

Tax Expenditures for Owner-Occupied Housing: Deductions for Property Taxes and Mortgage Interest and the Exclusion of Imputed Rental Income

AUTHORS

James Poterba (corresponding)
Department of Economics, E52-373A
MIT
50 Memorial Drive
Cambridge MA 02142-1347
617 253 6673
Fax 617 484 8572
Poterba@mit.edu

Todd Sinai
The Wharton School
University of Pennsylvania
1465 Steinberg Hall – Dietrich Hall
3620 Locust Walk
Philadelphia, PA 19104-6302
215 898 5390
Fax 215 573 2220
Sinai@wharton.upenn.edu

Session Title: U.S. Fiscal Institutions: Reforming Tax Expenditures (Saturday January 5, 2:30)
Session Chair: James Poterba
Discussant: Edward Glaeser

Tax Expenditures for Owner-Occupied Housing: Deductions for Property Taxes and Mortgage Interest and the Exclusion of Imputed Rental Income

James Poterba and Todd Sinai*

Federal income tax policy affects the cost of homeownership for many households. Popular discussions of the favorable tax treatment of owner occupied housing usually focus on the tax-deductibility of mortgage interest payments and state and local property tax payments, as well as the specialized tax rules that affect housing capital gains. Academic discussions, in contrast, emphasize the exclusion of the imputed rental income on owner-occupied housing as the key tax benefit for homeowners. This paper summarizes the distribution of the tax benefits associated with the mortgage interest and property tax deductions, and contrasts them with the distribution of benefits associated with the tax-exemption of imputed rental income. It also reports how each of these tax provisions affects the user cost of owner-occupied housing.

I. Patterns of Homeownership, Mortgage Borrowing, and Itemization Status

Variation across age and income groups in the tax savings associated with the mortgage interest and property tax deductions results primarily from differences in homeownership rates, itemization rates, and the financing of homes. We illustrate these differences using the sample of non-farm households in the 2004 Survey of Consumer Finances. The SCF sample includes 22,595 household observations, based on five replicates for each of 4,519 underlying households. The sub-sample we analyze 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

* Department of Economics, MIT, 50 Memorial Drive, Cambridge, MA 02142 and NBER (Poterba@mit.edu); Wharton School, University of Pennsylvania, 1465 Steinberg Hall – Dietrich Hall, 3620 Locust Walk, Philadelphia, PA 19104-6302 and NBER (Sinai@wharton.upenn.edu). We are grateful to Igar Fuki for outstanding research assistance 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.

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 subsample of 20,169 observations for our analysis. We estimate each household's marginal federal income tax rates for the 2003 tax year using the NBER TAXSIM federal and state income tax calculators and Kevin Moore's (2003) mapping of SCF data to tax return items.

Table 1 reports summary information on housing market attributes for several sub-groups in the population, stratifying by age of the household head and household income in 2003. 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 the percentage of homeowners who itemize on their federal income tax returns – a precondition for claiming the mortgage interest or property tax deductions. 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. More than 98 percent of homeowners with income in excess of \$125,000 claim itemized deductions, compared with only 23 percent of those with incomes below \$40,000. The TAXSIM-based imputed itemization rate is 63.1 percent, which compares with 63.3 percent using self-reported itemization status from the SCF. The aggregate similarity masks differences for the youngest and oldest households making less than \$125,000: 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.

The second panel in Table 1 summarizes the loan-to-value ratio for homeowners in each

age-income category. The average loan-to-value ratio for households over the age of 65 with an income of less than \$40,000 is 9.8 percent, compared with 55 (69) percent for all households with heads between the ages of 35 and 50 (25 and 35). The third panel shows the mean value of primary homes for homeowners in various income-age cells. 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. Mortgage interest and property tax deductions, as well as the tax saving from excluding imputed rental income from the tax base, tend to rise with house value.

II. User Costs and Imputed Rental Income

The neoclassical investment model, which focuses on the user cost of capital, is a standard tool for studying housing demand and analyzing the equilibrium value of the imputed rental income accruing to homeowners under various tax regimes. Poterba (1992), Joseph Gyourko and Sinai (2004), Charles Himmelberg, Christopher Mayer, and Sinai (2005) (hereafter HMS), and many others have used this approach to describe homeowners' marginal costs of purchasing additional housing services. If owner-occupied housing were taxed in the same way as other durable investments, homeowners would be taxed on their rental income but they would be able to deduct interest payments, depreciation and maintenance expenses, local property taxes, and other costs of providing housing services.

Our approach to estimating the user cost of owner-occupied housing (c) follows most previous studies except in our 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 this cost. Neither return measure is an appropriate component of the cost of funds. 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 cost of these financial options should be removed from the cost of funds. In addition, the returns on alternative assets do not reflect the risk premium that investments in owner-occupied homes should command. Our approach follows some previous studies, such as Poterba (1992), in adding a risk premium component to the user cost calculation. Homeowners bear both asset-class risk and idiosyncratic, house-specific risk.

We define the appropriate pre-tax cost of funds as the risk-free medium-term interest rate plus a risk premium. We measure the former using the ten-year Treasury bond rate, r_T , and assume a pre-tax risk premium of 200 basis points. This value follows earlier studies but is admittedly not well grounded in a calculation of risk and return trade-offs. Although the loan-to-value ratio does not affect the cost of funds that enters our expression for the user cost, we need to recognize that the marginal income tax rate applicable to mortgage interest and property tax deductions may differ from that on investment income if a homeowner does not itemize. We therefore define the user cost as:

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

In this expression, r_M denotes the mortgage interest rate, λ is the loan-to-value ratio, $\tau_{\text{ded}} * \lambda * (r_M - r_T)$ the tax subsidy to the default and refinancing options that the homeowner purchases by paying r_M rather than r_T as a mortgage interest rate, β is the pre-tax risk premium, m is the cost of depreciation and maintenance, set to 0.025, τ_{prop} equals the national average property tax rate (0.0104), and π_e is the expected nominal appreciation rate of owner-occupied homes. The user cost depends on two tax parameters, τ_{ded} and τ_y . These are the marginal income tax rates on itemized deductions and investment income, respectively. We assume that nominal capital gains on owner-occupied 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. 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, the Livingston Survey showed expected CPI inflation of 1.4 percent, and the average of state-level real house price inflation between 1980 and 2002, as measured by 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 user cost evaluated at the marginal tax rates corresponding to the ‘last dollar’ of mortgage interest and property tax deductions and of investment income determines the marginal cost of consuming one more unit of owner-occupied housing. In equilibrium, each household’s imputed rental income (R) per unit of housing capital divided by the asset price of a unit of housing capital (P) equals the user cost: $R/P = c$. Our analysis suggests that the ratio of rental income to house value (R/P) varies across age and income groups. Whether household-specific variation in imputed rent values should be considered when calculating the tax consequences of taxing imputed rent is an open question. Our illustrative calculations of the value of imputed rent assume a single imputed rent ratio, (R/P), for all owner-occupiers.

Table 2 presents our estimates of average “last dollar” user costs in 2003, stratified by household age and income. The top panel shows estimates corresponding to the actual 2003 tax law. The average user cost is 6.0 percent, but the values for various sub-samples range from 4.7 to 7.2 percent. The progressive structure of the income tax generates non-trivial variation in the user cost across sub-categories. Those with the highest household incomes – more than \$250,000 – average a user cost of 5.0 percent, while the user cost averages 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 2 considers the elimination of the tax-deductibility of mortgage interest payments. In this case the user cost becomes:

$$(2) \quad c' = (1 - \tau_y * (1 - \lambda)) * r_T + (1 - \tau_y) * \beta + m + (1 - \tau_{ded}) * \tau_{prop} - \pi_e.$$

This equation assumes that the loan-to-value ratio (λ) does not adjust to the elimination of mortgage interest deductibility, even though with this reform those with both financial assets and mortgages would be borrowing at the pretax but investing at the after-tax rate of return. Martin Gervais and Manish Pandey (2006) note that changing the tax treatment of mortgage interest might have little impact on the user cost if households altered their loan-to-value ratios in response. We are not aware of definitive estimates of how changing the tax treatment of mortgage interest would affect loan-to-value ratios but this is clearly a key parameter for evaluating the current tax expenditure. The results in Table 2 suggest that repealing the mortgage interest deduction, with no change in loan-to-value ratios, would raise the average user cost from 6.0 to 6.4 percent, a 7 percent increase in cost. The effect would be largest on the high-income, young homeowners for who the loan-to-value ratio is highest. These households may have limited holdings of other financial assets, so their capacity to adjust their loan-to-value ratios may be muted relative to other households.

The third panel of Table 2 considers elimination of the property tax deduction. The average impact on the user cost is an increase of two-tenths of one percentage point, from 6.0 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 house value do not vary with age or income as much as mortgage interest payments as a share of house value. 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 rates. For those with incomes of \$250,000 and above, for example, the average user cost rises from 5.1 percent to 5.4 percent when the property tax deduction is repealed.

The final panel of Table 2 examines how the user cost would change if homeowners were taxed as landlords. The specific tax reform we consider would include gross rental income in adjusted gross income but allow 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. In this case the equilibrium condition for investment in an owner occupied house would be:

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

Solving for the equilibrium value of (R/P), which equals the user cost from (1), yields

$$(4) \quad (R/P) = r_T + m + \tau_{prop} + \beta - [\tau_y/(1-\tau_y)]*\lambda*(r_M - r_T) - \pi_e/(1-\tau_y).$$

User costs would rise substantially if owners were taxed as if they were landlords. The average user cost in this case is 8.4 percent, and the increase is especially large for higher-income households. Even low income households, however, would experience an increase of nearly thirty percent in their user cost. Households can choose the amount of housing capital to hold, thereby altering their marginal value (R) of another unit of housing services. Changes in user costs like those reported in Table 2 translate into changes in housing demand and would affect real house prices and the quantity of housing in a manner that depends on housing market conditions such as those described in Edward Glaeser and Gyourko (2007).

III. The Distribution of Tax Benefits from Housing Tax Expenditures

The last three panels in Table 1 provide information how changes in tax rules would affect the tax liabilities of current homeowners, again focusing on tax year 2003. The table

reports averages for homeowners in each age-income subcategory. The first panel shows that while the average homeowner saves \$1,060 as a result of the mortgage interest deduction, the benefits of this tax expenditure are much greater for higher income households. This is a result both of larger mortgages and of higher average marginal tax rates. The highest mortgage interest deductions correspond to young, high-income households. These are households with expensive houses and high loan-to-value ratios. Among households with incomes between \$125,000 and \$250,000, for example, the average tax saving from the mortgage interest deduction is roughly \$3,600 for households under the age of 50. For 25-35 year old homeowners with over \$250,000 in income, the mortgage interest tax saving is nearly twice this level: \$7,077. Reflecting lower loan-to-value ratios among the elderly, the average mortgage interest tax saving for homeowners over the age of 65 is only \$149, and even among those with incomes of \$250,000 or more it is only \$1,435. The distribution of this subsidy differs from the changes in user cost in Table 2 because it depends on the average tax benefit from homeownership, while the user cost calculation focuses on the marginal cost of additional housing. Since housing deductions frequently drive itemization, there can be large gaps between average and marginal tax rates on mortgage interest and property tax deductions.

The next panel shows that the average income tax saving from the property tax deduction also varies across age and income categories, but less than the saving from the mortgage interest deduction. The average income tax saving from this deduction peaks for middle-aged homeowners, rising from \$393 for households under the age of 35 to over \$600 for those between 35 and 65. For those over 65, the average property tax deduction falls to \$242, reflecting both a decline in the deductions among older relative to younger households within income sub-categories as well as a shift toward lower income categories and a corresponding

decline in the probability of itemizing deductions. For this group, the tax savings from the property tax deduction substantially exceed those from the mortgage interest deduction.

The last panel in Table 1 presents the change in income tax that would be associated with imputing rental income to homeowners using an economy-wide value for the rental value-to-house value ratio. Our calculations assume that the average user cost in 2003, 6.0 percent, would be used to impute the gross rental value of owner-occupied homes, and that homeowners could then deduct 2.5 percent of their home value to reflect the cost of depreciation and maintenance. By applying the average user cost under the current tax rules, we do not allow for the adjustment of R/P or the level of housing capital that would take place over time if the tax base included imputed rent. Taxing net imputed rent would lead to substantially higher tax burdens for homeowners. Our calculations suggest that average taxes would rise by almost \$1900, and age 50+ households making \$250,000 or more would owe \$10,000 or more in additional taxes. These figures are lower for younger households and for poorer households – the lowest-income 25-to-35 age group would owe just \$655 – reflecting lower income tax rates and house values.

Our calculations suggest that 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, virtually all homeowners except those in the lowest income categories 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, although the property tax deduction accounts for only one-quarter the revenue loss of the exclusion of imputed rent.

References

- Gervais, Martin and Manish Pandey. 2006. "Who Cares about Mortgage Interest Deductibility." Mimeo, University of Western Ontario, Department of Economics.
- Glaeser, Edward and Joseph Gyourko. 2007. Housing Policy and House Prices: How to Make Housing More (Not Less) Affordable. Washington: American Enterprise Institute.
- Gyourko, Joseph and Todd Sinai. 2004. "The (Un)Changing Geographic Distribution of Housing Tax Benefits, 1980-2000." In J. Poterba, ed., Tax Policy and the Economy 18, 165-208.
- Himmelberg, Charles, Christopher Mayer, and Todd Sinai. 2005. "Assessing High House Prices: Bubbles, Fundamentals, and Misperceptions." Journal of Economic Perspectives 19:4, 67-92.
- Moore, Kevin. 2003. "The Effects of the 1986 and 1993 Tax Reforms on Self-Employment." Mimeo, Finance and Economics Discussion Series 2004-05. Washington: Board of Governors of the Federal Reserve System
- Poterba, James. 1992. "Taxation and Housing: Old Questions, New Answers." American Economic Review 80:2, 237-242.
- U.S. Congress, Joint Committee on Taxation. 2007. Estimates of Federal Tax Expenditures for Fiscal Years 2007-2011. Publication JCS-3-07. Washington, D.C.: U.S. Congress.

Table 1: Homeownership, Itemization Status, and House Value

	Annual Household Income					
Age of Household Head	<40K	40-75K	75-125K	125-250K	250+	All
Part A: Household Characteristics						
Fraction of Households Who Itemize						
25-35	54.3	74.4	97.3	95.7	100.0	78.5
35-50	51.8	77.8	91.7	99.9	100.0	82.5
50-65	33.7	64.4	83.1	98.7	100.0	70.6
> 65	3.8	37.5	55.8	92.0	99.6	22.9
All	23.4	66.1	85.5	98.4	99.9	63.1
Loan-to-Value Ratio for Homeowners						
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
Mean Value of Owner-Occupied Home for Homeowners (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
Part B: Tax Saving from Current Law						
Average Tax Saving from Mortgage Interest Deduction						
25-35	\$208	\$592	\$1817	\$3603	\$7077	\$1155
35-50	216	719	1483	3599	5833	1598
50-65	143	476	1074	2039	6348	1226
> 65	5	134	351	914	1435	149
All	91	523	1264	2703	5459	1060
Average Tax Saving from Property Tax Deduction						
25-35	109	229	619	1009	1970	393
35-50	125	299	559	1179	2939	618
50-65	129	298	515	1095	3120	647
> 65	75	208	350	1076	2548	242
All	99	271	529	1125	2937	504
Average Tax Saving from Exclusion of Net Imputed Rental Income						
25-35	655	718	1849	2992	6417	1271
35-50	650	922	1870	3881	9529	2054
50-65	561	1253	2000	3885	11163	2420
> 65	418	1812	2083	4206	9976	1299
All	511	1146	1935	3861	10293	1879

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. Net Imputed Rental Income (bottom panel) is 6.0 percent of house value less 2.5 percent maintenance and depreciation.

Table 2: Last-Dollar User Cost of Owner-Occupied Housing Under Various Tax Policies

Income:	<40K	40-75K	75-125K	125-250K	250+	All
Age of House- hold Head	2003 Law					
25-35	0.064	0.060	0.053	0.049	0.047	0.058
35-50	0.065	0.060	0.054	0.050	0.050	0.057
50-65	0.067	0.060	0.056	0.052	0.050	0.058
> 65	0.072	0.065	0.063	0.056	0.053	0.068
All	0.069	0.061	0.056	0.051	0.050	0.060
	Repeal of Mortgage Interest Deduction					
25-35	0.067	0.066	0.063	0.060	0.058	0.065
35-50	0.068	0.065	0.062	0.059	0.058	0.063
50-65	0.068	0.063	0.060	0.058	0.056	0.062
> 65	0.072	0.066	0.064	0.058	0.055	0.069
All	0.070	0.065	0.062	0.058	0.057	0.064
	Repeal of Property Tax Deduction					
25-35	0.065	0.062	0.055	0.052	0.049	0.060
35-50	0.066	0.061	0.057	0.052	0.052	0.059
50-65	0.068	0.061	0.058	0.054	0.052	0.060
> 65	0.073	0.066	0.064	0.058	0.055	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	0.085	0.083	0.079	0.075	0.073	0.082
35-50	0.087	0.084	0.080	0.077	0.078	0.082
50-65	0.088	0.085	0.082	0.080	0.078	0.083
> 65	0.091	0.087	0.087	0.084	0.081	0.089
All	0.089	0.084	0.081	0.079	0.079	0.084

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.