Housing Tenure Choice, Race and the Recommendations of the President's Advisory Panel on Federal Tax Reform

Richard K. Green
Lusk Chair in Real Estate
School of Policy, Planning and Development
Marshall School of Business
University of Southern California
richarkg@usc.edu

and

Andrew Reschovsky
Professor of Applied Economics and Public Affairs
Robert M. La Follette School of Public Affairs
University of Wisconsin-Madison
reschovsky@lafollette.wisc.edu

**Housing Tenure Choice, Race and the Recommendations of the
President's Advisory Panel on Federal Tax Reform**

Introduction

Criticism of the federal tax system has been one of the constants of political life in the

United States. Most of the criticism is directed at the individual income tax. This tax, which gen-

erated over one trillion dollars in fiscal year 2006, is the single most important source of federal

government revenue. Although critics offer varying tax reform proposals, most would agree that

the income tax system is overly complex, contains many inefficient and inequitable provisions,

and does not do enough to encourage economic growth. To address these issues, President Bush

in January 2005 appointed a bipartisan advisory panel charged with recommending ways to re-

form the U.S. tax code. In his Executive Order establishing the advisory panel, President Bush

(2005) instructed the panel to develop reform options that, among other things, would "share the

burdens and benefits of the Federal tax structure in an appropriately progressive manner while

recognizing the importance of homeownership and charity in American society" (italics added).

The goal of increasing the rate of homeownership in the United States has been one of the

cornerstones of domestic policy for both Republican and Democratic administrations. In a 2001

radio address, President Bush outlined the benefits of homeownership and declared that home-

ownership "lies at the heart of the American Dream." It is thus perhaps not surprising that the

U.S. government is currently spending over $175 billion annually to subsidize homeownership.[1]

While the U.S. Department of Housing and Urban Development operates several programs that

directly or indirectly subsidize homeownership, most government subsidies to homeownership

operate through the tax system. By far the largest mechanism for subsidizing homeownership is

the mortgage interest deduction on owner-occupied homes. The Office of Management and

---

[1] This total does not include the implicit interest rate subsidies that eligible households receive because of the special
status of Fannie Mae and Freddie Mac.

Budget (2006) estimates that for fiscal year 2007 the *tax expenditure* associated with this one provision of the individual income tax was worth nearly $80 billion.[2]

It is well recognized that the mortgage interest deduction is a highly inefficient and ineffective way to subsidize homeownership. Under current law, taxpayers who itemize deductions on their federal income tax returns are able to reduce their taxes by the amount of their annual mortgage interest and property tax payments times their federal marginal tax rate. Thus a $1,000 mortgage interest deduction would reduce the federal tax liability of a taxpayer at the 10 percent marginal rate by $100 (10 percent of $1,000) and the tax liability of someone facing the 35 percent rate by $350. For most high-income taxpayers, the tax savings resulting from the mortgage interest deduction are a minor influence on their decisions to become homeowners; these households are likely to be homeowners regardless of the tax-treatment of housing.[3] Rather than encouraging homeownership among high-income households, the mortgage interest deduction provides an incentive to buy a larger house and to take out a bigger mortgage. Economists have long argued that the result is an inefficient pattern of investment, with too many resources invested in housing and too few resources placed in more productive investments in factories and machinery (Mills, 1989; Poterba, 1992). In contrast, for low- to middle-income taxpayers, the mortgage deduction provides little financial incentive to convert from renting to homeownership. For those purchasing modestly priced houses and facing the lowest marginal tax rates, the benefits of the

---

[2] In addition to the mortgage interest deduction, large homeowner subsidies come from the exclusion or deferral of capital gains on home sales ($44 billion), the exclusion of net imputed rental income on owner-occupied homes ($33 billion), and the state and local property tax deduction on owner-occupied homes ($13 billion).

[3] This conclusion is strengthened by the observation that homeownership rates in Canada and Australia are about as high as in the U.S., even though neither country allows a mortgage interest deduction. Data from the Australian Bureau of Statistics indicates that in 1999, 70 percent of households were homeowners. Statistics Canada reports that in 2001, 66 percent of Canadian households owned their own homes.

mortgage deduction are small.[4] In fact, for households who live in states with low state income taxes, the mortgage deduction may be of no value at all because the mortgage deduction, even when combined with other itemized deductions, may be smaller than the standard deduction.

Given the structure of the mortgage interest deduction, it should not be surprising that despite the fact that the overall homeownership rate in the U.S. is quite high (68.8 percent in 2006), large differences in homeownership rates exist among racial and income groups (U.S. Census Bureau, 2007). The homeownership rate among African Americans (47.9 percent) and among Hispanics (49.7 percent) was less than two-thirds the rate for non-Hispanic whites (75.8 percent). Despite the relative economic gains of minorities over the past few decades and government efforts to reduce housing market discrimination, there has been little reduction in the racial gaps in homeownership. In recent years, a number of studies (ably surveyed by Haurin, Herbert, and Rosenthal, 2007) have attempted to explain the reasons for the persistent racial gaps. Although discrimination in mortgage and housing markets plays a role in explaining the gaps, the empirical evidence suggests that the largest portion of the homeownership gaps are attributable to differences among racial and ethnic groups in income, wealth, and marital status. Tax policy, if appropriately targeted to households with low incomes and wealth, has the potential to play a role in reducing existing homeownership gaps.

In its final report, issued in November 2005, the President's advisory panel proposed that the mortgage interest deduction be replaced with a *Home Credit* equal to 15 percent of the mortgage interest paid on a principle residence subject to a ceiling that would vary by the home-

---

[4] In a recent paper, Carasso, Steuerle, and Bell (2005) point out that low-income households that are recipients of government rent subsidies actually face negative homeownership subsidies because their opportunity cost of buying a house includes forgoing a government rent subsidy.

owner's location.[5] In principle a mortgage interest tax credit can address many of the criticisms leveled against the mortgage interest deduction. In any tax system with a graduated marginal tax rates structure, a move from a deduction to a credit will distribute a larger share of tax subsidy associated with homeownership to lower income taxpayers. Furthermore, a tax credit would be available to all taxpayers with mortgage interest payments, while a deduction is only available to those taxpayers whose total itemized deductions exceed their allowable standard deduction.

The public subsidization of homeownership can be explained, at least in part, by its enormous political popularity. Not only do most families see homeownership as an important way to acquire assets and build a stock of wealth, but there is a substantial amount of evidence that there are significant external benefits associated with homeownership.[6] Nevertheless, it is important to emphasize that homeownership is not be appropriate for all households. The recent collapse of much of the sub-prime mortgage market highlights the dangers and the very high risks associated with homeownership. Certainly in retrospect, the continuous encouragement of homeownership and the trumpeting of its benefits in an environment with few regulations on lending practices resulted in a substantial number of households using exotic, sub-prime mortgages to become owners.[7] Many of these households had few, if any, assets and very modest, and in many cases, uncertain incomes. Tragically, when their initial teaser interest rates expire they will not be able to afford their mortgage's monthly payment. At the same time, many will not be able to escape their financial difficulties by selling their house, because they will find themselves in housing markets with declining nominal values and with mortgage balances larger

---

[5] The idea of replacing the mortgage interest deduction with a credit was first developed nearly 30 years ago by Harvey Rosen (1979a, 1979b).

[6] Evidence suggests that homeownership leads to more stable communities, that homeowners take better care of their homes and are more involved in their communities, and that the children of homeowners tend to do better in school, and are less likely to commit crimes or end up on welfare. See Harkness and Newman (2002) for a review of the literature.

[7] Households who used sub-prime fixed-rate mortgages to buy their first house seem to be doing just fine. According to loan performance, fixed-rate sub-prime mortgages continue to have low default rates.

than their house values. They will be forced into default. The recent rise in foreclosures only serves to emphasize that homeownership may not be appropriate for all households. In a recent literature review, Nancy Denton (2001) concludes that, "the research literature contains mixed results on the benefits of homeownership to low-income people."(p. 257) For those persons at high risk of losing their jobs in periods of economic slowdown, the risk of being unable to meet mortgage payments and hence losing one's home may be unacceptably high. Households who can only afford housing in blighted neighborhoods–locations where the capital appreciation is a risky proposition--might be better served by placing their down payment in the bank or in alternative investments. Also, by making it harder to move, homeownership may constrain families from pursuing job opportunities and may in effect "lock-in" families in dangerous neighborhoods.[8]

Although homeownership is not appropriate for everyone, the low homeownership rates among households with modest incomes and among minority households suggest that tax policy has the potential to play a role in increasing homeownership rates. In proposing that the mortgage interest deduction be replaced by a mortgage interest tax credit, the President's Advisory Panel on Federal Tax Reform appears to share this view. In this paper, we estimate a model of housing tenure choice and housing expenditures, and use the results to evaluate the impacts of the Panel's proposal on homeownership rates and on the distribution of homeownership tax subsidies.

In the next section of the paper, we briefly describe the current operation of the mortgage interest deduction with a focus on the distribution of tax subsidies across income classes. In the following section, we describe our model of housing tenure choice and housing expenditures.

---

[8] See Harkness and Newman (2002) for a full discussion of the relationship between neighborhood effects and the benefits of homeownership.

The model, using the Public Use Micro Sample (PUMS) from the 2000 census, allows us to determine the impact of alternative tax policies on the *user cost* of owning relative to renting. Because different racial and ethnic groups have such different homeownership rates, we also develop separate models for households headed by whites, blacks and Hispanics. These results are used in a tax simulation model that allows us to calculate federal income tax liabilities of all taxpayers under existing tax policy and under alternative policies aimed at increasing the rate of homeownership. We then turn to an analysis of two alternative tax credit proposals: (1) the proposal of the President's Advisory Panel on Federal Tax Reform for replacing the mortgage interest deduction with a *Home Credit* and (2) a scheme where taxpayers can choose the existing mortgage interest tax deduction or a new mortgage interest tax credit.

Assessing the Mortgage Interest Deduction

The mortgage interest deduction is actually a remnant of the original IRS code of 1913, under which all consumer interest was deductible. The tax code did not explicitly mention either mortgage interest or housing. The Tax Reform Act of 1986 phased out deductions for all consumer interest except for mortgage interest. The mortgage interest deduction survived at least in part because of heavy lobbying by the National Association of Realtors, the Mortgage Bankers Association, and the National Association of Home Builders (Dreier, 2006).

Using a tax simulation model that we will describe later in the paper, and data from the 2000 census public-use micro sample (with incomes and housing values inflated to 2004 levels), we can estimate the benefits of the mortgage interest deduction to households in various income categories. Our model determines whether each household with an outstanding mortgage is an itemizer on their federal income tax return, and if so, whether they utilize the mortgage interest deduction. The model then determines for each household taking the deduction, the value of the

deduction and the dollar value of the tax benefit (or tax savings) derived from the mortgage interest deduction. The tax benefit is calculated by multiplying each household's mortgage interest deduction by that household's marginal tax rate. Our simulations indicate that in 2004 the mortgage interest deduction provided aggregate tax benefits equal to $53.2 billion. This amount is below the $61.45 billion officially estimated tax expenditure for the mortgage interest deduction (Office of Management and Budget, 2006).[9]

The data in Table 1 demonstrate that the benefits of the mortgage interest deduction are very unevenly distributed across the income distribution. Although 46 percent of households had incomes below $40,000 in 2004, collectively these households received only 2.3 percent of the overall tax savings generated by the mortgage interest deduction. The benefits are heavily concentrated at higher incomes. Although fewer than 5 percent of households had incomes over $160,000, this group received 31.1 percent of the total tax savings from the mortgage deduction.

The reason that households in the bottom half of the income distribution receive so little of the benefit from the mortgage deduction owes to the multiplicative impact of several factors. First, because households with low or moderate incomes are less likely to be homeowners, they have fewer mortgages. Furthermore, among households with mortgages, those with modest incomes are less likely to itemize deductions on their federal tax returns. For a sizeable proportion of moderate-income homeowners living in states where deductible taxes are relatively low, the standard deduction will be larger that total itemized deductions. Finally, among those households taking the mortgage interest deduction, the tax benefit will depend on the size of the mortgage and the marginal income tax rate paid by the homeowner. As housing values (and hence mortgages) and marginal tax rates are on average higher for those with higher incomes, the value of

---

[9] It appears that one reason we have underestimated the tax benefit of the mortgage interest deduction is that in the bottom several income classes, we are underestimating the percentage of households with mortgages that take the mortgage interest deduction.

the tax benefit from the deduction rises with income. Average tax savings for households with incomes below $20,000, who take the mortgage interest deduction, is under $200. For households with incomes between $100,000 and $120,000, the tax savings averages $2,000, while for those with incomes above $160,000, the tax benefit is nearly $5,000 per year.

Modeling the Decision to Become a Homeowner

In this paper, we build on past research that has found clear evidence that federal income tax incentives to become a homeowner influence families' housing tenure-choice decisions (Rosen, 1979a; Rosen, 1979b; Green and Vandell, 1999). The modeling approach followed by this literature is to assume that the decision of renter households to become a owner depends on the household's long-run or permanent income, the household's size, marital status, plus other characteristics related to its preference for homeownership, and the *user cost* of owning relative to renting, which we define as the cost of a unit of owner-occupied housing services relative to the cost of a unit of renter-occupied housing services. The direct implication of modeling tenure choice in this way is that the only way in which tax policy can influence a household's decision to become an owner is by changing the user cost of owning relative to renting.

For homeowners the before-tax user cost is the sum of the mortgage interest rate, the property tax rate, the net depreciation rate and the overall maintenance rate (which includes insurance and utility costs). As demonstrated in Green and Vandell (1999), the ability of homeowners to deduct their mortgage interest and property tax payments from their gross income reduces the user cost of owner-occupied housing relative to renter-occupied housing by an amount equal to their federal marginal tax rate times the share of total user cost that is deductible. Alternatively, giving taxpayers a fixed dollar tax credit for their payment of mortgage interest and

property tax reduces the user cost of a owner-occupied housing relative to renter-occupied housing by the amount of the credit.

In order to calculate the ratio of user costs of owner-occupied relative to renter-occupied housing and to determine how sensitive housing tenure decisions are to relative user costs, we statistically estimate a model that includes a housing expenditure and housing tenure choice equation. Based on data on housing expenditures, we calculate the value of the housing unit renters would purchase if they were to become homeowners. These estimates allow us to calculate relative user costs of owning and renting. Using this information, plus data on estimated permanent income and other characteristics of households, we then estimate a housing tenure equation. The parameter estimates resulting from estimating the housing tenure equation allow us to determine the degree to which specific tax policies that change the user cost of homeownership will influence the rate of homeownership.

Following Green and Vandell (1999), the tenure choice model we specify is:

$$P(Own) = F(\alpha + \beta_1 * Y_c + \sum_{i=2}^{6} \beta_i * agedummy_{i-1} + \sum_{i=7}^{12} \beta_i * Y_c * agedummy_{j-6} + \beta_{13} * black$$

$$+ \beta_{14} * Hispanic + \beta_{15} * female + \beta_{16} * \tau_y \phi + \beta_{17} * members + \sum_{k=1}^{7} \gamma_k * hhtypedummy_k + \sum_{l=1}^{50} \omega_l * statedummy_l + \eta)$$

where *Own* is one if the household is headed by an owner and is zero otherwise, F is the cumulative density function of the normal distribution, Y_c is current income, *agedummy*$_i$ is 1 if the household head's age fits within age category i and is zero otherwise, *black* is 1 if the household head is black and is zero otherwise, Hispanic is 1 if the household head is Hispanic and is zero otherwise, *female* is one if the household head is female and is zero otherwise, $\tau_y\phi$ is the relative user cost of owning to renting, and is based upon calculations described below, *members* is the number of family members in the household, *hhtypedummy*$_k$ is 1 if the household type fits into category

k, and is zero otherwise, and *statedummy*$_l$ is one if the household lives in state l, and is zero otherwise. The household categories are described below. η is a residual term. The use of the normal conditional distribution function gives us a probit specification.

The principal data source for our model is the one-percent Public Use Microdata Sample (PUMS) of the 1990 and 2000 Censuses. The 2000 sample consists of 1,054,797 households and the 1990 sample consists of 903,150 households. Each household reports whether they are owners or renters, their household income, marital status, number of children, age, race, and sex of household head. Households with long tenure in a given location might remain in place owing to transactions costs, and therefore may not "choose" tenure on a regular basis. Recent movers, however, explicitly made a choice. For this reason, we not only run regressions using the entire sample, but also restrict the analysis to all households who moved within the previous 15 months.[10]

Owners report their estimate of their houses' value, and some characteristics of their monthly housing expenses, including monthly principal, interest, and property tax payments. Means and standard errors for these households are reported in Table 2. Goodman and Ittner (1992) have shown that owners' estimates of home values are not systematically biased.

The data are cross-sectional, and therefore do not permit the use the time-series techniques commonly employed to estimate permanent income. Following the practice used in many cross-sectional studies, however, we use both current income and current income interacted with age dummies to develop a proxy for permanent income. The income of a 35-44 year old relative to other 35-44 year olds gives us some hint of lifetime income, and mitigates against the downward bias Rosen (1979a, 1979b) and Goodman (1988) found when using current income alone to

---

[10] Our definition of recent movers, i.e. moving within the past 15 months, was determined by the census definition of mobility.

explain housing demand. Because imputed rent is endogenously related to the tenure choice decision, in contrast to the approach followed by Rosen, we do not include imputed rent as part of income. Money income and age interacted with money income may be viewed as good instruments for total income; they are correlated with total income while not being explained by the tenure choice decision.

Age in itself is also a strong predictor of both tenure choice and housing demand, and therefore age dummies are included in the tenure choice specification.[11] The age categories are 25-34, 35-44, 45-54, 55-64 and above 65 (less than 25 is the left-out variable). The exact nature of the relationship between race and tenure choice and race and housing demand is subject to considerable debate (Haurin, Herbert, and Rosenthal, 2007), but there is little question that race should be placed in both the tenure choice and housing demand equations.[12]

The household type dummies include married couple householders, male family householder, female family householder, non-family male householder living alone, non-family female householder living alone, and non-family male householder not living alone. Non-family female householder not living alone is the left-out variable. The household type variable would be endogenous if the decision to get married is taken simultaneously with a change in housing tenure. Evidence suggests, however, that marriage generally precedes homeownership (Haurin, Hendershott, and Wachter, 1997).

To calculate the marginal income tax rate of the household, we impute taxable income from reported household income, marital status, and number of dependents. To calculate taxable income, we use an assignment procedure based upon assumptions about who itemizes and who

---

[11] For evidence on the impact of age on tenure choice see Green (1996) and Goodman (1988). For evidence of the relationship between housing demand and age see Green and Hendershott (1996) and Haurin, Hendershott, and Wachter (1997).

[12] Yinger (1986) argues that discrimination causes blacks to pay more for housing on a quality-adjusted basis than whites. On the other hand, Follain and Malpezzi (1981) argue that blacks pay *less* for such housing.

does not. The U.S. Treasury reports the share of taxpayers who itemize by state and by income category. We use this information to assign a probability of itemizing to each household based on its state of residence and its income.

After calculating deductions, we apply the appropriate marginal tax rate from the 2004 tax table to our imputed taxable income measure. This tax rate may be viewed as an *ex ante* tax rate, because it is not affected by itemization.

To calculate the portion of user cost that is deductible, we first need a weighted average cost of capital. We impute loan-to-value ratio in the following manner. We tabulate *Survey of Consumer Finances* data on the loan-to-value ratio by age and income class, and then assign the average for each age-income class to each homeowning household that holds a mortgage. For the mortgage interest rate, we use the Freddie Mac average mortgage interest rate for a 30-year fixed rate mortgage in 2004, or 5.85 percent. We take the property tax rate as the average property tax rate for the state in which the household resides, based upon self-reported tax rates and property values taken from the 2000 Public Use Microdata Sample. Calculation of expected inflation is based upon the average house price inflation rate for each state for the three years preceding 2000. We assume maintenance expenses of two percent, and a risk premium of three percent. We then substitute these calculations into the final calculation of ϕ, the share of user cost that is subject to tax deductibility.

We included state dummy variables to control partially for the fact that supply elasticities are almost certainly not perfectly elastic, and vary considerably from state-to-state.[13] The use of

---

[13] Malpezzi (1996) provides evidence of differences across states in supply elasticities resulting from variations in land use regulations.

state dummies mitigates the problem arising from the fact that $\tau_y\phi$ may not completely capture the difference between owner and renter user costs.[14]

To calculate the value of the house that renters would purchase if they were to become homeowners, we estimate the following equation:

$$\ln(pq) = \alpha + \omega_1 * \ln Y_c + \sum_{i=2}^{6} \omega_i * agedummy_{i-1} + \sum_{j=7}^{11} \omega_j * agedummy_{j-6} + \omega_{12} * black$$

$$+ \omega_{13} * female + \omega_{14} * married + \omega_{14} * unmarfam + \omega_{15} * members + \omega_{16} * \tau_y\phi + \omega_{17} * \frac{-f_n(I)}{F(I)} + \upsilon$$

where the variables are described above, except that household-type dummies are collapsed into two types *(married* is one if the household is headed by a married couple and is zero otherwise, and *unmarfam* is one if the household is headed by a single parent and is zero otherwise) and - f_n/F is the inverse Mills ratio, calculated from the fitted values of tenure-choice equation and required to correct for selectivity bias arising from estimating the housing expenditure equation using only owner-occupied households.[15] υ is an error term.

Probit Results

In a paper based on the five percent PUMS sample from the 1990 census (Green and Reschovsky, 2004), we found that while our tax variable ($\tau_y\phi$) was statistically significant in the housing tenure regression for the entire sample, it was statistically insignificant in a regression restricted to African-American households. If correct, this result would imply that tax policies designed to spur homeownership by reducing its cost are unlikely to have an impact on black families. To explore whether the difference in results across racial groups reflected our relatively

---

[14] We have also experimented with using different rent-to-house price measures. However, these do not prove as statistically significant as state dummies. Of course, state dummies could proxy for a variety of factors; differences in supply elasticities are only one among many possible regional variations in conditions which could serve to influence homeownership rates.

[15] Because the income variable is now in logs, we were limited to identifying estimates of only five of the six age-income interaction dummies.

small sample of African-American households, and also to investigate whether the nature of the tenure choice decision has changed between 1990 and 2000, we present results using data from both the 1990 and 2000 census years.[16]

In Tables 3 and 4, we present the results from our tenure-choice regressions for census years 2000 and 1990, respectively. Each table displays five separate probit regressions: for the entire sample, for the non-Hispanic white population alone, for the black population, for the Hispanic population and for recent movers. Tables 5 and 6 display the marginal effects of the probit coefficients at the sample means.

The empirical results generally meet our expectations. The probability of ownership increases in income for all groups, and increases monotonically with age category. Age interacted with income seems to have little impact. African-American households have lower ownership rates, and married couples have much higher rates. The gender of the household head has a mixed impact, depending on the type of household. The t-statistics are generally very large, reflecting the large sample sizes.

In both years, the tax variable works just as we would expect—it is large and highly significant. We shall investigate the impact of the tax variable coefficient in simulations that we present later in the paper. In all cases, the marginal effect of a movement of the tax incentive of one percentage point for the mean household is a 0.56 percentage point change in the predicted homeownership rate for the 1990 sample, and a 0.63 percent change in the predicted ownership rate for the 2000 sample.

In stark contrast to our earlier work using a smaller sample of 1990 census data, we find that both African-American and Hispanic households are more sensitive to tax policy than white

---

[16] The use here of the one-percent PUMS sample increases our 1990 sample of African-American households from 850 to 84,310.

households when making ownership decisions. Hispanics are particularly more sensitive, with a one percentage point change in tax rate producing a one percentage point change in the probability of owning. This suggests that tax policy that is better targeted towards minorities may have a substantial impact on their homeownership rates.

Expenditure Regressions

We report regressions on housing expenditure in Tables 7 and 8. The natural log of housing expenditures rises in income, with age, and up until age 65, with the interaction of income and age. Household size is associated with housing expenditures for white households and for the total sample, but not for minority households alone. Black households spend less, and single headed households spend less than married couple households. Once again, the tax coefficients work very well—they have the correct signs and are highly significant in all cases. It is noteworthy that the tax coefficients got considerably larger between 1990 and 2000, moving from a magnitude for all households of .54 in 1990 to 1.23 in 2000. As we might expect, the impact of the tax variable is larger for recent movers than for all households. Households who do not move may not be consuming their optimal amount of housing, but they do not move because of the high transactions costs associated with moving. Those who have decided to move have, by definition, decided that adjustment is worth enough to make the move. It is a straightforward application of the Le Chatelier principle to predict that the relaxation of a constraint (in this case, the inability or unwillingness to move) will increase the sensitivity of a function (in this case, the responsiveness of housing expenditures to tax conditions).

Construction of a Tax Policy Simulation Model

Knowledge about the impact of tax policy on the rate of homeownership provides us only with part of the information we need to know to analyze the full impact of alternative tax poli-

cies. For most households, changes in housing-related tax policies will induce no change in housing tenure, but may well result in substantial changes in tax liabilities. We thus constructed a simulation model designed to calculate the income tax liabilities of each household in the PUMS dataset. The model was constructed in such a way that we could calculate tax liabilities under the existing tax system and simulate liabilities under a number of policy alternatives.

A complication in constructing our tax model was that although the PUMS dataset includes information on the value of each homeowner's house and information about each household's monthly mortgage payment, it does not provide data on the mortgage interest paid by each homeowner. We therefore use our imputation of the loan-to-value ratio (described above), the value of each household's house and an interest rate of 6.5 percent to estimate mortgage interest payments.

The PUMS also provides no information about whether a household itemizes deductions or takes the standard deduction on their federal income tax return. This information is important because only itemizers can benefit from the deduction of mortgage interest payments. In order to determine which households on the PUMS data set itemize deductions, we inflate income and consumption expenditures to 2004 values and using 2004 tax law, mimic the procedure each household would follow in calculating their 2004 federal income tax liabilities. The first step in determining whether a household is an itemizer is to total up the sum of all possible itemized deductions. Households are assumed to be itemizers whenever the sum of itemized deductions exceeds the standard deduction.

In addition to mortgage interest payments, individuals can itemize deductions for property tax and state and local income tax payments, for charitable contributions, for casualty losses, for certain large medical and dental expenditures, and for a portion of work-related miscellane-

ous expenditures. Data on property tax payments came from the PUMS data set. We used data on each state's state income tax system to calculate state income tax liabilities for each household.[17] Mortgage interest payments were calculated using the procedures described above. The Internal Revenue Service's *Statistics on Income* (SOI) provides data on other categories of itemized deductions by state and by adjusted gross income class.

The share of itemizers that take the mortgage interest deduction also varies by income class. We are interested in determining the probability that a household with a mortgage would take the mortgage interest deduction. We therefore took the ratio of those taking the mortgage interest deduction to those who are itemizers for each income category in the SOI, and multiplied this ratio by the ratio of itemizers to those with a mortgage in the PUMS. That is, we calculated: (MID/Households with Mortgages) = (MID/Itemize)*(Itemize/Household with Mortgages).

We had to make one further adjustment to estimate the cost of the mortgage interest deduction. We used the *Survey of Consumer Finances* to impute a loan-to-value ratio (LTV) for each household. But we know that there are households with no mortgage at all. We assign an LTV of zero to those households. For the households within each income category, we gross up the LTV by multiplying it by the ratio of the number of homeowners in each income category to the number of homeowners with mortgages.

Using these data we calculated the sum of mortgage interest and tax deductions as a share of total deductions and used this information to determine total itemized deductions for each household. We then compared this total with the appropriate standard deduction to determine whether each household in our data set itemized or not. Following this procedure, we determined

---

[17] Because taxpayers in 2004 had the option of deducting either state income or sales tax payments, we utilized sales tax information for the 7 states that impose a sales tax, but not an individual income tax.

that 35.5 percent of the households would itemize in 2004; the actual number from IRS data is

34.9 percent

Finally, to get the impact of policy changes in the most current terms possible, we in-

flated income for all households by the rate of median household income growth between our

estimation year 2000 and the year 2004. We also inflated house prices using the repeat-sales data

series from the Office of Federal Housing Enterprise Oversight (2007).

The President's Tax Reform Panel's Mortgage Tax Credit Proposal

In its final report, the Advisory Panel on Federal Tax Reform proposed eliminating the

mortgage interest deduction and replacing it with a 15 percent non-refundable tax credit on

mortgage interest paid on a principle residence. Furthermore, the Panel recommended that a limit

be placed on the amount of credit any household could receive. They proposed that the limit

would be different in different parts of the country depending on the average cost of housing in

each area. The maximum limit, applicable to areas with the highest housing prices would be ap-

proximately $412,000.

In simulating the Panel's proposal, we used FHA mortgage limits from

https://entp.hud.gov/idapp/html/hicostlook.cfm.[18] According to the Panel's recommendations,

the credit would be available to itemizers and non-itemizers alike, but would not be refundable.

In estimating mortgage interest payments, we assume an interest rate of 6.5 percent. This is

higher than the Freddie Mac Primary Mortgage Market Survey (PMMS) rate for 2004, but re-

---

[18] HUD changes FHA loan limits each year. They are tied to both local house prices and to the Freddie Mac con-
forming loan limit. The formula is spelled out in Paragraph (2) of section 203(b) of the National Housing Act (12
U.S.C. 1709(b)(2)).

flects an attempt to acknowledge the existence of sub-prime lending and less than optimal pre-payment behavior.[19]

According to our simulation results displayed in Table 9, replacing the mortgage interest deduction with the 15 percent tax credit proposal of the Tax Reform Panel results in a 0.5 percentage point **reduction** in the overall homeownership rate. This lowering of the average home-ownership rate reflects the fact that some households with incomes above $40,000 decided to become renters in response to an overall reduction in their housing related tax subsidy. For these households the receipt of the new credit was not enough to make up for the loss of their mortgage interest deduction. As expected, the main beneficiaries of the advisory panel's plan are households with low or moderate incomes. Some of these households are renters who respond to the increased housing subsidy by becoming homeowners. For households with incomes below $20,000, the ownership rate would go up by 0.3 percentage points, and for those with incomes between $20,000 and $40,000, the rate would increase by 0.4 percentage points. The impact is a little stronger for black and Hispanic households at the bottom of the income distribution, but it is still quite modest. Homeownership rates would increase by 0.3 percentage points for both blacks and Hispanics with incomes below $20,000, and by 0.5 percentage points for blacks and 0.8 percentage points for Hispanics with incomes between $20,000 and $40,000. One reason that the credit does so little to increase the homeownership rate among low-income households is the fact that the credit is non-refundable.

Table 10 details how the Panel's proposal would redistribute income tax burdens. Even though the average household would pay $47 in additional income taxes, taxpayers in the lowest

---

[19] Some homebuyers cannot get financing from the Conventional Conforming Mortgage Market, and as a consequence pay an interest rate higher than the PMMS survey rate. Also, many household do not refinance their mortgages even when they should do so (Deng, Quigley and Van Order, 2000; Green and Lacour-Little, 1999).

two income categories would benefit from tax reductions of $23 and $107 respectively. As long as no households would respond to the elimination of the mortgage interest deduction by fully or partially paying off their mortgage, the proposal would have yielded the Treasury about $4.9 billion of additional revenue in 2004.

We should note that this simulation analysis holds many things constant, two of which may not be innocuous. First, the analysis ignores capitalization effects. Should the mortgage interest deduction be replaced with a refundable tax credit, and should there be no favorable tax treatment for mortgages with balances in excess of $412,000, the change in tax policy would doubtless be capitalized into house prices at the top of the house price distribution (Capozza, Hendershott and Green 1996). This means that the losses to homeowners resulting from the change in policy would be larger than those suggested in Table 10 because the value of their houses would fall. On the other hand, if house prices at the top end of the price distribution fall relative to rents, we would expect the small negative impact on ownership rates at the top of the income distribution to be further attenuated. These arguments work in reverse at the bottom of the income distribution, with one exception. Because 90 percent of high-income households are homeowners, the pain arising from lower house prices will be ubiquitous among this group. On the other hand, because only around 50 percent of the lowest-income-category households are owners, many households in this income category will receive no benefit from the increase in house prices that will arise from capitalization of the credit.

Second, the simulation does not take into account the after-tax change in the relative prices of housing debt and equity. Because mortgage interest will no longer be deductible, but home equity (imputed rent) will remain free from income taxation, homeowners will have an incentive to pay off their mortgages as quickly as they can. To the extent that households are able

to respond to this incentive and speed up the rate by which they pay off their mortgages, the government will generate less revenue from the elimination of the mortgage interest deduction

There is wide agreement in the existing literature that the elimination of the mortgage interest deduction has a large *potential* effect on the demand for mortgages. There is, however, substantial disagreement about the magnitude of this effect. On the one hand, James Follain and several colleagues have argued that because the elimination of the mortgage interest deduction will cause a large number of households to pay off their mortgages, the amount of tax revenue raised will be a small fraction of the OMB estimates of the tax expenditure associated with the mortgage interest deduction (Follain and Dunsky, 1997; Follain and Melamed, 1998). On the other hand, Capozza, Green, and Hendershott (1996) argue that the typical household will have limited ability to reduce their mortgage debt. As a result, the OMB tax expenditure estimates will provide only a slight over-estimate of the tax revenue increase that would be generated by eliminating the mortgage interest deduction. In a more recent study Yongheng Deng (2001) uses data on the allocation of household assets from the *Survey of Consumer Finances* to carefully assess the share of total assets that households would have available to use to pay down or pay off their mortgages. Deng's preferred estimate is that given both the lack of sufficient assets or constraints on the use of assets, only about one-quarter of the maximum tax revenue gain resulting from the elimination of the mortgage interest deduction will be offset by household's reshuffling of their financial assets.

We take a similar approach to Deng, although we use a more recent (2004) version of the *Survey of Consumer Finances*. We use these data to find average liquid wealth by age-group and income category, and then assign each household wealth accordingly. We assume that the most any household will reduce its mortgage debt is by the amount of liquid wealth they own. We

also assume that only households with marginal tax rates of more than 15 percent will pay-off their mortgages (at 15 percent, debt and equity remain on a level playing field).

The results of this exercise are reported in Table 11, which shows the size of the mortgage pay-off by income class. We find that the average household would pay-off $15,521 in mortgage debt if they used all their liquid wealth to reduce their mortgage balance. This in turn means that the average household would pay $277 less in taxes by sheltering their assets in home equity. As there were roughly 108 million households in the United States in 2004, the cost of the mortgage payoff to the Treasury would be around $30 billion, an amount that would swamp the modest revenue gains the Treasury anticipated under the proposal by the President's advisory panel.

That said, we certainly wouldn't expect people to use all their liquid assets to pay off their mortgages, so the above estimate is clearly an upper bound. But even if households used one-quarter of their liquid assets to pay off their mortgages, the replacement of the mortgage interest deduction with a credit would result in a net loss of revenue to the Treasury.

Establishing an *Optional* Mortgage Interest Tax Credit

As we have demonstrated the proposal of the President's Tax Reform Panel to replace the mortgage interest deduction with a mortgage interest tax credit would result in a small increase in homeownership rates among low-income and minority households and would redistribute homeowner tax subsidies more equitably across the income distribution. Although we applaud these results, we are very skeptical that Congress would ever approve any proposal that involves the elimination of the mortgage interest deduction**.** We reach this conclusion for two reasons. First, as documented by Peter Dreier (2006), the mortgage interest deduction is an entrenched feature of the income tax code. For many decades it has enjoyed strong bipartisan political sup-

port in Congress. Dreier provides a number of examples of the political power that the housing and real estate industries have been able to exert in Congress in support of the mortgage interest deduction.

The second reason we believe that it will be impossible to eliminate the mortgage interest deduction is related to the spatial concentration of the tax benefits it generates. Recent research by Gyourko and Sinai (2003) demonstrates the extent to which high per household benefits from the deduction are concentrated in a very small number of metropolitan areas (and hence Congressional districts). They show that if the revenue gained by the Treasury from the elimination of the mortgage interest deduction were returned as an equal lump-sum payment to all homeowners, the number of households that would be "winners" would way outweigh the number of "losers" households. However, the value of the gains by most winners would be small, while many losers would suffer large loses. Of particular significance is the fact that the losers from the elimination of the interest deduction are concentrated in a relatively few Congressional districts, while the winners are spread throughout the country. Even casual observation of how Congress behaves suggests that any policy that has a big negative impact in a few Congressional districts, but little impacts elsewhere, will be virtually impossible to enact.

Our conclusion that the elimination of the mortgage interest deduction is not a viable policy suggests an alternative that would allow each homeowner with a mortgage to choose between a 15 percent mortgage interest credit and the existing mortgage interest deduction. We assume that taxpayers will choose whichever tax policy, the credit or the deduction, is most beneficial to them.

In simulating an optional credit, we make one important change in the design of the credit, namely, we replace the non-refundable 15 percent credit that is part of the Tax Panel's

recommendation with a *refundable* 15 percent credit. We hypothesize that one of the reasons the non-refundable credit has only a modest impact on the homeownership rate, i.e. only a 0.3 percentage point increase in the ownership rate for households with incomes below $20,000 and a 0.4 percent point increase for households in the $20,000 to $40,000 income range, is that most potential homeowners with modest incomes would receive little or no tax savings from a non-refundable credit. This occurs because many households with modest incomes either have zero income tax liabilities or liabilities that are smaller than the credit to which they would be entitled.[20] As a result, the tax subsidy they would receive from becoming homeowners would be smaller than the subsidy provided by the full 15 percent credit.

The results of our simulation of the optional and refundable 15 percent mortgage interest credit are shown in Table 12. As a result of the credit, the overall homeownership rate increases by 3.3 percent points. For those households with incomes below $20,000, there is a 7.3 percent point increase in the ownership rate; for those with incomes between $20,000 and $40,000, the rate increases by 4.9 percentage points. In total, 21.8 percent of all homeowners would receive a credit. The 27.7 million credit recipients are divided between 6.3 million renter households who become homeowners as a result of the credit, and 21.4 million current homeowners with mortgages who take advantage of the credit. This latter group either did not previously benefit from the mortgage interest deduction because they were not itemizers or they have chosen to take the credit because it results in a larger tax savings than the deduction. For existing homeowners the credit would play an important role in reducing the financial burden of homeownership. By targeting tax relief to low- and moderate-income homeowners, the mortgage tax credit should reduce mortgage delinquency and foreclosure rates.

---

[20] Data from the Internal Revenue Service's *Statistics on Income* indicates that in 2004, only 42 percent of tax returns with adjusted gross incomes below $30,000 had positive tax liabilities.

Once again, this simulation makes two assumptions that may not be innocuous. First, it assumes that there is no down-payment constraint. The expansion of the sub-prime mortgage market makes this assumption less problematic than it would have been a decade ago. Nevertheless, households buying with low down-payments face a relatively high cost of capital, and therefore may be less likely to switch tenure than our model suggests. Second, the simulation assumes that houses are available at the prices predicted by our housing expenditure regression. In a world without supply constraints, this may be a reasonable assumption. However, in many large, coastal metropolitan areas, the availability of relatively low-value housing units is severely limited.

We have estimated that in 2004 the optional credit would have cost approximately $10 billion. Although this amount would increase the already large tax subsidy going to homeownership, as shown in the last column of Table 6, this additional subsidy is very well targeted to homeowners with low and moderate incomes, a pattern that is in sharp contrast with the distribution of the existing mortgage-related homeownership subsidies (see Table 1).

Andy Reschovsky 10/26/07 12:31 PM
Comment: I presume the discussion of winners and losers will come here.

Conclusions

The United States government current spends about $175 billion per year to subsidize homeownership. The lion's share of these subsidies operate through the tax system, with the largest single tax subsidy being the mortgage interest deduction. Despite these subsidies, homeownership rates for certain groups of Americans, notably African Americans, Hispanics, and households with modest incomes, are substantially below the average homeownership rate. For several decades now, economists have argued that a the use of a mortgage interest credit instead of the current deduction would both encourage homeownership and more equitably distribute homeownership tax subsidies across the income distribution. In this paper, we estimate housing

tenure and a housing expenditure regression models and construct a tax simulation model in order to determine the actual impact on homeownership rates of various tax policies that involve a mortgage tax credit. Specially, we simulate the impact of a proposal made in November 2005 by President Bush's Advisory Panel on Federal Tax Reform to eliminate the mortgage interest deduction and replace it with a non-refundable 15 percent mortgage tax credit. We also consider an alternative plan that grew out of our realization that the elimination of the mortgage interest deduction is almost certainly a political impossibility. Our plan involves a refundable mortgage interest tax credit. Every household will have the option of utilizing the credit or the deduction, whichever one provides the largest tax savings.

The striking thing about the Presidential Tax Panel Plan is how little it does beyond redistributing the homeowner tax subsidy. Because the credit that is proposed is non-refundable, it provides no ownership incentive to low-income households who pay no income tax. Consequently, the ownership rate among lower-than-median income households increases very modestly in response to the policy change.

On the other hand, because many homeowners who are not itemizers become eligible for the credit, the Tax Reform panel's proposal does not do much to increase federal income tax revenue. Much of the benefit of the proposed plan flows to households who are already owners in the form of reduced housing costs. We estimate that if there were no changes in how households finance their housing, the Treasury would gain $4.9 billion in revenue, about 0.6 percent of total 2004 income tax revenue. However, if there is a substantial shift away from debt toward equity for the financing of homes, the net impact of the proposal will be to reduce federal government revenues.

On the other hand, should Congress wish to use the tax code to encourage homeowner-ship, and do so in a politically feasible and relatively low-cost manner, a policy that gives house-holds a choice between a refundable mortgage interest tax credit and the existing mortgage inter-est deduction could be effective. Our analysis suggests that this policy may result in about a 10 percent increase in the homeownership rate among households with income below $40,000. In a revised version we will explore the impact of the optional credit on taxpayers characterized by race. The optional credit would also move in the direction of equalizing the tax subsidy for homeownership from its current pattern that provides a large portion of the total subsidy to high income households.