069
All	0.070	0.065	0.062	0.059	0.057	0.065
	Repeal of Property Tax Deduction					
25-35	0.065	0.062	0.055	0.052	0.051	0.060
35-50	0.066	0.061	0.057	0.053	0.053	0.059
50-65	0.068	0.062	0.058	0.055	0.053	0.060
> 65	0.073	0.066	0.064	0.059	0.056	0.069
All	0.070	0.062	0.058	0.054	0.053	0.062
	Apply Landlord Tax Treatment to Owner-Occupied Housing					
25-35	0.067	0.065	0.061	0.057	0.058	0.064
35-50	0.068	0.066	0.063	0.060	0.061	0.064
50-65	0.070	0.067	0.064	0.062	0.061	0.066
> 65	0.073	0.069	0.069	0.066	0.064	0.071
All	0.071	0.066	0.064	0.061	0.061	0.066

Source: Authors' calculations using 2004 Survey of Consumer Finances and Moore's (2003) interface between NBER TAXSIM program and the SCF. Averages are weighted using the SCF's replicate weights.

Table 7: Portfolio Adjustment and the User Cost Effects of Repealing Mortgage Interest Deductibility

Income (000s):	<40	40-75	75-125	125-250	250+	All
Age of Household Head	Repeal of Mortgage Interest Deduction, No Portfolio Change					
25-35	0.067	0.066	0.063	0.060	0.060	0.065
35-50	0.068	0.065	0.062	0.060	0.058	0.063
50-65	0.068	0.063	0.061	0.058	0.057	0.062
> 65	0.072	0.066	0.064	0.059	0.055	0.069
All	0.070	0.065	0.062	0.059	0.057	0.065
	Repeal of Mortgage Interest Deduction, Full Portfolio Adjustment					
25-35	0.067	0.066	0.062	0.058	0.055	0.064
35-50	0.068	0.064	0.061	0.058	0.055	0.062
50-65	0.068	0.062	0.060	0.057	0.055	0.062
> 65	0.072	0.065	0.064	0.059	0.055	0.069
All	0.070	0.064	0.061	0.057	0.055	0.064

Source: Authors' calculations using 2004 Survey of Consumer Finances and Moore's (2003) interface between NBER TAXSIM program and the SCF. Averages are weighted using the SCF's replicate weights.