THE INCOME GEOGRAPHY OF TAX INCENTIVES FOR HOMEOWNERSHIP: EVIDENCE FROM THE KANSAS CITY METROPOLITAN AREA

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INTRODUCTION

THE OPPORTUNITY TO BECOME A HOMEOWNER has seldom been better than during the past few years. A record 69 percent of all households in the United States now own their own homes, compared to the 64 percent homeownership rate that generally prevailed from the 1960s through the mid-1990s. While all segments of the population have benefited from this increased homeownership, lower-income households still have much lower homeownership rates than higher-income households. A recent study from the U.S. Department of Housing and Urban Development (HUD, 2005, p. 95) found that high-income households had homeownership rates in 2001 that were 25.3 percentage points above moderate-income households and 30.1 percentage points above low-income households.[1]

These homeownership gaps raise many concerns. First and foremost is the concern over whether lower-income households are able to satisfy their housing needs in an acceptable manner. Beyond this, a key issue is whether lower-income households are missing out on opportunities to build their wealth through homeownership and to pass this homeownership experience and source of financial stability along to their families. In addition, since homeownership can contribute to the quality of neighborhoods, lower homeownership rates could make it more difficult to sustain and improve low- and moderate-income neighborhoods.

Housing authorities and researchers have given a variety of reasons for this low-income homeownership gap. Among these are differences between low-income and high-income households with regard to financial wealth, age, geographic location, education levels, home buying experience, and type of households (married, single-parent, etc.). Other suggested factors include job and credit histories, household mobility, housing maintenance and transactions costs, housing and lending discrimination, and inadequate mortgage instruments.

While these factors partly explain homeownership gaps, a more fundamental and pervasive roadblock may be the housing tax incentives under state and federal tax laws. Federal tax laws and most state tax laws provide tax advantages to homeowners that generally are not available to renters or to their landlords, and these advantages clearly favor higher-income people.

A neutral tax system would treat owner-occupiers the same as landlords. Landlords are taxed on their rental income, but they can deduct interest expenses and property taxes, along with maintenance costs, depreciation, insurance, and other expenses. Landlords must also declare any capital gains they might receive when selling their properties. For comparable treatment, homeowners would have to declare an imputed rental income from their home, and would be allowed to deduct all housing expenses, including mortgage interest and property taxes.[2] Under the existing tax structure, homeowners are not taxed on the imputed rental income of their properties, but are allowed to take a deduction from their taxable income for all the mortgage interest and property taxes they have paid during the year, provided their total itemized deductions exceed the standard deduction, as based on their filing status and other factors.[3] In addition, taxpayers may exclude up to $250,000 ($500,000 for married taxpayers filing jointly) in capital gains from selling a home (if they resided in the home for at least two of the previous five years).

Higher-income people tend to have much larger mortgage interest and property tax bills than lower-income people, so they generally benefit more from these deductions. Moreover, since the value of these deductions is directly linked to an individual's marginal tax rate, the greatest tax incentives flow to those in the highest tax brackets. Finally, and perhaps most significantly, the total deductions

of lower-income homeowners often are not large enough to gain much advantage from itemizing. Under current federal tax rates, higher-income households can get back in the form of lower taxes as much as 35 percent of what they pay for mortgage interest and property taxes, while lower-income households get at most 10 or 15 percent back. In most cases, low-income households get nothing back because they do not have sufficient itemized deductions.

The overall tax benefits flowing to homeowners are very large. The Joint Committee on Taxation (JCT, 2006, p. 33) estimates that tax deductions for mortgage interest and property taxes on owner-occupied homes and the exclusion of capital gains on owner-occupied homes will result in total tax expenditures (or a reduction in tax liabilities) of $113.4 billion for fiscal year 2006. They estimate that 68.5 percent of the tax benefits from deducting mortgage interest go to those with incomes over $100,000, while 5.5 percent of the benefits go to those with incomes under $50,000 (JCT, 2006, p. 49).

Largely because of the structure of the personal income tax, lower-income households – as they struggle to find affordable housing – must pay proportionately more on an after-tax basis to finance and own a home. This study takes an in-depth look at how these "homeowner tax subsidies" are distributed between lower-income and higher-income neighborhoods in the Kansas City metropolitan area – a pattern that is undoubtedly repeated in many other cities.

DISTRIBUTION OF BENEFITS BY INCOME GROUP

Our goal in the following two sections is to use a sample of federal tax returns and Census data to estimate how homeownership-based tax benefits vary across different income groups and across neighborhoods in the Kansas City metropolitan area. We do not compare the current tax structure to a neutral regime, but rather highlight the tax savings arising from the mortgage interest and property tax deductions exclusively.[4] These estimations require that we utilize the tax returns to create a model of homeownership tax benefits. With this model we can directly compute tax benefits across income groups, and by incorporating Census data into the model, we can then estimate tax benefits across neighborhoods.

The 2000 IRS Public Use Tax File is a primary data source for constructing our models. The Public Use Tax File contains a sample of 145,663 tax returns, with names, Social Security numbers, and other identifying information removed (IRS, 2004).

The calculation of the tax subsidy generated from mortgage interest and real estate tax deductions (herein "homeowner tax subsidy," or simply "tax subsidy") begins by subtracting the value of the standard deduction (based on filing status) from the total deductions listed on the tax form. Taking the standard deduction is always an option for the taxpayer, so only deductions in excess of the standard deduction (*XDed*) represent a benefit directly tied to itemizing.

The average value for *XDed* is provided in Table 1 (Column 6) for each income class. Each return was classified in two ways: by low and moderate income (LMI, less than 80 percent of area median income) status and by income quintile. For many returns, especially in lower income ranges, the value of *XDed* was zero (because most low-income filers do not itemize), and thus the tax subsidy was given a value of zero. For remaining returns, *XDed* was compared to the sum of real estate tax deductions and mortgage interest deductions, which we term "property deductions" (*PropDed*).

For tax returns in which $PropDed \le XDed$, the effective property deduction was the actual deduction: $EPropDed = PropDed$ (Table 1, Column 7). $PropDed > XDed$ For tax returns in which , the effective property tax deduction was set equal to the excess of total deductions over the standard deduction: $EPropDed = PropDed$.

Once the effective property deduction was calculated, the tax subsidy was computed as the product of the marginal tax rate (MTR) and the value of the effective property tax deduction (Table 1, Column 8): $TaxSub = MTR*EPropDed$.

In some cases the effective property deduction enabled taxpayers to drop into a lower tax bracket. In these cases, the marginal tax rate was multiplied by the marginal tax base (the maximum of the current bracket less taxable income reported on the return), which was then added to the product of the remainder of the deduction and the tax rate applicable in the next highest bracket. To illustrate, consider a couple who are married and filing a joint return with *taxable* income of $150,000 and effective property deductions totaling $18,000 (in the absence of the effective property deductions, the couple's taxable income would be $168,000). The couple would be in the 31 percent bracket in 2000,

Table 1
Average Mortgage Interest and Property Tax Deduction Subsidy by Income Class, 2000

Income Class (1)	Income (2)	AGI (3)	Total Deduction (including Standard Deduction) (4)	Mortgage Interest and Property Tax Claimed (5)	Total Deduction less Standard Deduction (6)	Mortgage Interest and Property Tax Deduction (Effective) (7)	Tax Subsidy (8)	Subsidy Rate (%) (8) / (5) (9)
Low and Moderate Income								
Low and Moderate Income (LMI)	17,556	16,777	5,984	757	659	478	75	9.9
Non-LMI	108,426	100,835	16,517	7,085	9,903	5,992	1,668	23.5
Income Quintiles								
Income Quintile 1	10,971	10,455	5,419	324	227	196	30	9.3
Income Quintile 2	31,875	30,162	7,281	1,606	1,618	1,020	161	10.0
Income Quintile 3	50,164	47,834	9,866	3,538	3,535	2,455	452	12.8
Income Quintile 4	74,177	71,919	13,345	6,375	6,603	4,997	1,183	18.6
Income Quintile 5	233,603	213,142	29,900	13,488	22,997	12,561	4,025	29.8

Note: All data are averages for the income class.

Source: Authors' Tabulations from IRS 2000 Public Use Tax File.

which ranged from $105,950 to $161,450. Thus, only the first $161,450 – $150,000 = $11,450 would be taxed at the 31 percent rate (in the absence of the deductions), and the remainder would be taxed at the next highest, 36 percent rate. The tax subsidy accruing to the couple would thus be

$$TaxSub = 0.31(\$11,450) + [0.36(\$18,000$$
$$- \$11,450)] = \$5,907.50.$$

In a very few cases, a third tax rate applied, and the calculation proceeded in a similar fashion.

The calculations in Table 1 show a clear relationship between income status and the homeowner tax subsidy. The average tax subsidy (column 8) for low-and-moderate-income people was less than 5 percent of the average subsidy for higher income people in 2000. The subsidy rates (column 9) are much closer, which reflects that the difference in subsidies is derived mostly from differences in the base (effective property deductions) rather than from the marginal tax rates. Subsidies also increase markedly through the income quintiles, and in 2000, the average subsidy in the lowest quintile was less than 1 percent of that in the highest income quintile.

DISTRIBUTION OF BENEFITS BY INCOME GEOGRAPHY

Because the tax subsidy varies so much by income, and income varies widely geographically, the tax subsidy varies considerably across space, even within a metropolitan area. In this section, we estimate the tax subsidy by Census tract for the Kansas City metropolitan area.

There are a few existing studies that examine how housing tax benefits are distributed geographically and how they might influence metropolitan development. According to Brady et al. (2003) and Gyourko and Sinai (2001), those receiving the largest subsidies are concentrated along the California coast and along the east coast from Washington, DC, to Boston, MA. Within most metropolitan areas, Gyourko and Sinai also find that those in suburban areas generally receive larger benefits than those in inner city neighborhoods. Voith (1999) and Voith and Gyourko (2002) suggest that the combination of housing tax incentives and large lot suburban zoning practices have led to a pattern of residential sorting in which suburban communities attract higher-income households while lower-income households are left to look for

housing in inner city areas. Voith also postulates that the ability to deduct property taxes will lead to greater investment in public amenities in higher-income communities, since the after-tax costs of these amenities will be lower there.

We use data from the 2000 Public Use Tax File to build predictive models of the probability of itemizing and the value of the tax subsidy (given itemization) based on characteristics of the taxpayer. We then apply the model to tract-level data from the Census. We use Census data because we can get information at the neighborhood (tract) level, whereas the IRS data reports only the state of residence of the filer. Given the use of both types of data, we must build the model using only those variables that are available both in the Public Use Tax File and from the Census Bureau. These variables are income (y), marital status (m), minor dependents (d), mortgage interest payments (estimated from Census data) (mi), property tax payments (estimated from Census data) (pt), and state of residence (s).

We begin by estimating the probability of itemizing deductions, using a logit specification:

(1) $\Pr(\text{Itemize})$

$$= \frac{1}{1 + \exp\left[-\left(\beta_0 + \beta_1 y + \beta_2 y^2 + \beta_3 m + \beta_4 d + \beta_5 s\right)\right]}$$

Results suggest, as expected, that the probability of itemizing increases with income, but does so at a decreasing rate (Table 2). Married households are more likely to itemize than single households, and households with children are more likely to itemize than households without children. All of the estimated coefficients are statistically significant at the 99 percent confidence level, including those representing the state of filing, which are not listed in the table.

The next step is to build a model for estimating the tax subsidy, conditional on itemizing. All of the factors in the logit model are also employed in the homeowner tax subsidy model, but two additional variables, mortgage interest paid and property taxes paid, are added, giving the following model to be estimated using least squares:

(2) $TaxSub = \alpha_0 + \alpha_1 y + \alpha_2 y^2 + \alpha_3 m + \alpha_4 d$
$$+ \alpha_5 s + \alpha_6 mi + \alpha_7 pt + \varepsilon,$$

where $e \sim N(0, \sigma^2)$. The estimates are weighted to reflect the stratification in the Public Use Tax File.

Table 2
Logit Estimates, Itemize

Variable	Estimate (Standard Error)	Variable	Estimate (Standard Error)
Intercept	- 7.137 (0.004)	Single, no children	- 0.133 (0.002)
Income	3.7×10^{-5} (9.4×10^{-9})	Married, no children	0.1482 (0.002)
Income^2	$- 8.2 \times 10^{-14}$ (2.1×10^{-17})	Single, with children	- 0.212 (0.002)
		Married, with children	0.718 (0.002)
Number of observations	145,238		

All estimates are significant at the 1 percent level.

Results are mostly in line with expectations (Table 3). Those with higher incomes have larger homeowner tax subsidies, but the effect is small. The small magnitude of this result seems surprising at first, considering the discussions earlier in this paper; however, we are controlling for mortgage interest and property taxes in the model, and thus the coefficient shows only the effect of additional income on the subsidy when mortgage interest and property taxes are held constant. We would not expect this effect to be large.

As expected, the mortgage interest deducted on the return is positively correlated with the subsidy and, along with property taxes paid, dominates the model in terms of the weight of the effect. Specifically, a one dollar increase in mortgage interest is associated with an increase in the tax subsidy of 37.7 cents. A one dollar increase in real property tax deducted is associated with an increase in the tax subsidy of 24.4 cents. One might expect these two effects to be equal in magnitude. The difference likely reflects secondary effects associated with increased mortgage interest or real property tax deductions, effects that are not picked up in the model.

The results suggest that those without children have higher subsidies on average and that single people have higher subsidies than married people. These results, if viewed independently, conflict with what we know reality to be: married people with kids tend to deduct more mortgage interest and property taxes. But again, we are controlling for mortgage interest and property tax deducted and income in the model. Holding those variables

constant, it is not too surprising that single people and those with no children have higher subsidy rates because they generally face higher marginal tax rates for any given level of income.

Estimates of equations (1) and (2) provide a model with which Census data can be used to estimate the tax subsidy of the typical household in each Census tract. The Census data comes from the STF3 files for the 2000 decennial census. We follow Gyourko and Sinai's (2001) methodology for creating a household income distribution for each tract. For each tract, we construct income deciles based on the distribution of households by the income groups reported in the Census. A representative household from each decile is determined as the median of the decile. Thus, for each tract, we utilize 10 representative households in the analysis: one representing the 5th percentile, the 15th percentile, the 25th percentile, and so on. Each representative household is assigned a house value using a similar methodology. The household representing the 5th percentile in the income distribution is assigned the house value at the 5th percentile of the distribution of house values in the tract.

Income for each tract-decile household was incorporated into equations (1) and (2) to begin the computation, as was an accounting for the state of residence (Missouri or Kansas in our analysis). For each tract, shares of the household population that are single and married and with and without children present were assumed to be constant across deciles, and these values also were incorporated into equations (1) and (2).

Table 3
Least Squares Estimates, Tax Subsidy of Itemizers

Variable	Estimate (Standard Error)	Variable	Estimate (Standard Error)
Intercept	159.6 (2.946)	Single, no children	547.0 (2.609)
Income	2.5×10^{-4} (7.5×10^{-7})	Married, no children	72.47 (2.604)
Income^2	1.1×10^{-12} (4.2×10^{-15})	Single, with children	- 278.4 (2.807)
Mortgage Interest Deduction	0.377 (7.8×10^{-6})	Married, with children	- 343.0 (2.586)
Real Property Tax Deduction	0.244 (1.3×10^{-4})		
Number of observations	145,238	Adjusted R^2	0.9847

All estimates are significant at the 1 percent level.

For the annual mortgage interest payment in equation (2), which is not collected during the Census, we follow Gyourko and Sinai (2001) and set $mi = (HV)(\lambda)(i)$, where HV is house value for a representative decile household in the tract from the 2000 Census, λ is the estimated leverage ratio in the tract, which is based on the tract's age distribution and data from the 1998 Survey of Consumer Finances, and i is a weighted average mortgage interest rate, which is also based on the age distribution in the tract and data from the 1998 Survey of Consumer Finances (adjusted to 2000-level interest rates).
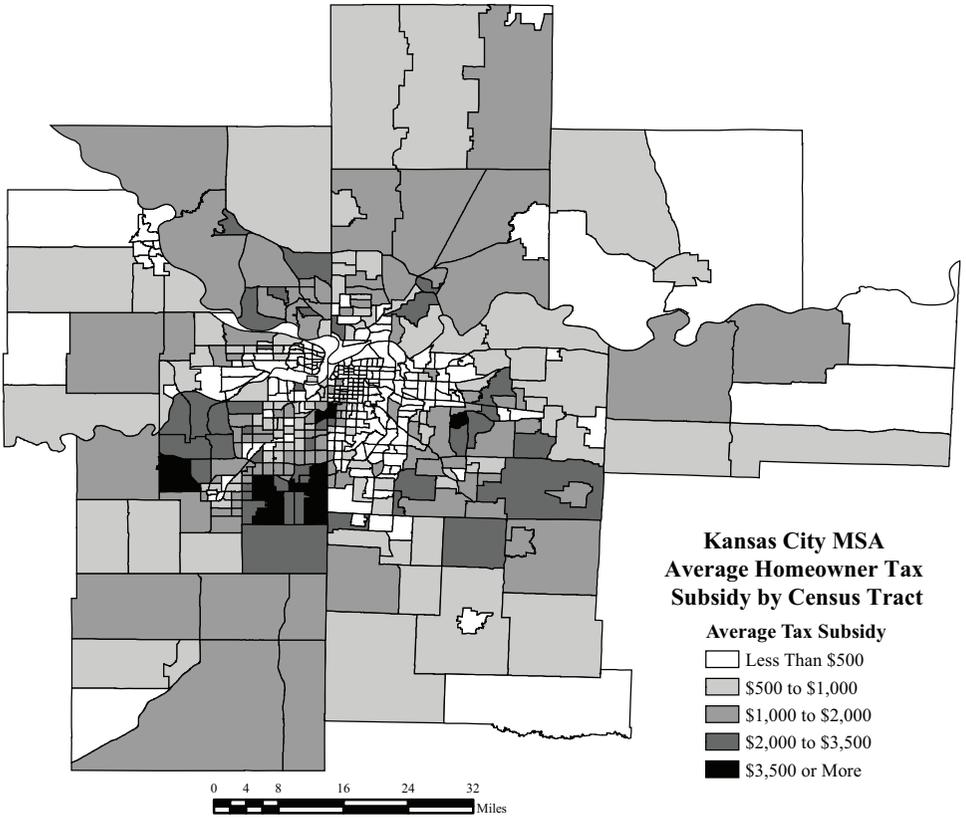
To calculate property taxes, we collected data on property tax collections for counties, municipalities, school districts, and special districts (such as library, fire, or water districts), from the 2002 Census of Governments. For each level of geography, we then computed the average property tax payment per household. Using geographic information systems (GIS) technology, we were then able to overlay Census tracts with county, municipality, school district, and special district layers. Within these layers are unions of geographies. For example, there are several Census tracts in Kansas City within the union of Jackson County, the City of Kansas City, the Kansas City school district, and special districts such as the Kansas City library and EMS districts. For each of these areas (unions of geographies)

we calculated an effective property tax rate (property tax per household in the area divided by the median house value in the area). The effective property tax rate for the area was applied to the median house value in each decile in each individual tract within the area to generate an estimate of the average property tax payment per household (*pt*).

Calculations of the homeowner tax subsidy for the Kansas City metropolitan area reveal wide variation across Census tracts (Figure 1). The mean value of the tax subsidy in Kansas City tracts is $923 per household, but the median is only $585, again implying a relatively skewed distribution. The standard deviation across tracts is $969. The average tax subsidy ranges from zero to as high as $5,842. Those living in relatively low-income, minority tracts on the Missouri side in the center of the map receive very minimal tax subsidies, on average, while those in the mostly white, high-income neighborhoods to the southwest on the Kansas side (Johnson County) receive average tax subsidies in the thousands of dollars. The income distribution in the Kansas City metropolitan area is highlighted in Figure 2.

Most of the variability in average tax subsidy across tracts arises from differences in income, homeownership rates, and house values. In low-income tracts in Kansas City, defined as tracts where the median income is less than 50 percent

Figure 1: **Average Homeowner Tax Subsidy, Kansas City MSA, by 2000 Census Tract**

**Kansas City MSA
Average Homeowner Tax
Subsidy by Census Tract**

Average Tax Subsidy
☐ Less Than $500
☐ $500 to $1,000
☐ $1,000 to $2,000
☐ $2,000 to $3,500
■ $3,500 or More

0   4   8   16   24   32
Miles

of the MSA median income ($46,192), the homeownership rate is less than 40 percent (Table 4). For those who do own their home, relatively little deductible mortgage interest is likely paid because the median house value in the tract is only $47,673 and few households have sufficient deductions to itemize. Because of these low homeownership rates and home values, and a median income of only $19,288, the average tax subsidy in these tracts is a negligible $256.

Now consider the statistics in high-income tracts, those where the median income exceeds 120 percent of the MSA median. The median income is $74,064 in these high-income Census tracts, the homeownership rate is 84.2 percent, and the median house value is $168,827. Subsequently, the average tax subsidy is a considerably larger $1,944. As a result, the current tax framework provides a substantial homeownership incentive in high-income neighborhoods in the Kansas City area, but does little to encourage homeownership in lower-income neighborhoods.

In subsequent work we take our analysis a step further and look at how tax subsidies also reduce the price of public services in higher-income neighborhoods compared to lower-income neighborhoods. This result follows from the fact that property taxes and certain other taxes that fund local public services can be itemized for tax purposes, thereby giving itemizing taxpayers a discount in funding such services that is equal to their marginal tax bracket. This subsidy for local public services has received little attention, but it plays an important role in explaining why inner city neighborhoods have faced problems in funding schools, providing other local services and neighborhood amenities, financing police protection, and maintaining local housing values.

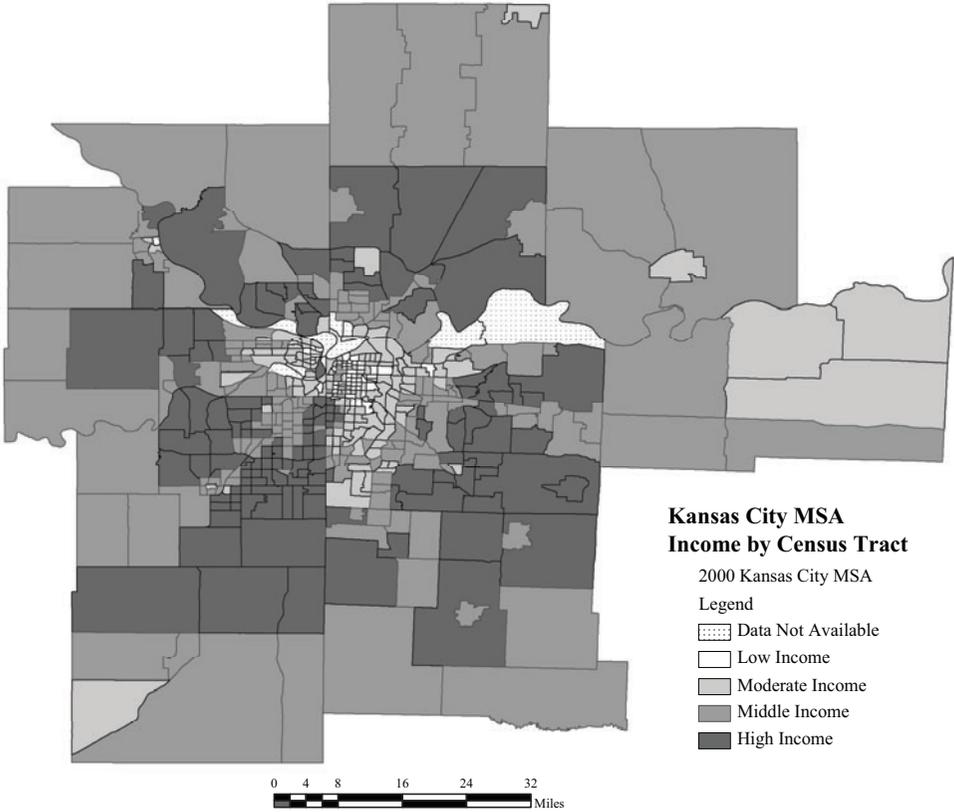*Figure 2:* **Kansas City MSA Income, by 2000 Census Tract**

Kansas City MSA
Income by Census Tract

2000 Kansas City MSA

Legend
- Data Not Available
- Low Income
- Moderate Income
- Middle Income
- High Income

0 4 8 16 24 32 Miles

Table 4
Tract Statistics, Kansas City Metropolitan Area

Tract Type	Median Income ($)	Median Home Value ($)	Homeownership Rate (%)	Tax Subsidy ($)
Low Income	19,288	47,673	38.9	256
Moderate Income	30,537	59,094	53.6	350
Middle Income	45,845	98,632	68.6	734
High Income	74,064	168,827	84.2	1,944

Note: All dollar amounts are averages.

Notes

[1] For these homeownership statistics, we are defining high-income households as those with incomes above 120 percent of the median income in their area, while moderate-income households are those with incomes 50 to 80 percent of the median and low-income households are below 50 percent of the median.

[2] This imputed rent would be the rent that an owner avoids paying to a landlord by virtue of being a homeowner – homeowners implicitly pay this rent to themselves. All homeowners – even those with no housing debt -- benefit from the non-taxation of both imputed housing income and capital gains, although those without debt don't receive the benefits of deducting mortgage interest.

[3] The deduction is limited to the interest on a mortgage of $1 million or less. Property taxes are not deductible for taxpayers subject to the alternative minimum tax (AMT).

[4] Because taxing homeowners in the same manner as landlords would be very difficult from a practical perspective (see Bourassa and Grigsby, 2000), we do not consider such a structure to be a viable policy alternative. For this reason, we restrict our evaluation to the tax savings arising from mortgage interest and property tax deductions, as does the JCT.

REFERENCES

Bourassa, Steven C., and William G. Grigsby. Income Tax Concessions for Owner-Occupied Housing. *Housing Policy Debate* 11 (2000): 521–546.

Brady, Peter, Julie-Anne Cronin, and Scott Houser (2003). Regional Differences in the Utilization of the Mortgage Interest Deduction. *Public Finance Review* 31 (July 2003): 327–366.

The Federal Reserve Board. 1998 Survey of Consumer Finances. Washington, D.C., 1998.

Gyourko, Joseph and Todd Sinai. The Spatial Distribution of Housing-Related Tax Benefits in the United States. Cambridge, MA: National Bureau of Economic Research, 2001. Working Paper 8165.

U.S. Census Bureau.
2000 Census. STF3. Washington, D.C., 2000.
Federal, State and Local Governments: 2002 Census of Governments. Washington, D.C., 2002.

U.S. Congress. Joint Committee on Taxation. Estimates of Federal Tax Expenditures for Fiscal Years 2006-2010. JCS-2-06. Washington, D.C., 2006.

U.S. Department of Housing and Urban Development. Homeownership Gaps Among Low-Income and Minority Borrowers and Neighborhoods. Washington, D.C., 2005.

U.S. Department of the Treasury. Internal Revenue Service. General Description Booklet for the 2000 Public Use Tax File. Washington, D.C., 2004. http://www.nber.org/~taxsim/gdb/gdb00.pdf.

Voith, Richard. Does the Federal Tax Treatment of Housing Affect the Pattern of Metropolitan Development? *Federal Reserve Bank of Philadelphia Business Review* (March/April, 1999): 3 – 16.

Voith, Richard and Joseph Gyourko. Capitalization of Federal Taxes, the Relative Price of Housing, and Urban Form: Density and Sorting Effects. *Regional Science and Urban Economics* 32 (November 2002): 673–690.