THE (UN)CHANGING GEOGRAPHICAL DISTRIBUTION OF HOUSING TAX BENEFITS: 1980 TO 2000

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ABSTRACT

Using tract-level data from the 1980, 1990, and 2000 Censuses, we estimate how the income tax-related benefits to owner-occupiers are distributed spatially across the United States. Even though the top marginal tax rate has fallen substantially since 1980 and the tax code more generally has become less progressive, the real value of the tax subsidy per homeowner was virtually unchanged between 1979-1989, and then rose substantially between 1989-1999.

Geographically, gross program benefits have been and remain very spatially targeted. At the state level, California's owners have received a disproportionate share of the benefit flows over the past two decades. Their share of the gross benefits nationally has fluctuated from 19 to 22 percent. Depending upon the year, this is from 1.8 to 2.3 times their share of the nation's owners. The top five state's share of tax benefits to its share of owners has risen over time, while the median state's ratio has declined, from 0.83 in 1979 to 0.76 in 1999.

Examining the data at the metropolitan area level finds an even more dramatic spatial targeting, and a spatial skewness that is increasing over time. The top five metropolitan areas received 18 percent of the aggregate tax subsidy in 1999 and 5 percent of the subsidy per owner, despite constituting only 1 percent of the areas in the data. While the metropolitan areas that are the "winners" rarely change, they have appropriated an ever larger portion of the total tax benefits over the 20 years. Skyrocketing house prices in certain coastal metropolitan areas, combined with higher tax rates in those areas, appear to play a large role in explaining this pattern.

Introduction

It is generally accepted that the favorable tax subsidy to homeownership in the United States stimulates the demand for housing, raising house prices and increasing the homeownership rate.[1] That this subsidy comes at a significant cost is also well documented at the national level, where a number of authors have estimated the tax expenditure associated with the mortgage interest and property tax deductions as well as the untaxed return on housing equity.[2]

Other work has shown also that both the marginal incentives for homeownership and the aggregate cost of the subsidies have changed considerably over time. For example, Poterba's (1992) analysis of the impacts of the various tax reforms of the 1980s, a decade which saw a drop in marginal tax rates for high income households and an overall reduction in the progressivity of the tax code, reports significant increases in user costs between 1980 and 1990 across the income distribution, but particularly for high income owners. For a hypothetical $50,000 owner who itemized, Poterba estimated a 9.7 percent user cost in 1980 and an 11.6 percent user cost in 1990. For a rich $250,000 itemizing taxpayer, the rise was even more dramatic, from 4.3 percent to 11.6 percent. In our work below, we calculate that the real cost of the tax subsidy to homeownership has risen substantially in the last 20 years, from $198 billion (in real 1999 dollars) in 1979, to $284 billion in 1989, and $420 billion in 1999.

Besides these differences over time, recent evidence shows that the value of the subsidy to owner-occupied housing varies considerably over space. Gyourko and Sinai

[1] See Rosen (1979) for a classic analysis and Poterba (1984), Bruce and Holtz-Eakin (1999), and Capozza, Green, and Hendershott (1996) for more recent investigations into how the tax code might function in these regards.

[2] For example, see Follain and Ling (1991) and Follain, Ling, and McGill (1998).

(2003), using 1990 Census data, find that the rewards of the program are highly skewed with just a handful of metropolitan areas reaping most of the net benefits of the subsidy.

These two sets of stylized facts naturally lead one to wonder whether the significant changes in marginal incentives for homeownership and in the aggregate cost of the homeownership subsidy over the last 20 years have affected the geographic distribution of the benefits of the subsidy. Because housing markets are inextricably tied to a physical location, and are not national in scope, knowing the extent to which the tax benefits vary spatially is important for determining the potential impact of any change in the tax treatment of owner-occupied housing, such as on house prices, the homeownership rate, or the political economy of fundamental tax reform. Knowledge of how the geographical distribution of program benefits changes also is useful for analysis of the spatial equity of the tax treatment of owner-occupied housing. Just as a public policy can be, and often is, evaluated by the allocation of its benefits across income groups, one can similarly assess the spatial distribution.

In this paper, we use the 1980, 1990, and 2000 Censuses to compute the distribution of the tax subsidy to owner-occupied housing across space and time. Building upon our previous work, we calculate the value of the tax subsidy to owner-occupied housing as the difference in ordinary state and federal income taxes currently paid by home owners and the taxes they would pay if the tax code treated them like landlords. In the latter scenario, there is no preference for investing in one's home relative to other assets. We find that while the marginal tax subsidy for homeownership has decreased over the last 20 years on net, the aggregate value of the tax benefits actually increased. Although the spatial skewness across states was little changed, the

evidence suggests that skewness increased across metropolitan areas.

Our analysis indicates that this is due to rising house prices and growth in the number of homeowners offsetting the decline in average tax benefit per dollar of house. In particular, the tax subsidy to a dollar of owner-occupied housing fell between 1979 and 1989 before rising slightly by 1999, as the marginal tax rates on housing deductions were reduced then increased. All else constant, one would expect the value of the tax benefit to fall with tax rates. However, the per-owner subsidy value does not move the same way as the tax benefit, instead remaining flat during the 1980s before rising by 20 percent during the 1990s. These movements were largely due to increases in real house prices as well as a rise in the opportunity cost of capital. On top of this, the aggregate subsidy rose substantially during the 1980s, from $198 billion in 1979 to $284 billion in 1989, due at least in part to growth in the number of homeowners.

Not surprisingly, these tax changes, increases in house prices, and growth in the number of homeowners were not individually spatially neutral. However, they happen to offset each other so that the spatial distribution of the tax benefits changes little over time. While the precise numbers do vary over the decades, the pattern of spatial skewness across both states and metropolitan areas, as well as which areas are the relative winners, largely has been maintained at least over the last 20 years. California always receives the largest gross subsidy flow, but this is not due solely to the fact that it has the most owners. For example, in 2000 it received 18.7 percent of the aggregate subsidy while having only 9.4 percent of the nation's owners. That high ratio of benefits to owners applies to only a very small number of other states, such as New York (9.5 percent of total benefit flow while being home to only 5.3 percent of the nation's owners

in 2000), indicating that this program has highly spatially targeted beneficiaries. This pattern of spatial skewness to where program benefits flow is even more extreme at the metropolitan area level. The top three metropolitan areas in terms of gross subsidy flow (New York-Northern New Jersey, Los Angeles-Long Beach, Chicago) receive 14.6 percent of the overall subsidy in 2000, while being home to only 8.5 percent of the metropolitan area owner-occupiers.

The precise economic implications of these results depend upon whether or not the subsidy is capitalized into land prices. While such an analysis is beyond the scope of this paper, the broad range of possible outcomes can be readily understood. If the subsidy were fully capitalized, eliminating it would not affect the user cost of owning but many owners in a few metropolitan areas would experience significant changes in wealth. While the savings associated with eliminating the subsidy could be redistributed back to homeowners, the net wealth effect still could be significant in many areas regardless of how one thinks the tax benefits are financed. If the tax subsidy is not capitalized into land prices, then the user cost of ownership must reflect it, affecting the flow cost of housing differentially across the U.S. Determining just how the tax code affects housing markets and house prices in different locations is an important contribution that our results should be able to help inform in future research.

The remainder of the paper proceeds as follows. In the first section, we describe the tax subsidy to owner-occupied housing and how we measure it. Section two reports our results, beginning with an analysis of how benefits flow across states and concluding with a description of the distribution across metropolitan areas. Finally, there is a brief conclusion and summary.

I. Measuring Housing-Related Tax Benefits

We follow the approach described in Gyourko and Sinai (2003) to measure housing-related tax benefits under the current tax system. In essence, we compare the tax treatment of homeownership to that of a rental landlord, since an income-producing property is taxed like any other asset.

We utilize the familiar user cost of owning concept developed in Hendershott and Slemrod (1983) and Poterba (1984) to measure the tax treatment of homeownership. The user cost of owning takes into account the fact that implicit rental income is untaxed while mortgage interest and property taxes are deductible for itemizers. We then compare this to the situation in which the home owner is treated as a landlord, with the residence taxed just like any other asset. In this case, the home owner essentially rents her house to herself, so neutral tax treatment requires taxing the implicit rental income on one's home. However, if treated like landlords, owner occupiers also would be able to deduct maintenance expenses and depreciation in addition to the mortgage interest and local property taxes presently allowed.

Three factors determine the differences in the user costs as an owner or landlord. As a homeowner, the user cost is lower by the amount of the untaxed imputed rent, but is increased by the values of the maintenance and depreciation deductions. Assuming that housing markets clear so the marginal home owner invests in owner-occupied housing until the point where the annual cost she incurs exactly equals the rent she would have to pay as a tenant in the same property, this tradeoff can be decomposed into three components: (a) the tax value of home mortgage interest deductions; (b) the tax value of

local property tax deductions; and (c) the tax that would have been paid on the equity invested in the home had it been invested elsewhere. By estimating these components, we can determine the total subsidy to owner-occupied housing under the current ordinary income tax code.[3]

Data and Estimation Strategy

Census tract level information from the STF3 files of the 1980, 1990, and 2000 decennial censuses for all fifty states plus the District of Columbia serve as our primary data.[4] We start by computing the distribution of household income among homeowners

[3] See Gyourko and Sinai (2003) for the underlying algebra and a more detailed exposition. A few assumptions are noteworthy for the reader who does not wish to review our 2003 methodology in detail. First, we assume landlords can deduct economic depreciation. This is a conservative assumption and, after 1986, probably not far from the truth. Deloitte and Touche (2000) and Gravelle (2001) conclude that economic lifetimes for rental properties in 1989 (and now) are shorter than the statutory lifetimes. The statutory depreciable life in 1981 (of 15 years) was shorter than true economic depreciation, so we may overestimate the subsidy to owner-occupiers in 1979. Second, our calculations assume the opportunity cost of tying up equity in the house is foregoing taxable returns, and that is reflected in rent. Third, we treat capital gains on housing for homeowners as untaxed and realized annually, a not unrealistic assumption for most households throughout the time period covered by our analysis. We also assume accrual taxation of capital gains for landlords which allows us to focus on program benefits arising from differential tax treatment of ordinary income. As our 2003 paper shows, in this setting a dollar of house price appreciation has the same value to owner-occupiers and landlords, so there is no differential impact on user costs. The analysis behind this conclusion is fairly complex, and we refer the interested reader to that paper for the details. Fourth, we model the the homeowner's financial position as being long one house and short one bond (the mortgage). This allows us to decompose the opportunity cost of being long the house as the riskless rate of return plus a premium that reflects the difference in risk between a bond position and an equivalent risk alternative to investing in housing. The difference between the mortgage interest rate and the equivalent duration riskless rate is reflected in the options to default on or prepay the mortgage. These options have value to the owner, so the premium above the riskless rate for borrowing is rolled into the mortgage rate as a cost. Finally, we abstract from *how many* housing dollars on which a home owning family receives a subsidy. A change in the tax treatment of owner-occupied housing might affect house values, but because we measure the subsidy on a per dollar basis, we abstract from the possibility that there is a second order effect through changes in house prices.

[4] The census data for 1980 and 2000 were obtained from Geolytics, a well-known data provider. For 1990, the data were obtained from the ICPSR. Census data rather than tax return or *American Housing Survey* (*AHS*) data are employed because the census reports geocodes at the tract level. We can only obtain state identifiers with the tax data and the national files of the AHS do not contain state-level identifiers in all cases.

at the tract level.[5] For each tract, we divide the household income distribution into deciles and assign the median income for each decile to all the households in that category. Thus, the lowest-income one-tenth of the households are assumed to have an income equal to that of the fifth percentile for the tract, the next lowest-income tenth of the households are assigned an income equal to that of the 15th percentile for the tract, and so forth.

We then map tract-level information on the distribution of house values, P_H, to incomes by assigning to households in each decile of the income distribution the value corresponding to the same decile of the house value distribution. For example, we assume that the household in the 5th percentile of the income distribution for the tract also owns the home in the 5th percentile of the housing price distribution for the same tract.[6]

We estimate the value of the mortgage interest deduction by computing each tract-decile's tax value as the weighted average difference in tax bills with and without it. The mortgage interest deduction itself is defined as $P_H*\alpha*i$. Leverage ratios, α, vary by age and are computed from household data in the *Survey of Consumer Finances* (*SCF*) closest in time to the relevant census year. A weighted average leverage for each tract was computed based on the tract's age distribution.[7] The mortgage interest rate, *i*, was

[5]All tax benefit figures reported in this paper are based on tract-level data that aggregates household income across its various sources.

[6]This matching process presumes that owners and renters in a tract have identical income distributions. Fortunately, our spatial results are robust to assuming an extreme case in which all the owners in a tract have a higher income than any of the renters, and houses are matched to owners so that the highest income owner owns the highest value house, the next highest income owner occupies the next highest valued house, and so forth.

[7]There is considerable heterogeneity in leverage by age in all years. For example, in 1998, loan-to-value ratios by age are as follows: 20-24 year olds – 66.5 percent; 25-29 year olds – 64.2 percent; 30-34 year olds – 62.6 percent; 35-39 year olds – 61.0 percent; 40-44 year olds – 52.3 percent; 45-49 year olds – 44.5 percent; 50-54 year olds – 41.3 percent; 55-59 year olds – 30.9 percent; 60-64 year olds – 21.3 percent; 65-

calculated by taking an average across households in the same *SCFs*. From the 1983 *SCF*, which is the closest in time to 1979, we calculate the average mortgage rate was 10.21 percent. For 1989, the analogous rate was 9.56 percent, with a rate of 7.85 percent matched from the 1998 SCF to the 1999 census data.

The tax value of the mortgage interest deduction can differ from mortgage interest paid times the marginal tax rate for three reasons. First, only families that itemize on their tax returns receive any benefit on the margin from the deductibility of mortgage interest. Also, only the excess of the mortgage interest deduction plus other itemized deductions over the standard deduction has value for a taxpayer. Therefore, we would only multiply the portion of mortgage interest in excess of the standard deduction (after itemizing all other non-housing related deductions first) by the tax rate. Additionally, since the tax schedule is nonlinear, taking the mortgage interest deduction may lower the taxpayer's marginal and average tax rates.

The actual value of the tax benefits also depends on certain demographic data that are likely to affect the number of exemptions and the overall amount of deductions. Tract level data that are available in each census year include the distribution of whether households are single, married, or single with children; the percentage of households with children; and the percentage of households over 65 years of age.

Unfortunately, the census data lack information on most non-housing categories of potential tax deductions. We compute mortgage interest, state, and property tax deductions, but we do not observe medical expenses, charitable giving, deductible interest (other than for a home mortgage), and several other miscellaneous categories.

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69 year olds – 13.2 percent; 70-74 year olds – 9.6 percent; and 75+ year olds – 4.6 percent. Leverage in previous decades is, on average, lower.

Charitable giving alone accounted for $55 billion of the $432 billion of total itemized deductions reported on tax returns in 1989, placing it behind only mortgage interest ($169 billion) and state and local taxes ($81 billion). Thus, these omissions potentially are severe.

Two countervailing problems arise from underestimating possible deductions. First, we would be more likely to incorrectly assume the family does not itemize. This error would cause us to underestimate the tax value of the mortgage interest and property tax deductions since less would be deducted at the margin. On the other hand, undercounting deductions for itemizers could increase the tax value we do measure since the remaining deductions are applied against higher marginal tax rates.

Consequently, we impute missing tax deductions to our census data based on data from the Department of the Treasury's *Statistics of Income* (*SOI*) public use tax micro sample. A modified Heckman-style sample selection model is employed to correct for the selective observing of deductions only by itemizers.[8] Following this imputation, federal and state tax rates and implied tax benefit amounts are computed using the National Bureau of Economic Research's (NBER) TAXSIM program.

The second component involves the value of the deduction of local property taxes. Property tax payments themselves are defined as $P_H * \tau_p$, where τ_p is the average

[8]The interested reader should see the Appendix to Gyourko & Sinai (2003) for a detailed description of the procedure. The imputation results indicate that, absent the correction, we would have underestimated deductions and therefore the number of itemizers. This turns out to be important because the underestimation of itemizers was not random across space. In high house value and high income tax states such as California, not observing non-housing deductions only infrequently caused us to miscategorize an owner family as a non-itemizer. Home mortgage interest, local property taxes, and state income taxes generally were sufficient to make California residents itemizers. This was not the case in many states with lower house values and lower state taxes. Hence, the imputation has an important effect on the measured spatial distribution of program benefits.

effective property tax rate. We were not able to find reliable estimates for this variable over time. Consequently, we use average metropolitan area property tax rates for an intermediate year—1990.[9] Census tracts not located within metropolitan areas covered in this data are assigned the average state-level local property tax rate as reported by the Advisory Commission on Intergovernmental Relations (ACIR (1987)).[10] The tax value of the deduction associated with these payments then is computed the same way as for the mortgage interest deduction.

The third term we estimate arises from the fact that the government does not tax as income the return home owners could have earned on their equity had they not invested in their homes. The estimates below assume that the expected equivalent-risk opportunity cost of investing in a house was equal to the geometric mean on the value-weighted S&P500 return (including dividends) over a certain time period. For simplicity, we assume the relevant period always runs from the beginning of 1926 to the end of the census year (i.e., 1926-1979, 1926-1989, and 1926-1999), yielding expected returns of 8.79, 10.13, and 11.22 percent, respectively.

The value of the non-taxation of the return on equity invested in housing is computed in two steps. First, we calculate the opportunity cost of the equity in one's home, or $P_H*((1-\alpha)*r + \beta)$, where *r* is the riskless yield on seven-year Treasuries in the relevant census year – 9.47, 8.57, and 5.79 percent, respectively – and β is the risk

[9] Stephen Malpezzi, who has calculated average property tax rates in 1990 for a large number of areas, generously provided this data.

[10] The ACIR did not report state-by-state breakdowns for 1989, so we use the 1987 data. We have also experimented with assuming a 1 percent and 1.5 percent national average effective rate. Our findings are not sensitive to these changes.

premium for the whole house.[11] Thus, for 1989, we define β to be the 10.13 percent S&P500 return minus the 8.57 percent Treasury yield, for a premium of 1.56 percentage points. We then calculate the difference in tax liabilities between the cases in which the family invested the home equity in taxable form and in which they held untaxed housing. This approach accounts for the possibility that a family might move into a higher marginal tax bracket if the return on its housing equity was taxed.

The procedure for estimating the tax code-related subsidy to owner-occupiers is represented graphically in the tax schedule with three marginal tax brackets shown in Figure 1. A home-owning family with no housing-related deductions would have a taxable income (TI) of Y_1. However, if they were not owners, they may have invested their housing equity in a vehicle that yielded a taxable return that would raise their TI to Y_2. Thus, Y_2 is the counterfactual TI for a home-owning family if it were to stop being an owner. Starting with that TI, we can compute the tax value of each of the three aforementioned deductions. With a taxable income of Y_2, this hypothetical family would have a tax liability of T_1. Assume that claiming the home mortgage interest deduction (HMI) would lower TI to Y_2–HMI (presuming for simplicity that all of HMI was above the standard deduction) and the tax liability to T_2. Therefore, the tax savings for this family from the mortgage interest deduction is T_1–T_2.

Although in this example the mortgage interest deduction does not move the family into a lower tax bracket, the property tax deduction does. Beginning with TI

[11] The risk adjustment follows from Poterba (1991), with the calculation effectively assuming that the mortgage rate would be the yield on seven-year Treasuries in the absence of the options to prepay or default. Other assumptions regarding the relative risk of owner-occupied housing obviously could be made, as there is no clear agreement on this issue. However, we have repeated all the analyses reported in the paper under widely varying assumptions about the relative risk of owner-occupied housing. While the aggregate subsidy certainly does vary with the presumed opportunity cost of equity in the home, the nature of the spatial distribution of the subsidy across states and metropolitan areas largely is unaffected.

equal to Y_2–HMI, we can compute the tax savings from the property tax deduction as the tax bill with only the mortgage interest deduction, T_2, minus the tax bill with both the mortgage interest and property tax deductions, T_3. In this case, T_2 and T_3 span a kink in the tax schedule, but still account for the fact that the average tax rate is less than the marginal tax rate at Y_2–HMI.

Finally, we compute the value of the non-taxation of the return on housing equity. Because the return on housing equity is not included in TI, taxable income is measured at Y_1 instead of the greater amount Y_2. The tax value of not including that income is measured as the change in tax between T_3 (the tax bill corresponding to a TI of Y_2–HMI–T_p) and T_4 (the tax bill corresponding to an TI of Y_1–HMI–T_p).

It is apparent from Figure 1 that the order in which the deductions are taken matters when the tax schedule is not linear. For example, T_1–T_2 > T_3–T_4, even though HMI < Y_1–Y_2. After adding back the implicit return on housing equity, we compute the deductions in the following order: (a) tax savings from the mortgage interest deduction; (b) the tax savings associated with the property tax deduction; and (c) the savings from the return on housing equity being untaxed. We have repeated the estimation using all six possible sequences in which the deductions can be taken. While the relative magnitudes of the categories change, the differences are minor.

II. Results

Summary Statistics

Table 1 reports aggregate, per owner-occupied housing unit, and per household values of the aggregate tax benefit for the U.S. The gross value to owners of housing-

related ordinary income tax benefits for the country is quite large and has risen over time—from $198 billion in 1979 to $284 billion in 1989 to $420 billion in 1999 (in constant 1999 dollars). The 112 percent increase in real subsidy amount since 1979 is significantly greater than the approximately 70 percent rise in the number of owner-occupied units between 1980 and 2000 (from 40.9 million in 1980 to 69.7 million in 2000).

As columns 2-4 indicate, the bulk of the tax code-related benefits to owners arises from the untaxed return on home equity. Depending upon the census year, from two-thirds to three-quarters of the total benefits are due to this component, not the more widely discussed (and measured) tax expenditures associated with the deduction of mortgage interest and local property taxes.

This subsidy is sizeable, even on a per-owner basis, ranging from about five to six thousand dollars over the past 20 years. Gross program benefits per owner-occupied household, which are computed by dividing the national aggregate subsidy by the number of homeowning households reported in the census, were $4,840 in 1979, remained constant over the decade with the 1989 figure being $4,818, and then rose in the 1990s to $6,024 by 1999.

While it has long been recognized that the subsidy is skewed in aggregate toward those with high incomes and high house values, much less is known about the spatial skewness of this tax subsidy. It is to that issue we now turn, first addressing it at the state level and then following up at the metropolitan area level.

State-Level Results

We begin by demonstrating how the tax subsidy to owner occupied housing is

spatially skewed, describe how that skewness changes over time, and then investigate the driving factors behind the distribution of the subsidy.

The most basic measure of the spatial distribution of the benefits is simply which states receive the most funds. Figure 2 plots the aggregate benefit flow for each state by year. The 1979 amounts are reported in the top panel, followed by the information for 1989 and 1999. The numbers underlying these charts are available in Appendix Table A. California clearly stands out in these charts, with its owners receiving gross benefits of nearly $40 billion in 1979, well over $60 billion in 1989, and almost $80 billion in 1999. No other state approaches these amounts, although the benefit flow to New York has also risen dramatically over time. As the national aggregate value of the subsidy increases, the additional benefits appear to be distributed in proportion to where they were already going. That is, while the aggregate benefit to California doubles between 1979 and 1999, so does the subsidy to small beneficiaries such as Georgia, Maryland, and North Carolina. Thus the states tend to maintain their same relative standing, but the absolute (real) dollar difference between the highest and lowest recipient increases substantially.

Of course, changes in aggregate subsidy flows are heavily affected by population growth. To net out differential increases in the number of homeowners, Figure 3 reports benefits scaled by the number of owners in the state. Still, there is noticeable skewness in the spatial distribution of tax benefits. California is no longer an extreme outlier, but its owners still receive relatively large benefit flows in any year. Owners in Hawaii and the District of Columbia consistently receive higher benefit flows than those in California. Over the two decades, it appears the spoils become ever more concentrated in

the hands of the owners in just a few states, often at the expense of most of the others. This can be seen most clearly between 1979 and 1989, where owners in northeastern states are doing better over time in terms of benefit flows, both absolutely and relatively (see the plots for Connecticut and Massachusetts), while the real per-owner benefit in the midwest declined, only slightly rebounding by 1999.

While benefits per owned unit rose during the 1990s throughout the country, it generally is the case that owners in the vast majority of states receive tax subsidies that are well under one-half of that received by owners in the top five states. Thus, while the Gini coefficients for the distribution of per owner benefits across states, reported in Table 2, are relatively low in each decade (0.20 in 1979, 0.32 in 1989, and 0.25 in 1999), it would not be accurate to consider the benefit distribution to be spatially egalitarian. The level of the Gini coefficient, especially when weighting states equally as we do here, if driven primarily by the fairly uniform middle and bottom part of the distribution. But even on a per owner basis, people in only a handful of states, often the most populous ones, reap substantially more from tax code-related housing benefits than the typical owner nationally. This skewness has been the norm at least since 1980, and as the changes in the Gini coefficient indicate, increased in 1989 before declining slightly by 1999.

The previous figures commingled changes in the national level of subsidy with its distribution across space. Figure 4 isolates the spatial distribution from the dollar value of the subsidy by plotting the ratio of each state's share of the subsidy to its share of the nation's owners. Even under this metric, the skewness is noticeable. The typical state is receiving less than the national average benefit per owner, with a few states—including

the nation's most populous one—receiving about double the national average benefit per owner. The median state has a ratio of less than one – 0.83 in 1980, 0.71 in 1990, and 0.76 in 2000 – indicating it gets disproportionately fewer benefits relative to its number of home owners. These ratios are less than half of California's numbers of 1.77 in 1980, 2.29 in 1990, and 2.00 in 2000. While Hawaii's and the District of Columbia's ratios are higher that California's in each decade, California's are more relevant empirically because of its very large number of owners. These disparities rise between 1979 and 1989, but are mitigated somewhat by 1999. While one cannot compute transfers across states without making assumptions regarding how the program is financed, it seems certain that transfers are flowing from a host of states to owners in California and a select few other states.[12]

While the slight drop in Gini coefficients during the 1990s reported in Table 2 suggests an increasingly egalitarian spatial distribution of benefits across states, there is little actual change over time. In all three census years, we find that owners in a relatively small number of states receive a disproportionate share of the benefits associated with the favored tax status of owner-occupancy. The very top states maintain their rankings for all 20 years with just the magnitude of their subsidies varying.

Figure 5 provides more detail on the heterogeneity in benefit changes by state over the 1980s and 1990s. Changes here are measured relative to the average change nationally. The top panel highlights that owners in northeastern and mid-Atlantic states did better than average in the 1980s, which is when New York, New Jersey, and Massachusetts approached the top five. California and Hawaii are the only exceptions to

[12] See our 2003 paper for transfer estimates assuming lump sum and proportional financing schemes using 1900 data. In both cases, the outcome is the majority of states transferring relatively modest amounts of resources to owners in the smaller number of other states.

that statement. There was less heterogeneity in the 1990s, and it was owners in the less populous western states of Colorado, Oregon, and Utah who experienced significantly greater than average increases in that decade. Owners in California and Hawaii received smaller than average benefit flow increases that decade.

As suggested in the Introduction, many factors have changed over time that could influence the value of the tax benefits associated with owner-occupancy. The most obvious is the tax rates themselves. Figure 6 plots the 'average' marginal tax rate (state+federal) on housing deductions from the NBER's TAXSIM programThe marginal rates from Figure 6 do differ somewhat across states, and are typically higher in the high subsidy states. Those differences have been mitigating over time, especially between 1989 and 1999, as the national average tax rate fell. In Figure 7, which shows the changes in tax rates by state over time, the national pattern is much more dramatic, with a systematic drop in tax rates from 1980 to 1990, followed by a slight rise in the 1990s. This pattern obviously reflects the 1981 and 1986 federal tax reforms that lowered top marginal rates from 70 percent to under 35 percent, but the national movements dwarf any spatial changes in tax rates.

Because owner-occupied housing is a true tax shelter in the sense that one can deduct expenses without declaring any income on the asset, a drop in tax rates naturally lowers the value of the tax shelter. That aggregate benefits rose and benefits per owner did not decline between 1980 and 1990 indicates that other factors were changing to counterbalance the negative effect that an increase in the tax price of housing would have on the value of the benefit. In addition, the fact that most of the really important changes were at the federal level can help explain why the nature of the spatial distribution across

states would not be affected very much.

Other factors were changing, of course, and house prices in particular. Figure 8 graphs mean house price by state in 1980, 1990, and 2000, with Figure 9 reporting the percentage changes over time for each state. Values in many of the coastal states in particular have skyrocketed over the past 20 years. In California, mean real house prices rose from just over $200,000 in 1980 to nearly $300,000 in 2000. The change has been even more dramatic in places such as Massachusetts, where the average home was worth a little more than $100,000 in 1980. One decade later, mean prices had doubled (in real terms), and prices held firm in that state during the 1990s. It seems clear that it is this type of change that has allowed the average benefit per owner in Massachusetts to rise so much over the past two decades. Indeed, a comparison of Figures 5 and 9 suggests that rising real house prices can help account for the dramatic increases in benefits per owner that have occurred in a small number of states, especially northeastern ones in the 1980s.

Of course, there are still other factors at work, including the rising return in equity markets which raises the value of the tax shield on home equity in our calculations. While a detailed decomposition analysis of changes in the tax benefit over time is beyond the scope of this study, the data show that the factors that do change did so in a largely offsetting fashion with respect to the spatial distribution across states in the 1980s. The rise in aggregate and per owner benefits in the 1990s probably reflects a growing share of households that are owners, rising real house prices, and increasing tax rates. On net, the spatial distribution of benefits across states is fairly skewed in each census year, with very few states experiencing significant changes in their relative status. Changes in skewness seem to be largely a product of increasing skewness in house prices combined

with higher tax rates in high house value states. Whether this holds at the metropolitan area level is the subject of the following subsection.

Between-Metropolitan Area Results

In this subsection, we disaggregate the data further to examine subsidy flows at the metropolitan area level and find that the distribution of housing benefits are more skewed than at the state level, and that skewness is increasing over time. Results are computed for 380 areas that were identifiable Census Core-Based Statistical Areas (CBSAs).[13] Figure 10, which plots the aggregate benefit flows at the CBSA level, sorted from low-to-high, highlights how extremely spatially targeted are benefit flows—and how this has been the case at least since 1980. The vast majority of metropolitan areas receive a relatively modest benefit flow, while a relatively small number of areas receive very large aggregate benefit flows. The numbers underlying these figures are reported for selected CBSAs in Appendix Table B.

It is clear from Figure 10 that spatial skewness at the metropolitan area level has increased over time. The height of the rightmost side of the graph has grown significantly more than the rest. Focusing on the three large CBSAs of New York City-Northern New Jersey, Los Angeles-Long Beach, and Chicago, we find their owners received benefit flows equal to $27.3 billion in 1979. While being home to 10.1 percent of all owners living in metropolitan areas in 1980s, they received 14.7 percent of all

[13]Benefit flows to census tracts not located within CBSAs are not included in the figures reported in this section. CBSAs are Census's new (2003) county-based definition of metropolitan areas. We apply the same definition in each of the three Census decades, realizing of course that the economic relationship between the counties is weaker earlier in the century. By construction, a CBSA must contain at least one urban area of 10,000 or more population. The county (or counties) "in which at least 50 percent of the population resides within urban areas of 10,000 or more population, or that contain at least 5,000 people residing within a single urban area of 10,000 or more population, is identified as a "central county"" and is included in the CBSA. Additional "outlying counties" are included in the CBSA if they meet specified requirements of commuting to or from the central counties.

benefits flowing to metropolitan census tracts. By 1989, the spatial skewness had become even more extreme. Owners in these three large CBSAs received 17.7 percent of all metropolitan area benefits while constituting an even smaller share of owners at 9.3 percent. The share of owners in these areas had fallen to 8.5 percent by 1999, but their benefit share was 1.72 times higher at 14.6 percent.

Figure 11 scales benefits per owner to normalize out population growth, but we still find benefits flowing disproportionately towards owners in a small number of metropolitan areas and we find skewness increasing over time. In 1980, the top three CBSAs in terms of benefits per owner received about three times the amount of the median area (i.e., $11,000-$13,000 for the top three areas versus $3,699 for the median). By 1990, this ratio has increased considerably, with the top three areas having benefit per owner flows of from $15,000-$18,000 and the median area receiving only $2,919. We know from above that benefits per owner increased in the 1990s. This was so for the median CBSA, too, as its average benefit per owner was $4,132 in 2000. However, at the turn of the century owners in the San Francisco and San Jose areas were receiving about $25,000 on average, with those around Santa Cruz reaping over $18,000 on average. Thus, the top recipient areas now receive six times the benefit flow on a per owner basis than the median area.

Per owner benefits in the largest CBSAs also increased dramatically over time. In the New York-Northern New Jersey area, real benefit levels per owner more than doubled from 1980-2000, from about $6,300 to $14,750. The increase in Los Angeles was less, from about $9,500 to over $12,000. In Chicago, the increase was from about $6,100 to $8,200 per owner. In almost all coastal metro areas, the increases were

relatively large.

Because the most important tax code changes tend to have occurred at the federal level, plots of tax rates and tax rate changes at the metropolitan level are not particularly helpful in increasing our understanding of the changes in the skewness of benefits. If one were to plot CBSA marginal tax rates in the same order as they appear in Figure 11, the rates clearly trend up as we move from left to right along the graph, which helps to explain why the spatial skewness in tax benefits is greater than the skewness in house values. However, the pattern does not change much over the decades.

In contrast, examining house prices over time at the local level is very illuminating. For example, Figure 12's plots of the distribution of mean house values by metropolitan area over time look strikingly similar to the distributions of benefits per owner in Figure 11. While it is the case that incomes and tax rates are somewhat higher in coastal metropolitan areas, those differences are not nearly as pronounced as for house values. Thus, it is primarily rising real house prices, especially in key coastal metropolitan areas, that is increasing the absolute and relative benefits flowing to their owners. Combined with a higher opportunity cost of equity, this more than offsets reductions in the marginal tax rate.

III. Conclusions

Estimating the tax subsidy to home owners by comparing the taxes they now pay with those they would pay if they were treated like landlords finds a substantial increase in the value of the tax benefit over time. While some of the aggregate increase clearly is due to a rise in the number of homeowners, average benefits per owner are about 20

percent higher in 2000 than they were in 1980 at the national level. This is particularly interesting given that marginal and average tax rates have fallen over the past two decades, reducing the tax benefit per dollar of housing. The evidence suggests that rising house prices, especially in key coastal areas and in certain regions of the country, combined with a higher opportunity cost of housing equity, can help account for the fact that the value of the subsidy has risen even though the after-tax price per dollar of housing has risen.

Spatially, we show benefits flow disproportionately to owners in a relatively small number of states—California, especially. In the nation's most populous state, the share of aggregate benefits has been nearly double its share of all owners. Spatial skewness is even more extreme at the metropolitan level, with the top five CBSAs receiving 18 percent of the aggregate tax subsidy in 1999 and 5 percent of the subsidy per owner (despite constituting only 1 percent of the CBSAs in the data). The data indicate that skewness has increased over time. While the metropolitan areas that are the "winners" rarely change, they appropriate an ever larger portion of the total tax benefits over the 20 years. Skyrocketing house prices in certain coastal metropolitan areas, combined with higher tax rates in those areas, appear to play a large role in explaining this pattern.

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Table 1: Housing-related Tax Subsidies, 1979-1999

Year	Total	Untaxed Equity Return	Home Mortgage Interest	Local Property Tax
	Aggregate (Billions $1999)			
1979	197.9	138.5	34.9	24.5
1989	284.0	215.0	35.9	33.1
1999	420.1	311.9	64.6	43.6
	Per Owner-Occupied Unit ($1999)			
1979	4840	3388	854	599
1989	4818	3647	609	562
1999	6024	4472	927	625
	Per Household ($1999)			
1979	3023	2116	533	374
1989	3121	2363	394	364
1999	4015	2980	618	416

Table 2: Gini Coefficients for the Distribution of Housing Subsidies

	Gini Coefficients					
	Across State Gini			Across MSA Gini		
	Total	Per OU	Per HH	Total	Per OU	Per HH
1979	.59	.20	.17	.70	.21	.19
1989	.63	.33	.30	.75	.32	.30
1999	.58	.25	.21	.72	.27	.26

Figure 1

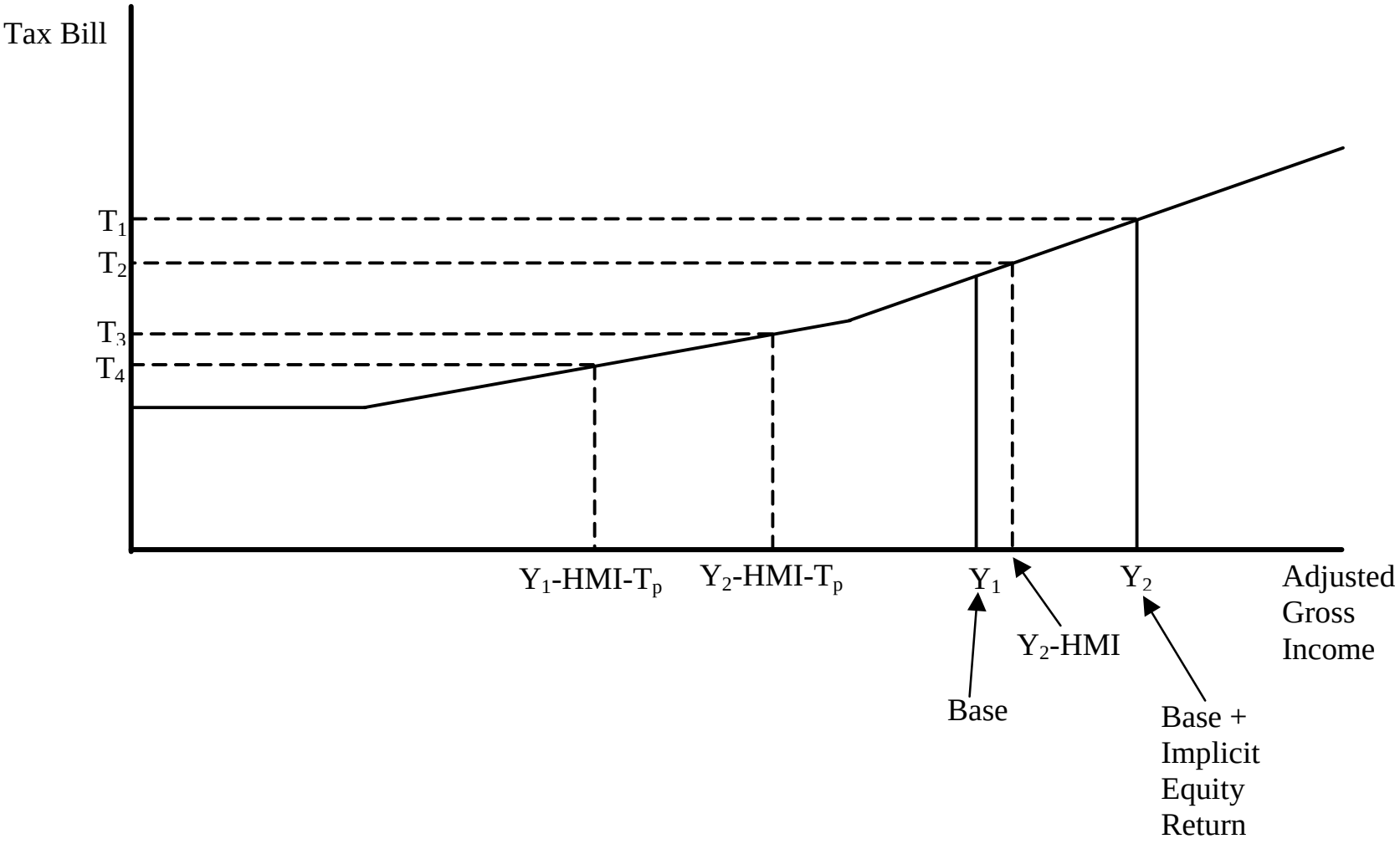
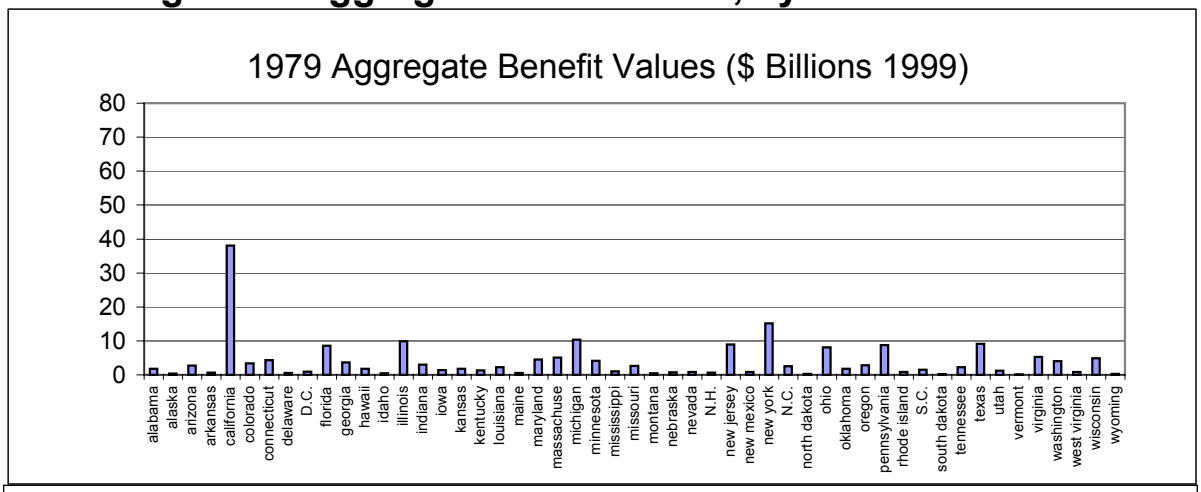
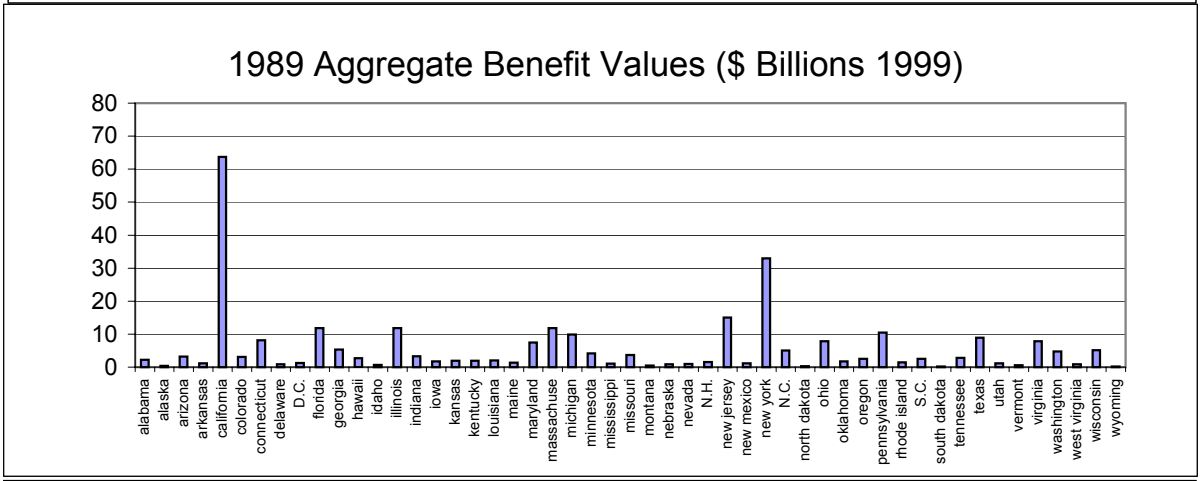

Tax Bill
T_1
T_2
T_3
T_4
Y_1-HMI-T_p
Y_2-HMI-T_p
Y_1
Y_2
Adjusted Gross Income
Y_2-HMI
Base
Base + Implicit Equity Return

Figure 2: Aggregate Benefit Flow, by State and Year





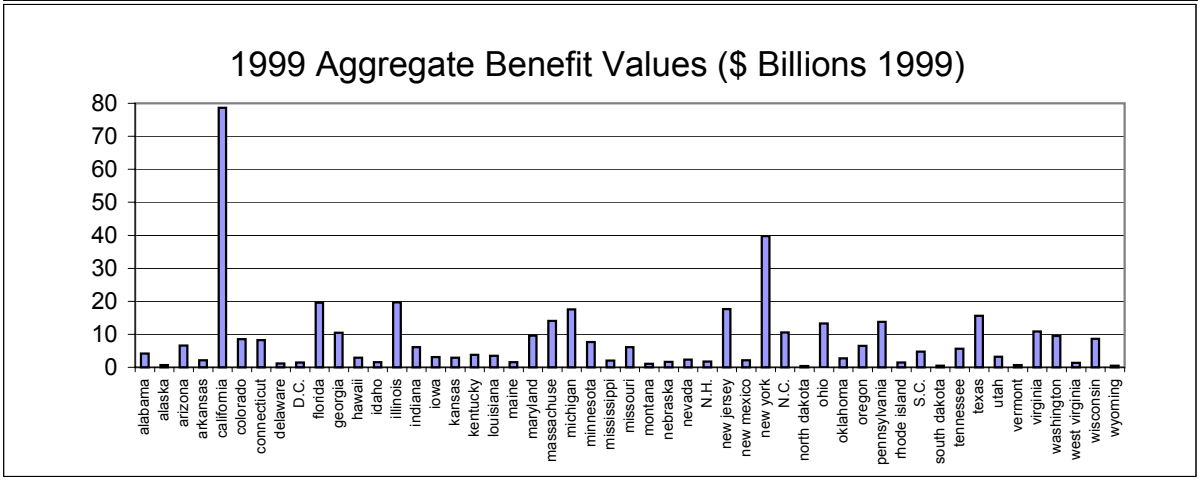


Figure 3: Average Tax Benefits Per owned Unit, by State and Year

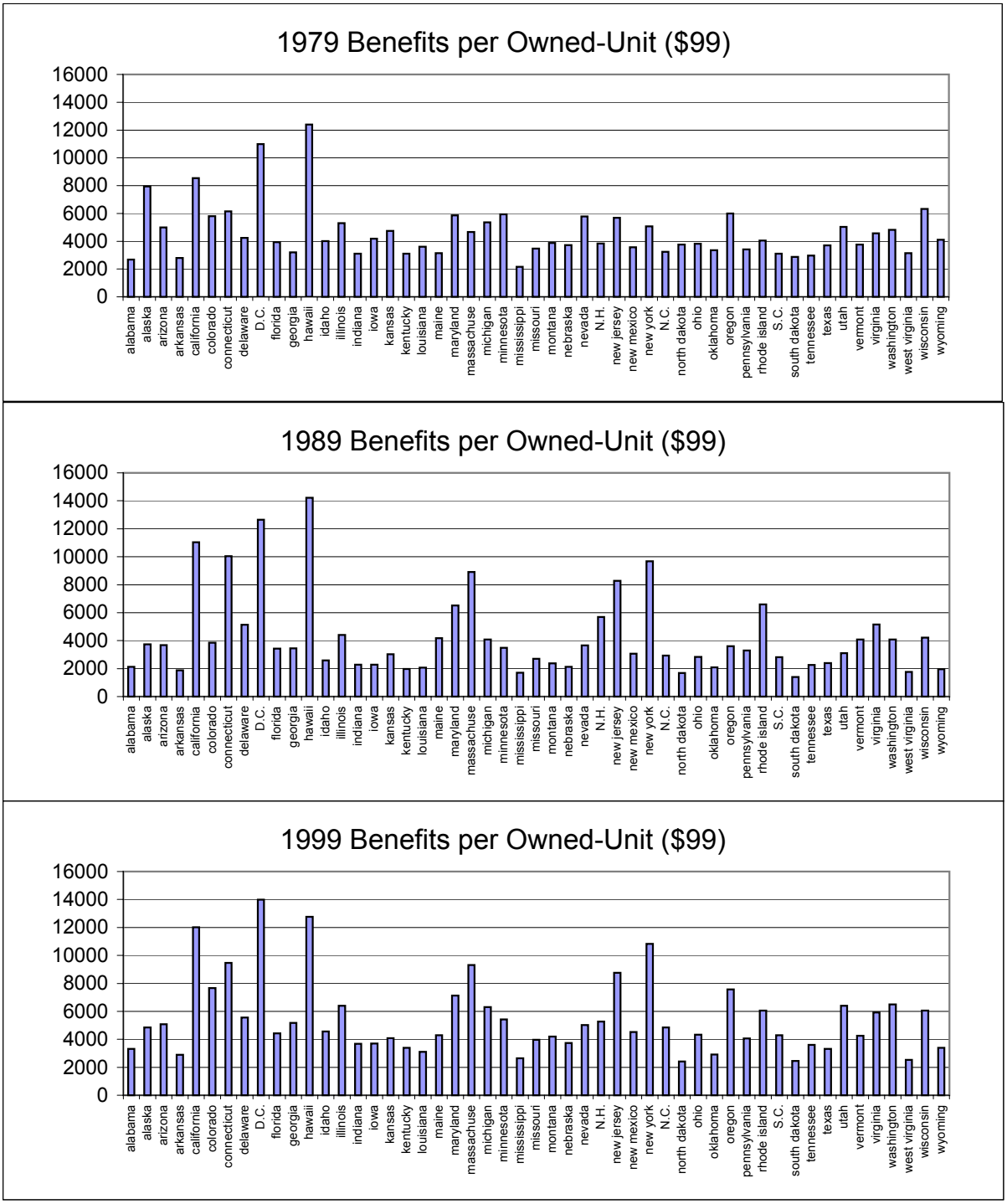


Figure 4: Ratio of Share of Benefits to Share of Owners

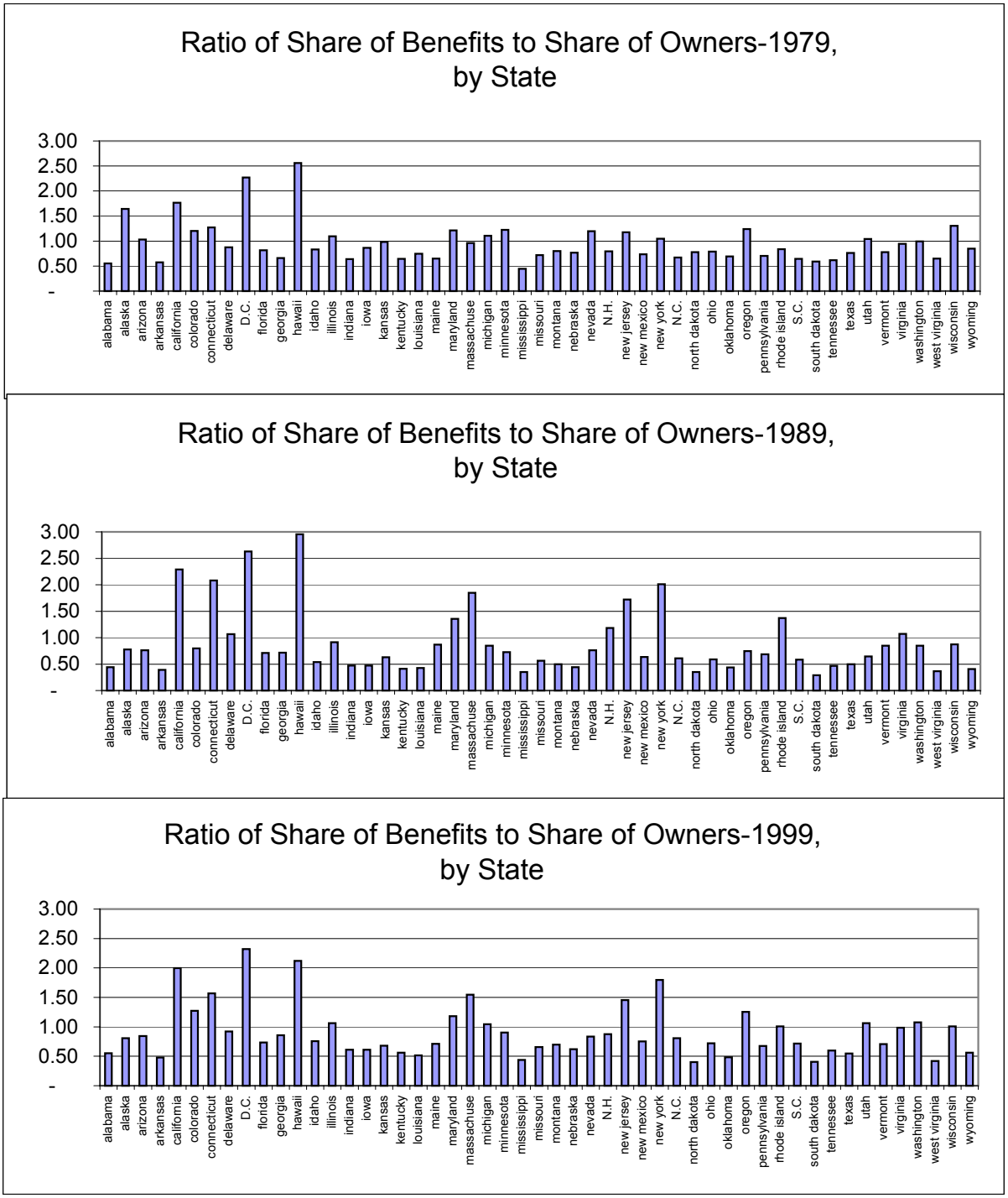


Figure 5: Changes in Benefits per Owner Relative to National Average, by State

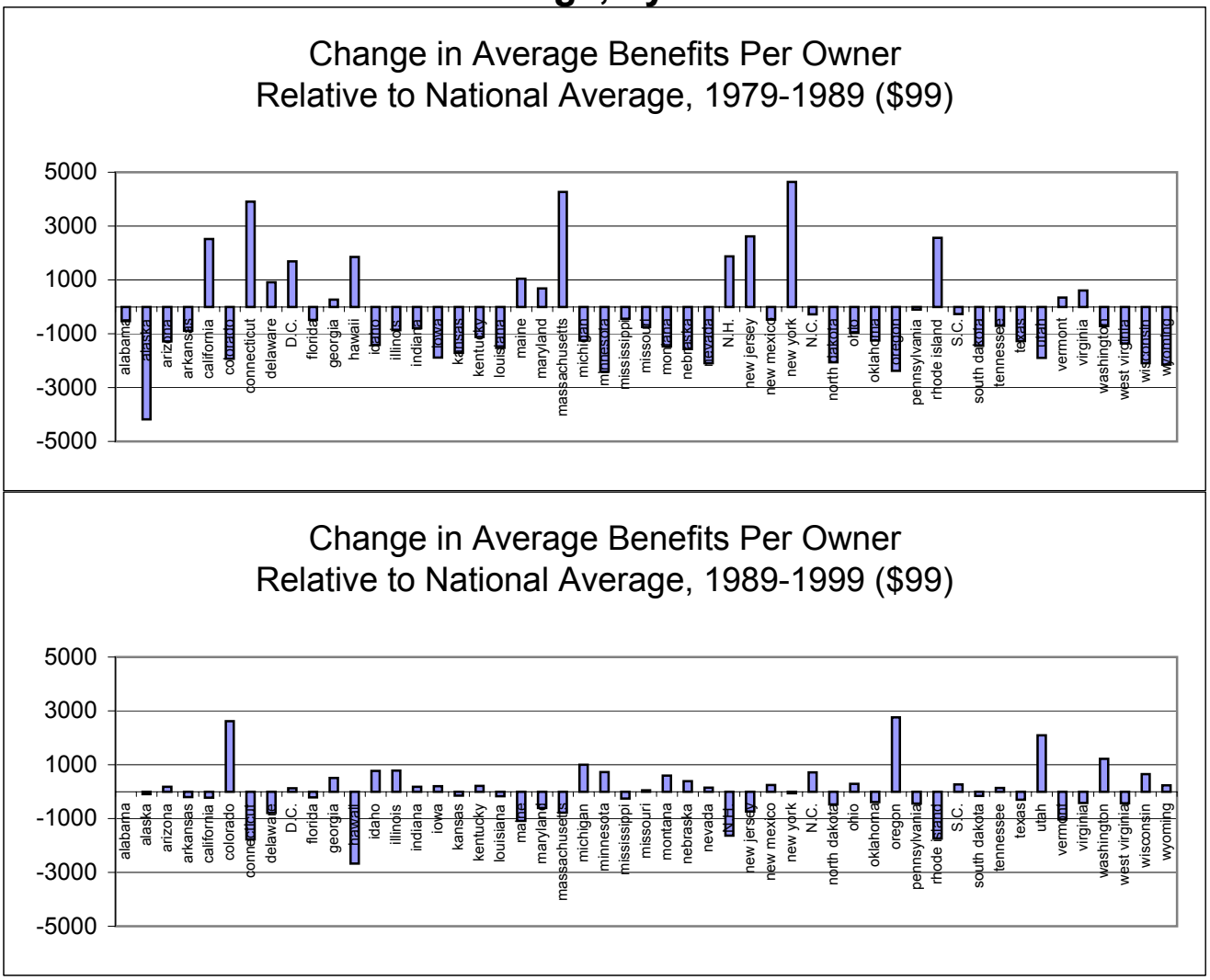


Figure 6: Average Marginal Tax Rates, by State and Year

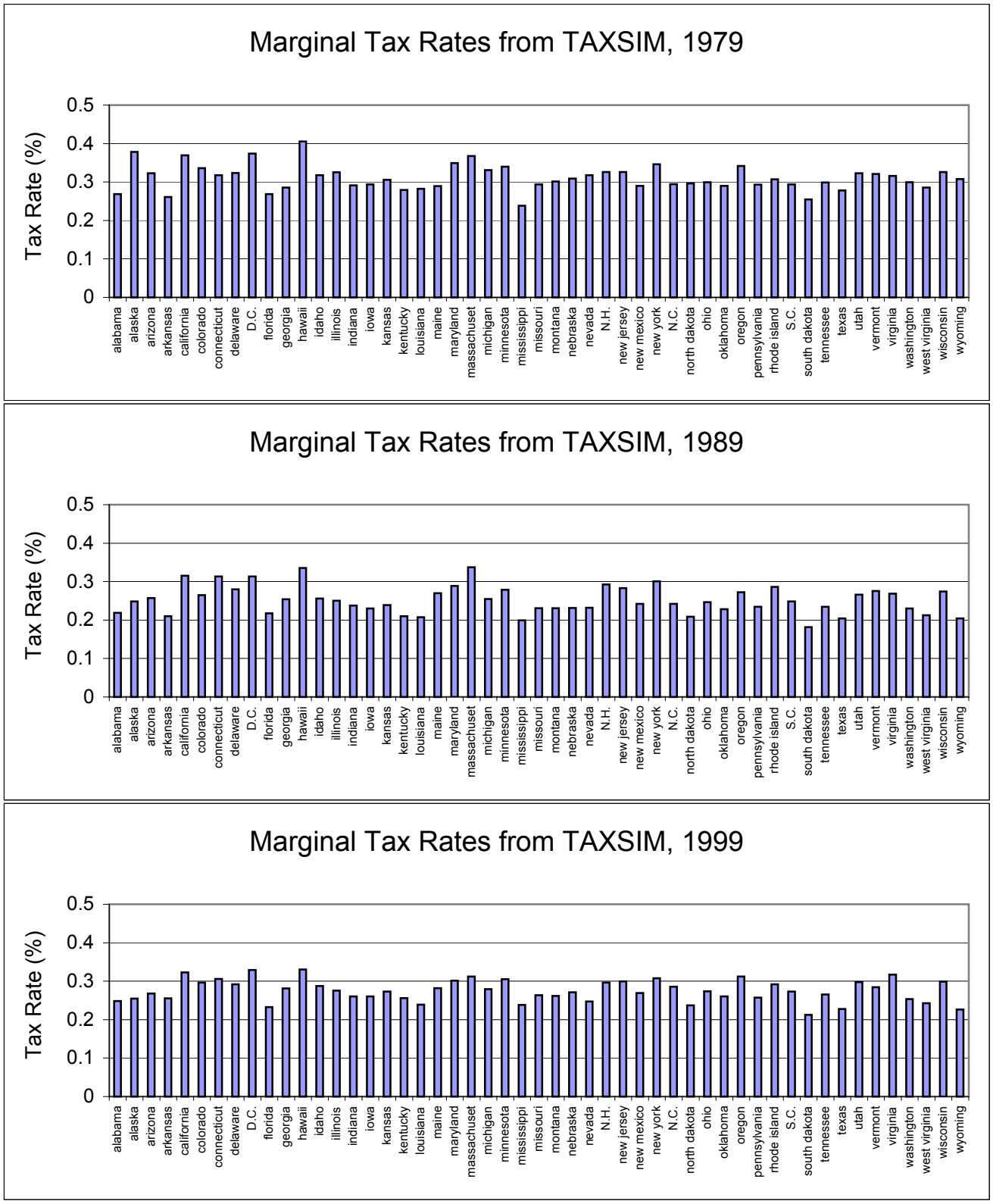


Figure 7: Change in Marginal Tax Rates, by State

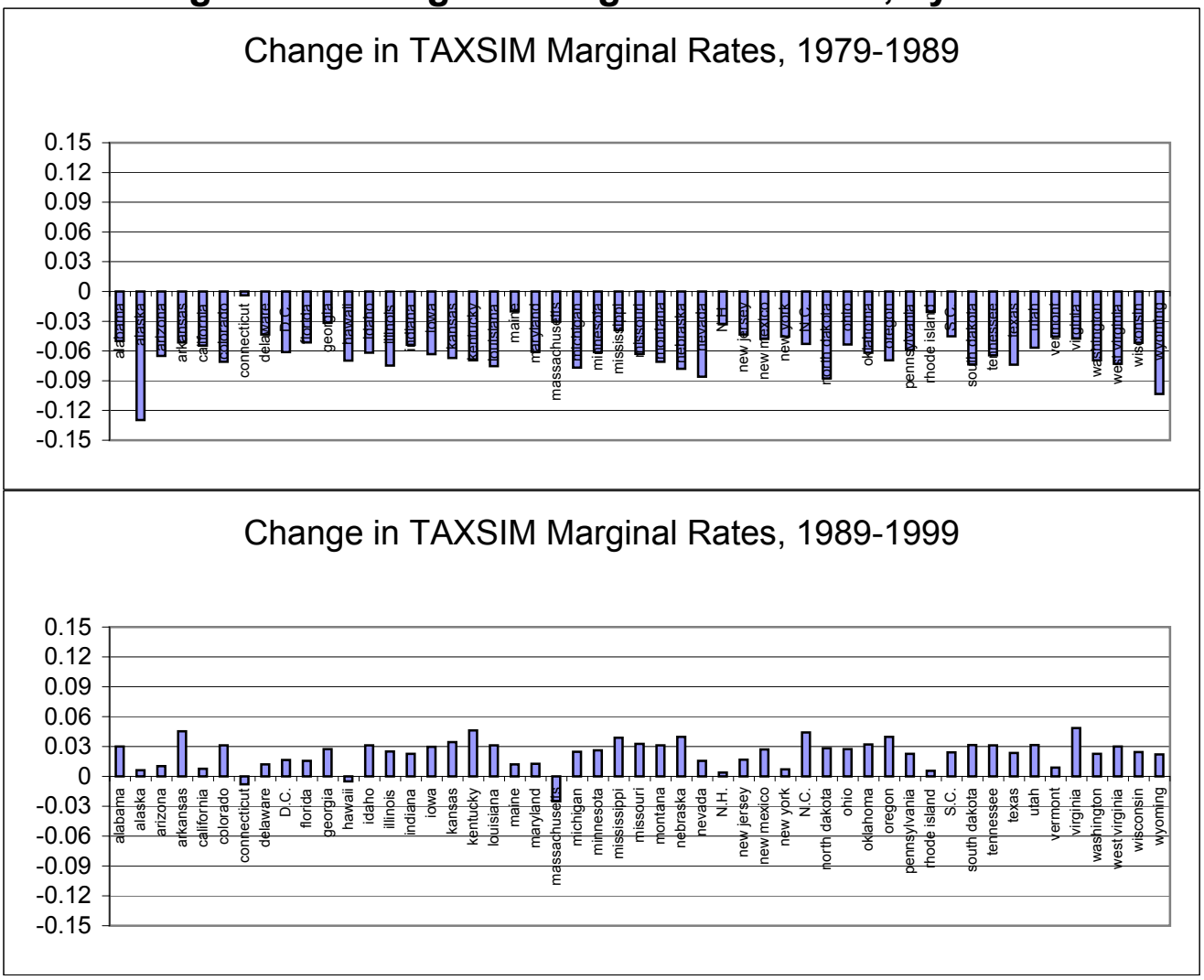


Figure 8: Average House Prices by State

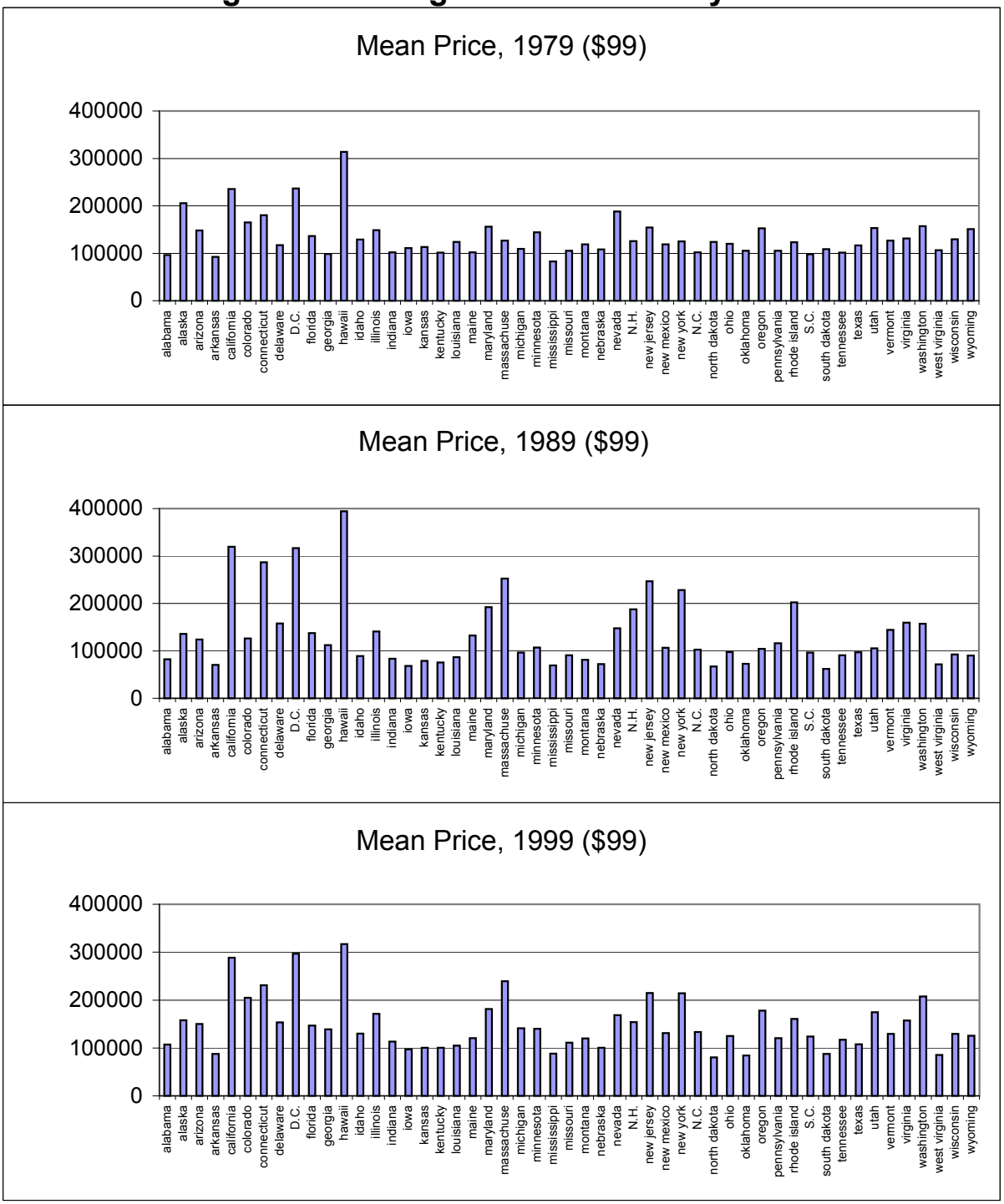


Figure 9: Percentage Change in Mean House Prices, by State

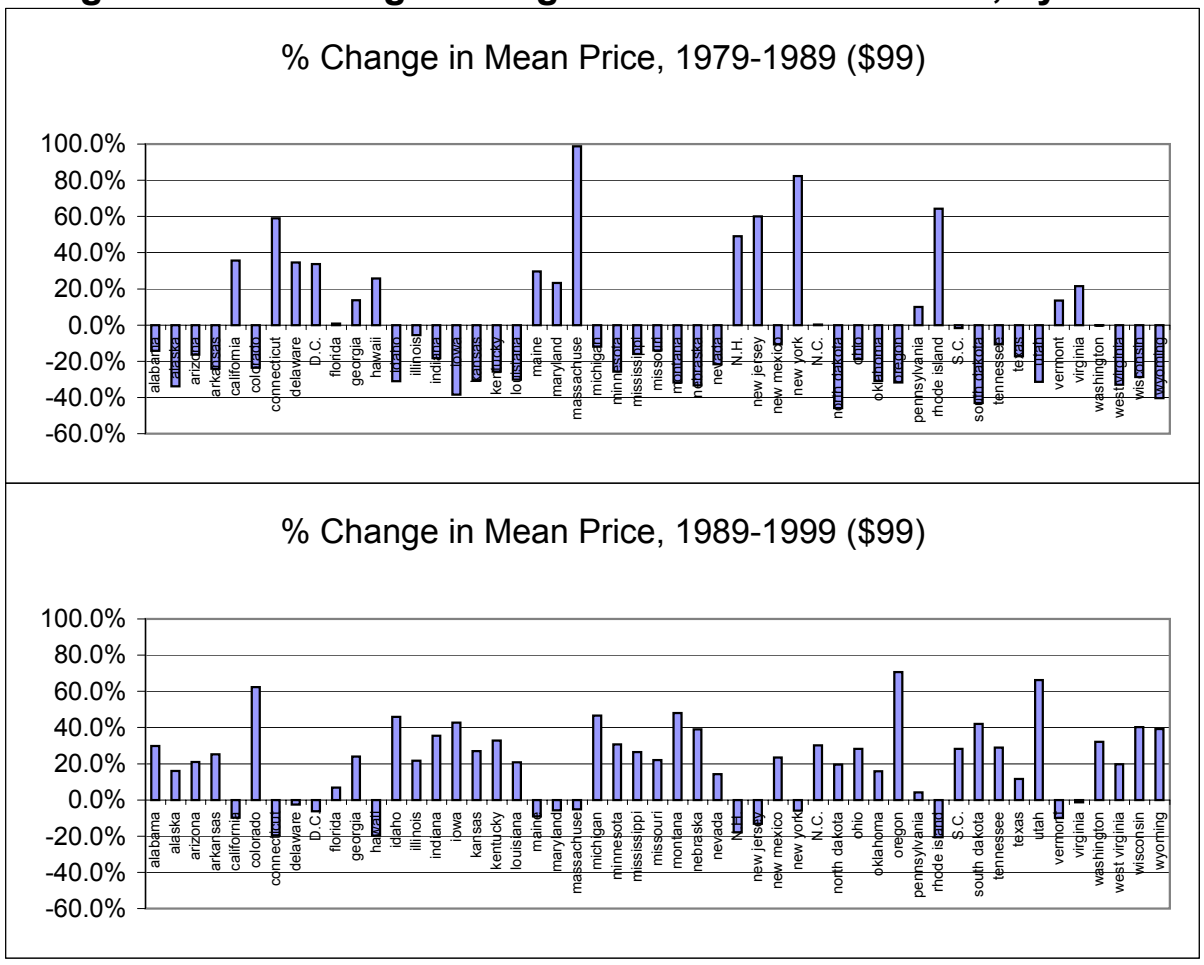


Figure 10: Aggregate Benefit Flow, by Metropolitan Area and Year

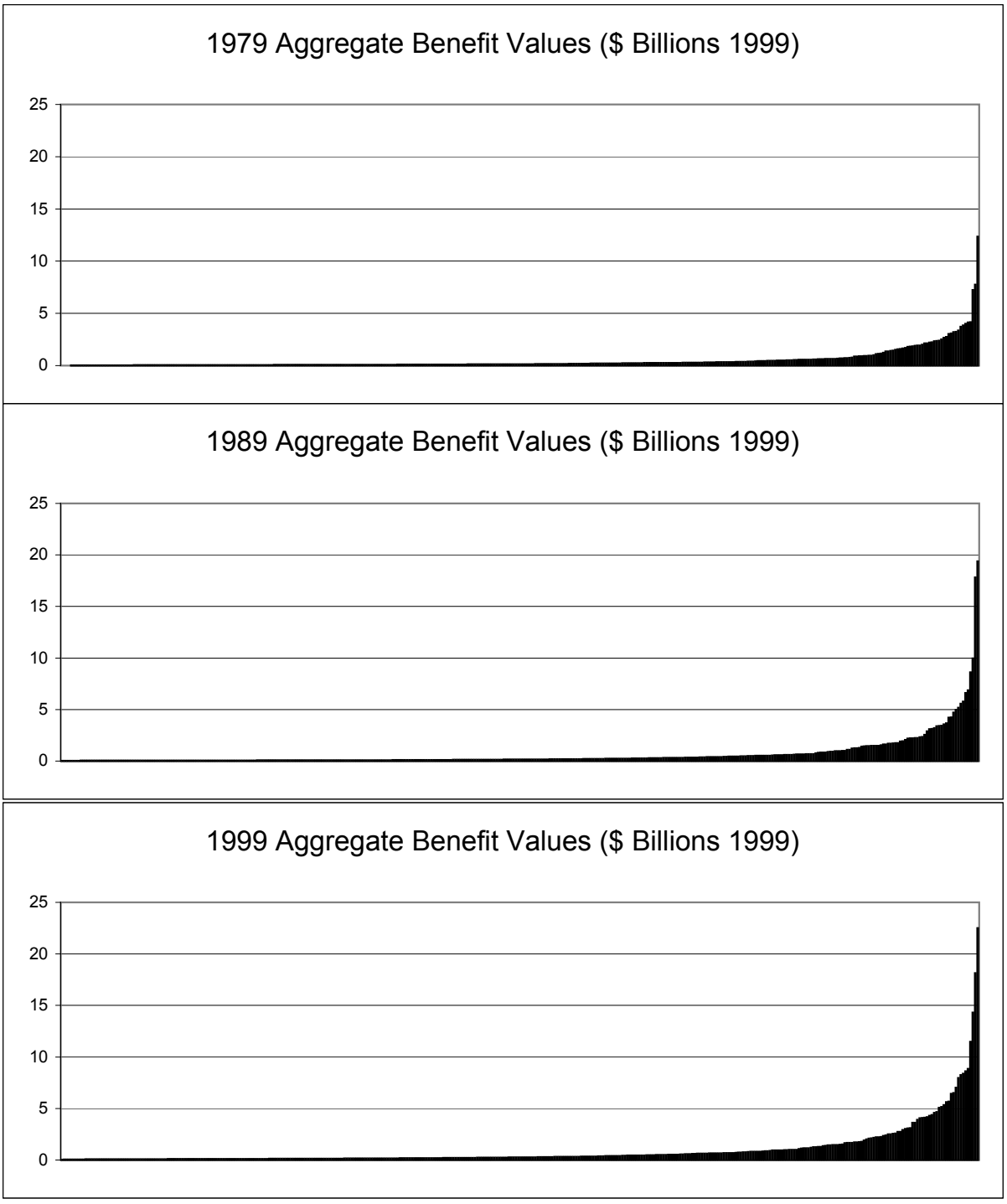


Figure 11: Benefits Per Owner, by Metropolitan Area and Year

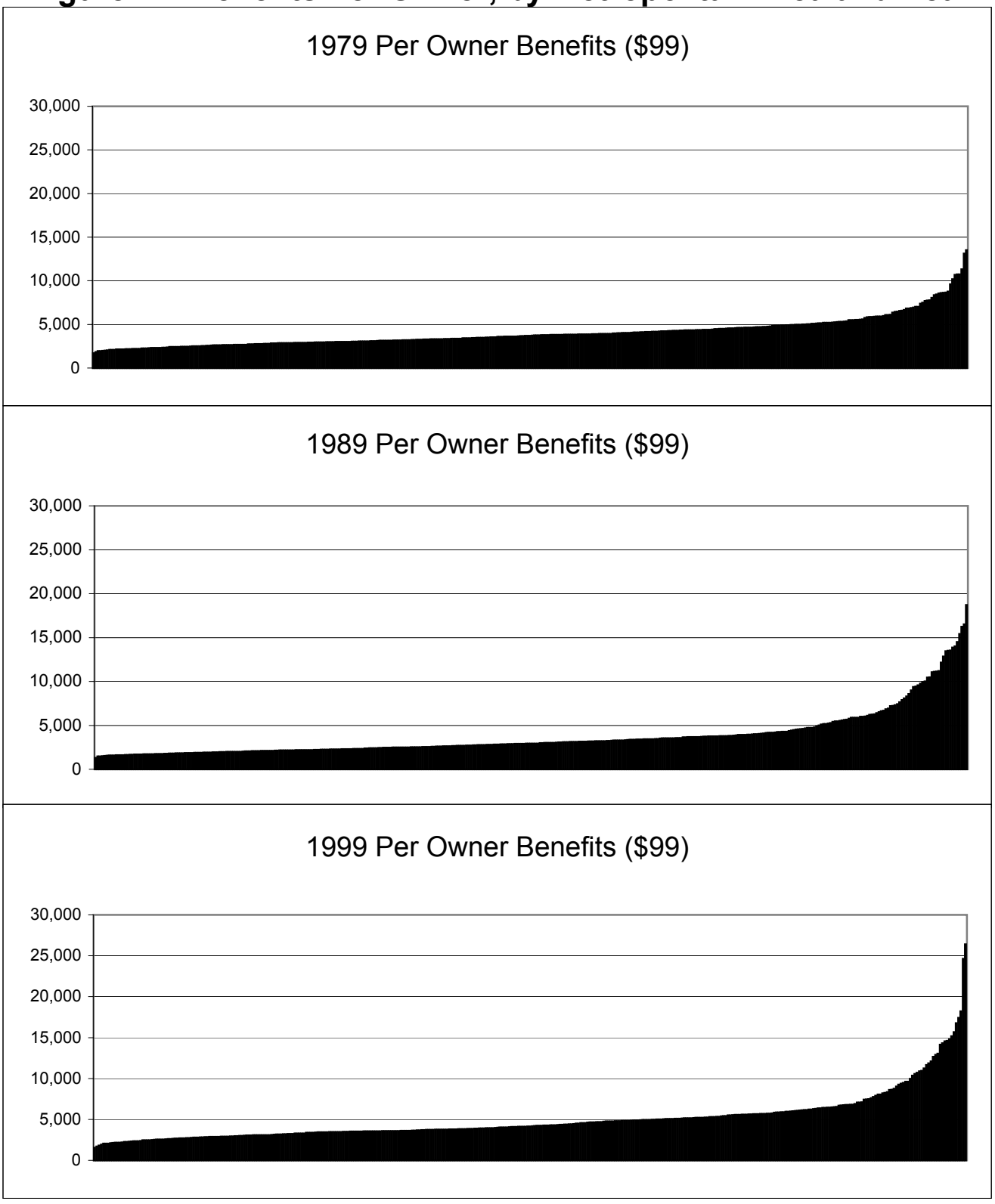
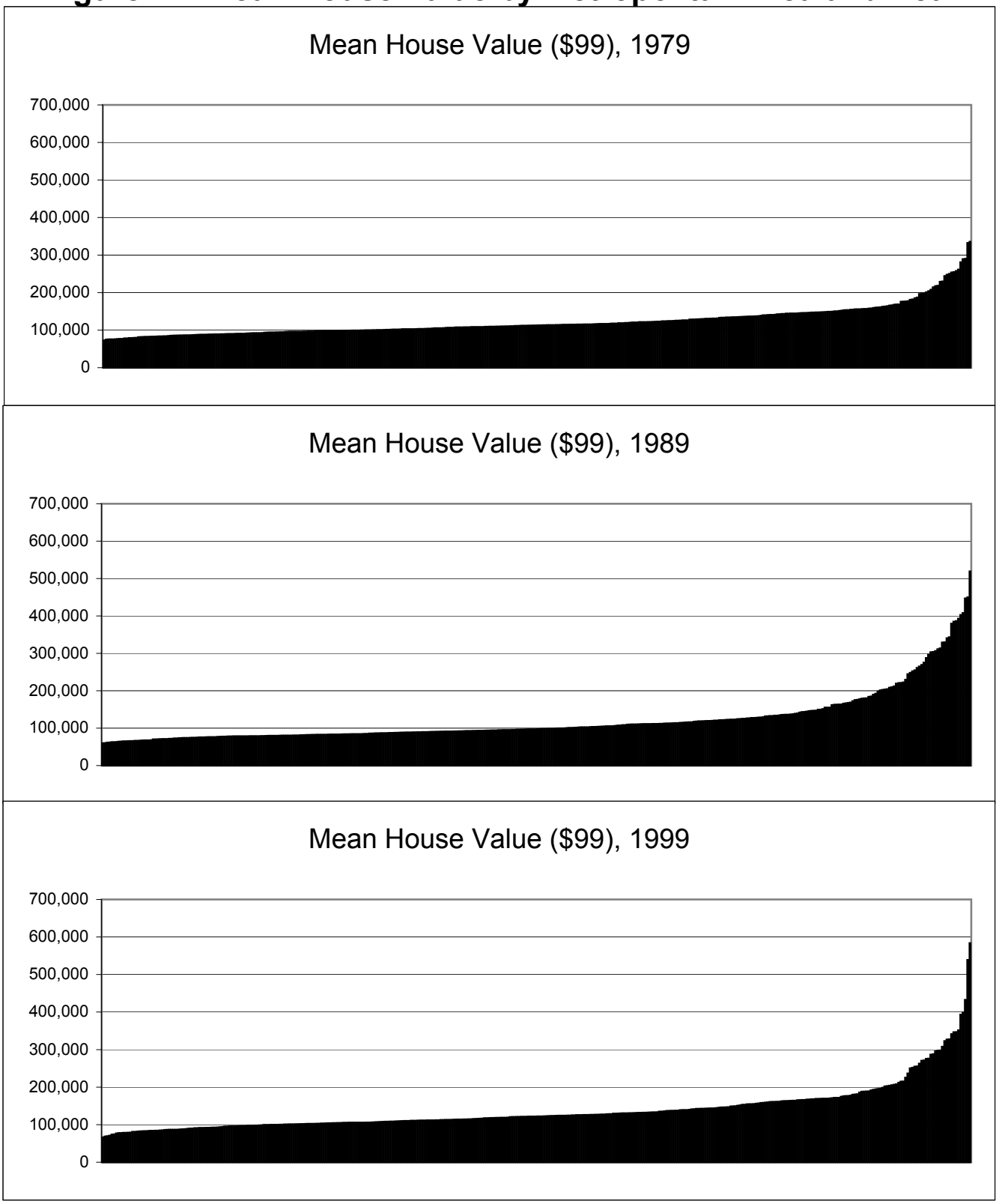


Figure 12: Mean House Value by Metropolitan Area and Year



Appendix Table A: Selected Data for U.S. States

state name	value of aggregate tax benefits ($99)			tax benefit per owner-occ unit ($99)			number of owners			mean house value ($99)			average marginal tax rate		
	1979	1989	1999	1979	1989	1999	1979	1989	1999	1979	1989	1999	1979	1989	1999
alabama	1,802,227,840	2,253,063,424	4,175,816,448	2,675	2,121	3,318	673,806	1,062,054	1,258,635	96,129	82,428	106,983	26.9%	21.9%	24.9%
alaska	379,607,232	397,060,160	672,533,120	7,947	3,746	4,856	47,765	105,994	138,502	205,408	135,935	157,736	37.8%	24.8%	25.5%
arizona	2,690,386,432	3,231,756,288	6,554,214,400	4,984	3,678	5,069	539,757	878,580	1,292,938	148,093	123,851	149,931	32.3%	25.8%	26.8%
arkansas	650,788,864	1,167,047,424	2,090,370,944	2,790	1,882	2,890	233,238	620,027	723,428	92,488	70,168	87,847	26.1%	21.0%	25.5%
california	38,067,302,400	63,727,050,752	78,659,928,064	8,545	11,041	12,020	4,455,057	5,772,075	6,544,294	235,602	319,707	288,367	37.0%	31.5%	32.3%
colorado	3,373,017,856	3,073,462,784	8,560,170,496	5,806	3,851	7,670	580,961	798,109	1,116,008	165,177	126,149	204,708	33.6%	26.5%	29.6%
connecticut	4,288,072,448	8,098,544,128	8,226,069,504	6,144	10,032	9,460	697,929	807,271	869,568	180,498	286,864	230,847	31.8%	31.4%	30.6%
delaware	582,245,824	891,791,488	1,198,751,488	4,235	5,129	5,549	137,485	173,874	216,046	117,084	157,535	153,474	32.3%	28.0%	29.2%
D.C.	987,615,872	1,225,863,040	1,412,150,912	10,995	12,655	13,983	89,828	96,866	100,993	236,762	316,488	296,733	37.4%	31.3%	32.9%
florida	8,611,905,536	11,832,546,304	19,615,412,224	3,941	3,427	4,418	2,185,388	3,452,472	4,439,483	136,515	137,655	146,958	26.9%	21.7%	23.3%
georgia	3,629,056,000	5,302,925,824	10,490,105,856	3,206	3,451	5,170	1,131,977	1,536,745	2,029,097	98,568	112,028	138,960	28.6%	25.4%	28.1%
hawaii	1,806,276,224	2,702,411,520	2,905,577,472	12,390	14,223	12,759	145,783	190,005	227,729	313,646	394,430	316,968	40.5%	33.5%	33.1%
idaho	428,736,544	652,517,888	1,548,928,000	4,018	2,582	4,557	106,701	252,670	339,913	129,274	89,276	130,260	31.8%	25.6%	28.7%
illinois	9,924,210,688	11,869,473,792	19,707,949,056	5,300	4,406	6,391	1,872,329	2,694,029	3,083,895	148,959	140,727	171,253	32.5%	25.0%	27.5%
indiana	3,012,318,464	3,314,499,584	6,128,819,200	3,103	2,285	3,672	970,666	1,450,766	1,669,036	101,982	83,422	113,003	29.1%	23.7%	26.0%
iowa	1,432,509,056	1,702,115,200	3,070,541,312	4,187	2,284	3,693	342,165	745,371	831,419	110,751	68,159	97,233	29.4%	23.0%	26.0%
kansas	1,765,733,888	1,938,567,168	2,932,505,088	4,750	3,021	4,079	371,740	641,760	718,852	113,504	78,970	100,258	30.6%	23.9%	27.3%
kentucky	1,278,161,536	1,891,647,360	3,814,249,728	3,107	1,969	3,390	411,350	960,473	1,125,263	101,580	75,539	100,380	27.9%	21.0%	25.6%
louisiana	2,216,166,400	2,039,128,320	3,485,700,096	3,611	2,064	3,099	613,664	987,958	1,124,960	123,998	86,733	104,837	28.3%	20.7%	23.9%
maine	539,102,592	1,367,156,992	1,591,701,248	3,145	4,170	4,292	171,395	327,846	370,893	102,243	132,530	120,413	29.0%	27.0%	28.2%
maryland	4,525,458,432	7,418,500,096	9,560,833,024	5,858	6,524	7,127	772,546	1,137,154	1,341,442	155,912	192,235	181,120	34.9%	28.9%	30.1%
massachusetts	5,115,107,840	11,840,002,048	14,027,061,248	4,658	8,901	9,322	1,098,037	1,330,122	1,504,750	126,902	252,197	239,309	36.7%	33.7%	31.2%
michigan	10,390,330,368	9,924,272,128	17,592,858,624	5,360	4,089	6,299	1,938,581	2,427,308	2,793,111	109,309	96,207	141,093	33.1%	25.5%	27.9%
minnesota	4,107,958,272	4,137,303,552	7,665,030,144	5,930	3,497	5,426	692,749	1,183,118	1,412,679	144,255	107,095	139,938	34.0%	27.9%	30.5%
mississippi	1,007,276,608	1,105,440,512	2,002,671,872	2,157	1,697	2,645	466,907	651,565	757,115	82,710	69,491	87,925	23.9%	19.9%	23.8%
missouri	2,607,953,152	3,644,891,392	6,112,291,840	3,471	2,703	3,963	751,437	1,348,536	1,542,237	105,572	90,693	110,746	29.4%	23.1%	26.3%
montana	428,192,928	490,939,264	1,037,627,648	3,879	2,384	4,190	110,392	205,895	247,622	118,764	81,022	119,956	30.2%	23.1%	26.2%
nebraska	763,762,240	853,186,688	1,674,232,704	3,721	2,131	3,727	205,278	400,382	449,178	108,070	72,160	100,306	30.9%	23.1%	27.1%
nevada	817,402,432	932,990,656	2,297,021,184	5,781	3,665	5,024	141,395	254,566	457,199	188,371	147,546	168,613	31.8%	23.2%	24.7%
N.H.	638,592,448	1,596,936,704	1,743,287,424	3,842	5,695	5,270	166,213	280,415	330,783	125,703	187,447	153,730	32.6%	29.3%	29.6%
new jersey	8,955,282,432	15,010,032,640	17,601,245,184	5,687	8,282	8,753	1,574,611	1,812,339	2,010,815	154,362	246,995	214,630	32.6%	28.3%	30.0%
new mexico	843,683,584	1,122,229,888	2,145,111,168	3,567	3,068	4,522	236,538	365,736	474,400	119,025	106,216	131,164	29.0%	24.2%	26.9%
new york	15,197,323,264	32,992,880,640	39,722,639,360	5,067	9,683	10,824	2,998,990	3,407,462	3,669,796	125,073	227,971	214,444	34.6%	30.1%	30.8%
N.C.	2,587,712,512	5,025,573,376	10,542,273,536	3,237	2,936	4,853	799,308	1,711,672	2,172,152	101,989	102,358	133,273	29.5%	24.2%	28.6%
north dakota	260,747,040	266,344,288	414,378,784	3,767	1,688	2,420	69,218	157,788	171,259	123,919	67,123	80,265	29.6%	20.8%	23.7%
ohio	8,087,154,176	7,822,331,392	13,320,946,688	3,812	2,836	4,336	2,121,384	2,757,772	3,072,384	120,203	97,637	125,233	30.0%	24.6%	27.4%
oklahoma	1,766,557,312	1,717,336,960	2,668,697,600	3,362	2,091	2,907	525,460	821,267	918,136	105,161	72,772	84,317	29.0%	22.8%	26.0%
oregon	2,869,642,496	2,504,379,392	6,482,011,648	6,001	3,599	7,565	478,187	695,772	856,858	152,463	104,173	177,739	34.2%	27.2%	31.2%
pennsylvania	8,800,496,640	10,449,649,664	13,818,100,736	3,415	3,290	4,057	2,577,100	3,176,255	3,406,045	105,430	115,942	120,697	29.3%	23.4%	25.7%
rhode island	803,631,232	1,482,526,720	1,485,555,840	4,056	6,594	6,060	198,140	224,829	245,128	123,122	202,311	160,513	30.7%	28.6%	29.2%
S.C.	1,481,468,416	2,477,453,568	4,762,169,344	3,107	2,820	4,299	476,795	878,396	1,107,619	98,249	96,554	123,803	29.4%	24.9%	27.3%
south dakota	226,558,576	239,957,360	484,884,800	2,869	1,402	2,450	78,964	171,122	197,902	108,525	61,841	87,845	25.5%	18.1%	21.3%
tennessee	2,262,095,872	2,840,229,632	5,612,573,696	2,975	2,252	3,595	760,328	1,260,974	1,561,394	101,570	90,677	116,947	29.9%	23.4%	26.6%
texas	9,122,002,944	8,877,802,496	15,597,929,472	3,700	2,403	3,307	2,465,540	3,694,082	4,716,914	116,826	96,644	107,786	27.8%	20.4%	22.8%
utah	1,217,788,160	1,136,289,280	3,210,896,384	5,028	3,106	6,401	242,219	365,781	501,605	153,176	105,104	174,779	32.3%	26.6%	29.7%
vermont	114,842,080	593,118,784	723,118,464	3,754	4,080	4,259	30,593	145,368	169,777	126,830	144,010	129,562	32.1%	27.5%	28.4%
virginia	5,300,419,584	7,820,744,192	10,895,771,648	4,564	5,148	5,928	1,161,331	1,519,273	1,837,926	131,179	159,395	157,349	31.6%	26.8%	31.7%
washington	4,037,749,760	4,768,554,496	9,521,277,952	4,813	4,074	6,494	838,846	1,170,590	1,466,081	157,329	156,948	207,334	30.0%	23.0%	25.3%
west virginia	874,336,896	899,306,240	1,402,487,936	3,147	1,763	2,533	277,790	510,041	553,619	106,439	71,315	85,444	28.6%	21.3%	24.3%
wisconsin	4,895,357,440	5,110,471,168	8,643,598,336	6,317	4,206	6,060	775,010	1,214,900	1,426,329	129,365	92,239	129,357	32.6%	27.4%	29.9%
wyoming	305,814,560	222,550,080	459,084,256	4,113	1,946	3,389	74,358	114,373	135,471	151,016	89,961	125,252	30.8%	20.4%	22.6%
Nation	197,878,141,392	284,002,854,736	420,069,163,200	4,840	4,818	6,024	40,885,208	58,951,786	69,730,677	137,536	148,106	158,764			

Appendix Table B: Data for Selected CBSAs

CBSA name	value of aggregate tax benefits ($99)			tax benefit per owner occ unit ($99)			number of owners			mean house value ($99)			marginal tax rates		
	1979	1989	1999	1979	1989	1999	1979	1989	1999	1979	1989	1999	1979	1989	1999
Akron, OH	638,726,656	516,888,928	932,638,016	4,012	3,006	4,827	159210	171939	193216	123,480	101,418	135,480	30.4%	24.9%	27.9%
Albany-Schenectady-Troy, NY	640,422,528	1,238,426,112	1,248,092,544	3,673	6,251	5,866	174374	198129	212761	97,292	146,335	122,295	33.3%	29.1%	29.5%
Albuquerque, NM	464,202,976	528,685,024	979,671,808	4,158	3,630	5,130	111640	145651	190951	136,033	122,163	145,352	30.8%	26.3%	28.6%
Anchorage, AK	294,608,640	222,468,304	386,975,904	8,616	4,157	5,291	34195	53517	73139	218,177	145,365	165,659	38.3%	25.4%	26.0%
Atlanta-Sandy Springs-Marietta, GA	2,001,247,616	3,397,691,136	7,016,630,272	4,288	4,716	6,764	466664	720466	1037289	121,854	144,184	171,392	31.7%	28.0%	30.3%
Atlantic City, NJ	227,104,752	288,889,664	318,181,024	5,016	5,249	5,047	45272	55032	63040	145,769	168,175	143,500	29.9%	26.3%	27.2%
Augusta-Richmond County, GA-SC	221,483,200	283,350,624	454,939,360	2,733	2,712	3,533	81039	104464	128785	89,463	93,675	105,276	28.1%	24.8%	26.8%
Austin-Round Rock, TX	433,828,544	517,870,752	1,510,661,632	4,275	3,100	5,496	101491	167072	274860	134,011	119,051	160,781	27.6%	21.6%	25.1%
Baltimore-Towson, MD	2,138,101,504	3,112,937,728	4,169,964,032	4,755	5,555	6,399	449670	560385	651626	133,862	166,357	165,544	33.0%	28.0%	29.3%
Baton Rouge, LA	397,446,304	335,150,976	635,060,992	3,963	2,309	3,569	100294	145173	177926	134,767	94,846	117,445	30.0%	22.2%	25.2%
Bellingham, WA	100,510,848	111,412,976	216,015,664	4,050	3,567	5,286	24816	31237	40863	149,040	146,820	187,997	28.0%	22.1%	24.3%
Bend, OR	18,944,644	86,332,608	264,858,176	4,869	4,165	8,034	3891	20728	32967	133,093	121,326	191,411	33.3%	27.8%	31.1%
Billings, MT	98,110,192	86,549,648	166,627,648	4,458	2,723	4,267	22008	31779	39052	136,578	89,560	117,921	31.2%	24.1%	26.7%
Boise City-Nampa, ID	255,588,224	235,741,696	617,279,104	4,210	2,894	5,046	60713	81459	122329	133,148	96,915	138,922	32.1%	26.9%	29.9%
Boston-Quincy, MA	1,444,536,960	3,393,614,336	4,288,292,608	4,772	9,753	10,941	302726	347955	391958	128,819	275,059	275,346	36.8%	34.1%	32.0%
Boulder, CO	243,525,776	280,866,944	880,046,848	6,889	5,199	11,855	35348	54027	74233	196,032	163,109	297,575	35.2%	28.7%	32.0%
Bridgeport-Stamford-Norwalk, CT	1,923,640,576	3,205,777,664	3,909,148,416	10,189	15,405	17,418	188793	208103	224436	257,432	407,753	393,162	35.7%	33.3%	33.1%
Buffalo-Cheektowaga-Tonawanda, NY	1,090,865,536	1,417,401,856	1,724,492,544	3,885	4,758	5,560	280786	297911	310169	95,849	103,569	101,591	33.0%	26.5%	27.9%
Cambridge-Newton-Framingham, MA	1,686,670,848	3,441,761,792	4,381,857,792	6,107	11,114	12,643	276194	309685	346591	156,010	302,768	307,466	39.6%	34.9%	33.1%
Camden, NJ	905,497,472	1,473,746,176	1,661,466,496	3,684	5,095	5,160	245816	289236	321989	114,437	161,389	141,217	31.1%	27.2%	28.6%
Cape Coral-Fort Myers, FL	216,397,632	369,687,648	688,554,688	3,849	3,657	4,774	56220	101093	144240	145,256	149,217	159,251	27.2%	22.2%	23.5%
Cedar Rapids, IA	152,935,744	164,628,496	321,963,552	4,372	2,858	4,647	34981	57598	69290	113,523	83,039	118,592	31.1%	24.6%	27.5%
Champaign-Urbana, IL	131,526,608	120,526,896	175,654,320	4,328	2,771	3,599	30389	43501	48802	130,475	97,901	108,430	30.3%	23.6%	25.4%
Charleston-North Charleston, SC	298,552,576	392,901,024	814,481,280	3,492	3,538	5,887	85498	111039	138360	109,154	118,143	158,663	29.9%	26.0%	28.4%
Charlotte-Gastonia-Concord, NC-SC	630,344,000	961,951,872	2,171,821,824	3,819	3,773	6,298	165057	254932	344824	111,778	122,980	160,711	31.3%	26.4%	30.5%
Chicago-Naperville-Joliet, IL	7,231,012,352	8,616,651,776	14,298,169,344	5,916	5,763	8,185	1222261	1495156	1746863	163,745	179,722	214,446	33.4%	26.5%	28.8%
Cincinnati-Middletown, OH-KY-IN	1,349,861,376	1,492,849,408	2,720,939,264	4,086	3,350	5,192	330386	445659	524044	125,086	112,169	142,408	30.0%	25.3%	28.3%
Cleveland-Elyria-Mentor, OH	2,340,626,688	1,891,229,824	3,076,908,288	4,619	3,535	5,298	506780	535003	580806	137,384	115,657	145,946	31.7%	25.7%	28.1%
Columbia, MO	66,004,672	68,706,872	143,254,080	3,614	2,667	4,290	18265	25761	33395	116,401	91,526	122,095	29.3%	23.5%	26.9%
Columbia, SC	310,364,192	441,571,616	758,316,736	3,654	3,291	4,406	84942	134160	172118	111,649	108,000	124,057	31.1%	26.6%	28.3%
Columbus, GA-AL	125,229,640	135,079,872	219,418,608	2,418	2,487	3,528	51800	54308	62194	82,239	87,537	103,540	26.2%	23.1%	25.7%
Columbus, OH	907,619,136	1,094,443,392	2,082,875,776	3,741	3,389	5,193	242635	322933	401117	121,344	113,436	143,824	29.4%	25.8%	28.4%
Dallas-Plano-Irving, TX	1,787,127,680	2,052,730,112	3,614,394,368	4,704	3,773	4,926	379955	544026	733778	139,413	138,433	145,829	29.9%	23.0%	25.0%
Dayton, OH	650,570,688	641,685,248	929,741,120	3,571	3,024	4,092	182160	212196	227208	115,115	102,132	120,683	29.7%	25.4%	27.6%
Denver-Aurora, CO	2,126,247,552	1,727,210,368	4,661,587,968	6,653	4,235	8,257	319579	407822	564536	181,670	134,048	214,808	35.3%	27.5%	30.5%
Detroit-Livonia-Dearborn, MI	2,523,734,528	1,749,090,432	2,907,995,904	4,606	3,508	5,681	547912	498536	511861	92,172	80,599	125,817	31.9%	24.1%	27.1%
Durham, NC	167,461,488	309,861,376	646,727,616	3,856	3,957	6,442	43430	78309	100396	115,163	128,616	163,509	30.4%	26.1%	29.9%
El Paso, TX	234,032,432	202,286,624	287,609,920	3,019	1,935	2,153	77511	104525	133596	107,332	88,590	82,208	24.9%	19.2%	21.1%
Erie, PA	214,140,800	152,758,544	240,796,192	3,169	2,192	3,267	67577	69705	73701	101,504	82,905	102,053	28.5%	22.4%	24.8%
Eugene-Springfield, OR	352,309,856	230,356,576	548,142,784	5,948	3,418	6,750	59234	67387	81208	154,441	100,775	163,778	33.3%	26.6%	30.5%
Fairbanks, AK	48,781,984	41,802,852	67,040,700	5,564	3,195	4,172	8767	13083	16070	157,684	122,467	138,943	34.5%	24.2%	25.1%
Flagstaff, AZ	27,159,490	63,852,540	137,561,136	4,954	3,539	5,549	5482	18042	24790	155,558	119,531	164,975	32.6%	24.7%	26.3%
Flint, MI	555,334,336	381,794,816	615,705,408	4,852	3,361	4,950	114454	113585	124382	96,477	76,577	110,748	33.3%	25.0%	27.1%
Fort Lauderdale-Pompano Beach-Deerfield Beach, FL	1,646,826,880	1,605,702,016	2,339,358,976	5,853	4,466	5,146	281351	359532	454625	186,762	172,201	166,958	30.0%	23.4%	24.3%
Fort Worth-Arlington, TX	714,726,016	895,811,776	1,444,907,520	3,322	2,906	3,629	215119	308241	398192	112,082	112,403	116,109	28.0%	22.5%	24.0%
Fresno, CA	486,070,144	468,251,712	651,644,352	5,177	3,906	4,562	93896	119869	142856	160,012	132,301	130,421	32.3%	26.3%	27.4%
Grand Junction, CO	84,098,384	59,602,872	151,216,544	4,694	2,533	4,540	17917	23534	33306	146,049	94,419	142,770	31.3%	23.7%	26.8%
Grand Rapids-Wyoming, MI	589,228,928	658,072,000	1,137,655,680	4,486	3,938	5,716	131340	167128	199044	98,972	96,166	131,514	31.6%	26.0%	28.2%
Greensboro-High Point, NC	340,587,552	452,484,608	814,777,856	3,430	3,210	4,745	99286	140951	171721	105,193	109,639	129,803	30.3%	25.3%	29.1%
Harrisburg-Carlisle, PA	366,251,072	386,465,376	573,905,792	3,300	3,084	4,069	110999	125306	141039	108,277	111,617	125,401	30.0%	24.8%	26.4%
Hartford-West Hartford-East Hartford, CT	1,158,310,656	2,346,470,912	2,000,050,816	5,021	8,571	6,763	230680	273757	295713	159,024	252,005	174,273	31.6%	31.4%	30.3%
Honolulu, HI	1,502,906,240	2,205,694,720	2,204,443,648	13,491	16,218	14,115	111399	136004	156179	335,396	446,772	346,203	41.4%	34.3%	33.7%
Houston-Baytown-Sugar Land, TX	3,217,568,256	2,229,041,408	4,054,737,408	5,122	2,922	4,019	628231	762905	1008875	146,784	109,944	123,350	31.3%	22.0%	23.9%
Huntsville, AL	148,019,184	234,739,440	393,487,488	2,935	3,156	4,104	50432	74386	95890	101,690	110,519	122,707	28.7%	25.3%	26.8%
Indianapolis, IN	873,032,064	949,692,672	1,911,556,224	3,457	2,984	4,751	252532	318234	402315	109,099	103,797	138,588	30.0%	25.2%	27.3%
Iowa City, IA	62,661,960	88,865,784	176,962,272	5,519	3,651	5,698	11354	24342	31055	144,804	105,105	143,365	31.6%	25.4%	27.6%
Ithaca, NY	66,261,812	114,455,608	124,161,200	4,062	6,211	6,340	16312	18427	19583	108,107	143,203	118,815	32.3%	28.2%	28.4%
Jonesboro, AR	23,401,900	44,457,928	79,336,656	3,180	1,908	2,901	7358	23306	27351	100,033	69,860	86,894	26.6%	20.4%	25.5%
Kansas City, MO-KS	1,351,621,504	1,420,376,064	2,399,717,888	4,240	3,428	4,902	318750	414357	489569	113,505	99,453	124,990	30.9%	25.2%	28.3%
Kennewick-Richland-Pasco, WA	143,552,320	76,011,232	175,173,440	4,656	2,240	3,800	30829	33940	46094	148,891	94,512	132,466	31.7%	21.6%	24.2%
Knoxville, TN	338,131,616	343,717,664	679,502,080	2,965	2,402	3,825	114060	143120	177630	102,427	95,948	123,920	29.8%	24.1%	26.8%
Lafayette, IN	80,248,152	86,830,472	158,273,760	3,781	2,543	3,985	21223	34141	39721	125,626	93,652	123,865	29.7%	24.1%	26.2%
Lake County-Kenosha County, IL-WI	881,901,568	1,269,607,936	2,215,093,760	8,637	7,874	10,700	102105	161245	207026	197,791	220,613	249,906	36.6%	28.2%	30.7%
Las Vegas-Paradise, NV	481,587,744	521,283,520	1,474,359,168	5,221	3,518	4,869	92232	148158	302807	175,772	143,027	163,791	31.0%	23.1%	24.8%
Lawrence, KS	38,067,052	59,406,500	109,807,448	4,391	3,755	5,504	8669	15821	19951	114,497	100,642	139,411	28.3%	24.2%	28.1%
Lewiston-Auburn, ME	57,581,660	92,324,232	92,302,400	2,655	3,707	3,466	21687	24906	26628	92,088	122,663	99,836	27.6%	26.9%	27.7%
Lexington-Fayette, KY	247,835,472	242,404,256	466,688,000	3,920	3,128	4,758	63228	77504	98076	128,039	112,415	133,161	29.2%	24.0%	27.9%
Lincoln, NE	165,446,768	149,776,992	298,532,896	4,317	2,779	4,651	38323	53892	64193	122,495	90,875	123,599	31.6%	24.9%	28.4%
Los Angeles-Long Beach-Glendale, CA	12,335,770,624	19,375,642,624	18,130,198,528	9,585	13,457	12,096	1287008	1439801	1498881	254,380	386,087	295,509	37.1%	32.1%	32.0%
Louisville, KY-IN	623,438,208	680,264,640	1,443,264,256	3,027	2,468	4,492	205993	275630	321312	97,123	89,075	126,171	28.2%	23.2%	27.4%

Appendix Table B: Data for Selected CBSAs

CBSA name	value of aggregate tax benefits ($99)			tax benefit per owner occ unit ($99)			number of owners			mean house value ($99)			marginal tax rates		
	1979	1989	1999	1979	1989	1999	1979	1989	1999	1979	1989	1999	1979	1989	1999
Macon, GA	106,113,760	124,471,864	197,234,224	2,667	2,591	3,548	39792	48041	55594	86,153	89,470	105,459	27.5%	23.7%	26.2%
Madison, WI	373,065,632	495,135,296	942,124,736	7,008	5,150	7,733	53238	96139	121835	148,707	110,895	162,775	33.4%	29.1%	31.2%
Manchester-Nashua, NH	252,867,904	494,829,472	519,464,800	4,212	6,235	5,537	60031	79363	93820	132,885	197,864	155,980	33.6%	30.1%	30.3%
McAllen-Edinburg-Pharr, TX	84,481,144	84,757,600	176,520,048	1,687	1,166	1,541	50078	72715	114570	72,628	59,351	65,744	20.9%	15.3%	18.9%
Memphis, TN-MS-AR	572,445,952	663,853,760	1,195,546,112	3,055	2,763	4,040	187405	240235	295908	100,904	103,283	122,037	29.7%	24.5%	27.5%
Miami-Miami Beach-Kendall, FL	1,600,257,280	1,605,941,248	2,571,840,768	5,492	4,271	5,737	291367	375990	448280			180,534	28.3%	21.7%	23.3%
Milwaukee-Waukesha-West Allis, WI	2,199,099,648	1,747,426,944	2,720,813,568	7,738	5,467	7,581	284193	319630	358877	149,936	115,181	154,504	34.4%	28.5%	30.3%
Minneapolis-St. Paul-Bloomington, MN-WI	3,359,491,072	3,105,091,072	5,678,496,768	6,812	4,701	6,897	493185	660569	823283	160,214	135,993	169,146	36.0%	30.3%	32.1%
Montgomery, AL	182,564,864	181,515,440	324,919,904	3,005	2,451	3,584	60763	74048	90661	103,484	92,742	112,540	27.8%	23.1%	25.7%
Napa, CA	185,243,440	266,457,696	422,983,296	7,754	9,994	14,307	23890	26662	29564	217,283	296,582	341,203	36.6%	31.9%	33.8%
Naples-Marco Island, FL	123,653,272	311,607,616	804,793,664	6,538	7,193	10,341	18912	43319	77829	197,018	254,473	287,863	28.8%	24.3%	26.1%
Newark-Union, NJ-PA	2,659,852,800	4,215,533,312	5,068,328,448	6,923	9,929	10,870	384233	424570	466273	175,800	287,460	254,550	33.4%	28.7%	30.6%
New Haven-Milford, CT	756,322,624	1,546,504,576	1,366,751,872	4,559	8,073	6,789	165903	191558	201320	150,936	244,286	177,198	29.6%	30.2%	29.2%
New Orleans-Metairie-Kenner, LA	955,555,328	757,202,432	1,262,510,592	4,321	2,801	4,118	221142	270328	306586	144,274	111,223	131,447	29.1%	22.6%	25.2%
New York-Wayne-White Plains, NY-NJ	7,755,856,896	17,816,422,400	22,499,680,256	6,341	12,827	14,776	1223091	1388925	1522705	165,309	342,882	327,423	34.1%	30.8%	31.7%
Norwich-New London, CT	199,853,296	439,776,064	429,275,584	3,858	7,291	6,451	51806	60315	66548	137,116	229,243	171,501	28.8%	29.5%	29.0%
Oakland-Fremont-Hayward, CA	3,027,167,744	5,568,395,776	7,949,591,552	8,427	12,156	15,151	359203	458087	524702	228,772	340,522	346,390	37.6%	32.7%	34.4%
Ocala, FL	65,046,552	117,274,488	210,059,008	2,023	1,984	2,466	32149	59112	85171	91,699	96,685	100,479	21.9%	19.4%	21.1%
Oklahoma City, OK	757,557,952	601,781,632	957,260,928	3,824	2,498	3,418	198083	240886	280030	113,343	83,771	95,609	30.3%	24.4%	27.1%
Olympia, WA	100,586,032	120,403,280	270,171,008	3,765	2,993	4,970	26713	40226	54364	142,915	121,344	168,830	28.6%	22.6%	24.8%
Omaha-Council Bluffs, NE-IA	468,226,624	465,733,024	940,805,696	3,604	2,768	4,780	129908	168235	196838	102,600	86,825	120,099	31.0%	25.0%	28.6%
Orlando, FL	565,440,832	967,848,448	1,668,616,320	3,255	3,240	4,025	173703	298736	414548	121,413	131,411	136,957	26.4%	22.6%	23.8%
Oshkosh-Neenah, WI	161,374,368	150,973,088	236,083,616	5,558	4,262	5,681	29037	35423	41558	114,657	92,898	121,612	31.7%	27.9%	30.2%
Oxnard-Thousand Oaks-Ventura, CA	927,708,288	1,920,400,768	2,117,084,288	8,553	13,501	12,895	108469	142242	164185	244,050	379,015	297,286	38.6%	34.0%	34.1%
Palm Bay-Melbourne-Titusville, FL	244,048,880	349,099,968	486,164,704	3,764	3,124	3,288	64832	111742	147878	133,669	128,269	120,474	28.0%	22.6%	23.1%
Peoria, IL	340,588,960	214,362,224	371,938,432	4,384	2,291	3,565	77684	93555	104331	125,203	77,900	105,416	31.7%	23.2%	25.9%
Philadelphia, PA	3,228,380,672	4,720,415,744	5,614,452,736	3,742	4,979	5,627	862778	947977	997749	110,273	162,830	153,021	30.2%	25.2%	27.0%
Phoenix-Mesa-Scottsdale, AZ	1,897,470,592	2,175,566,336	4,587,456,512	5,171	4,033	5,653	366932	539474	811467	151,625	132,229	160,945	32.9%	26.7%	27.8%
Pittsburgh, PA	2,370,635,520	1,693,993,728	2,559,060,736	3,809	2,475	3,598	622376	684553	711338	109,745	87,896	105,831	29.9%	22.3%	25.2%
Portland-South Portland, ME	311,336,096	680,303,936	802,344,640	3,595	5,969	5,882	86610	113967	136405	113,144	178,725	154,830	29.8%	29.6%	30.1%
Portland-Vancouver-Beaverton, OR-WA	1,915,478,144	1,454,741,760	4,102,248,704	6,423	3,986	8,745	298227	364981	469092	162,216	115,700	205,031	34.7%	27.7%	31.5%
Poughkeepsie-Newburgh-Middletown, NY	481,094,112	1,227,028,224	1,362,951,680	4,632	9,416	9,363	103852	130318	145570	115,355	209,302	167,594	34.9%	31.5%	31.1%
Providence-New Bedford-Fall River, RI-MA	1,118,298,240	2,216,024,576	2,237,987,840	3,801	6,602	6,025	294217	335660	371451	115,752	200,987	163,042	31.6%	29.8%	29.3%
Provo-Orem, UT	119,019,400	136,340,208	449,609,312	4,698	3,000	6,542	25332	45445	68727	153,190	106,098	185,641	30.6%	26.2%	29.7%
Raleigh-Cary, NC	273,847,648	568,685,760	1,464,367,872	4,163	4,267	7,055	65779	133280	207558	123,745	135,440	176,139	32.3%	27.1%	31.5%
Rapid City, SD	52,500,996	43,098,092	85,072,720	3,307	1,837	2,940	15874	23455	28937	123,886	79,631	105,847	26.6%	19.9%	22.4%
Redding, CA	124,933,808	141,344,464	195,947,280	4,560	3,914	4,671	27397	36112	41949	155,614	139,517	142,253	31.3%	26.4%	27.3%
Reno-Sparks, NV	291,332,256	254,740,128	510,701,760	7,002	4,536	6,426	41607	56155	79472	214,022	175,032	202,884	33.3%	23.8%	25.3%
Richmond, VA	669,487,680	908,106,944	1,464,138,752	3,793	3,794	5,007	176500	239381	292409	115,089	122,637	137,469	30.9%	26.6%	30.8%
Riverside-San Bernardino-Ontario, CA	1,846,830,848	3,668,636,672	4,094,103,296	5,265	6,491	5,938	350795	565185	689482	168,143	204,026	162,849	33.3%	29.5%	29.4%
Roanoke, VA	214,533,808	226,308,672	365,496,800	3,287	3,058	4,328	65270	74008	84449	103,743	104,160	126,589	29.2%	24.9%	25.9%
Sacramento--Arden-Arcade--Roseville, CA	1,423,387,776	2,240,527,104	3,018,712,832	5,736	6,823	7,404	248142	328401	407689	176,334	211,623	192,757	34.6%	30.0%	31.1%
St. Louis, MO-IL	1,820,621,184	2,325,556,992	3,613,991,424	3,732	3,425	4,769	487892	678994	757785	111,153	111,186	127,647	30.2%	24.9%	27.5%
Salt Lake City, UT	713,197,184	573,228,224	1,654,642,688	5,484	3,446	7,473	130047	166327	221403	160,980	113,302	195,723	33.2%	27.2%	30.7%
San Antonio, TX	615,769,728	662,697,600	1,136,645,376	2,909	2,246	2,931	211699	295080	387744	98,278	93,760	99,789	25.2%	20.1%	22.5%
San Diego-Carlsbad-San Marcos, CA	3,071,007,488	4,980,189,184	6,419,328,000	8,758	10,435	11,641	350663	477281	551431	249,665	306,009	286,299	36.4%	31.5%	32.5%
Sandusky, OH	70,773,448	58,789,320	100,586,704	3,815	2,849	4,401	18553	20633	22854	122,551	98,353	130,743	31.0%	25.7%	27.8%
San Francisco-San Mateo-Redwood City, CA	3,709,906,944	5,785,719,296	8,834,676,736	13,126	18,697	26,385	282648	309446	334833	332,138	518,772	583,460	41.3%	34.6%	37.2%
San Jose-Sunnyvale-Santa Clara, CA	2,758,220,288	5,184,223,744	8,606,179,328	11,320	16,494	24,629	243657	314308	349429	290,104	449,598	538,704	41.6%	34.7%	37.5%
Santa Ana-Anaheim-Irvine, CA	4,166,436,096	6,879,275,520	8,379,301,376	10,719	13,847	14,593	388700	496824	574181	280,805	384,555	326,706	41.2%	34.0%	34.3%
Santa Barbara-Santa Maria-Goleta, CA	558,587,776	994,041,536	1,283,205,888	10,731	13,992	16,759	52053	71043	76569	288,900	402,659	398,362	37.9%	32.6%	33.5%
Santa Cruz-Watsonville, CA	333,710,304	677,507,904	995,440,064	8,598	13,536	18,210	38812	50052	54665	261,270	392,714	432,492	36.2%	33.0%	35.1%
Santa Fe, NM	55,636,284	150,503,536	345,525,184	5,339	5,877	9,604	10421	25608	35977	168,263	189,389	251,715	30.7%	27.6%	30.9%
Sarasota-Bradenton-Venice, FL	436,005,728	605,854,720	1,071,165,696	3,983	3,783	5,317	109453	160172	201474	144,247	150,912	171,466	26.9%	22.4%	23.9%
Savannah, GA	151,784,432	185,250,416	355,236,000	3,235	3,157	4,970	46919	58678	71471	98,719	104,369	134,631	28.5%	25.1%	27.6%
Seattle-Bellevue-Everett, WA	2,229,990,912	2,890,294,784	5,330,780,160	6,068	6,088	9,240	367495	474735	576927	184,888	220,745	276,008	32.6%	25.4%	27.5%
Shreveport-Bossier City, LA	198,112,160	181,614,032	274,112,640	3,195	2,075	2,873	62013	87508	95407	107,286	85,519	94,969	27.4%	20.8%	23.7%
Sioux City, IA-NE-SD	89,235,160	66,895,184	125,322,664	3,277	1,971	3,373	27230	33941	37156	91,953	61,679	91,749	27.9%	21.7%	25.9%
Spokane, WA	285,376,064	194,817,424	401,747,264	3,339	2,159	3,749	85460	90221	107166	126,012	93,394	134,843	27.0%	20.5%	23.1%
Springfield, MA	388,719,040	908,740,160	770,020,096	3,241	5,994	4,678	119955	151613	164620	95,752	179,553	137,132	34.5%	32.3%	28.7%
Suffolk County-Nassau County, NY	4,128,623,360	9,964,110,848	11,485,210,624	6,469	14,493	15,655	638170	687506	733627	144,078	303,670	271,158	40.4%	33.5%	34.0%
Syracuse, NY	530,014,112	832,231,296	861,968,960	3,762	5,155	5,102	140902	161439	168948	94,019	112,818	97,032	33.3%	27.9%	28.0%
Tampa-St. Petersburg-Clearwater, FL	1,237,367,680	1,688,922,880	2,503,383,040	2,827	2,804	3,510	437714	602266	713279	110,606	119,167	124,169	25.2%	21.4%	23.0%
Toledo, OH	587,011,584	472,215,840	747,959,936	3,786	2,852	4,224	155038	165601	177066	116,684	95,903	121,175	30.0%	24.7%	27.0%
Topeka, KS	205,075,568	167,908,912	228,201,648	4,496	2,926	3,593	45608	57376	63505	109,656	77,186	90,824	30.4%	24.7%	27.4%
Trenton-Ewing, NJ	348,361,920	594,385,728	703,982,080	5,113	7,638	8,348	68136	77818	84325	136,347	222,056	198,387	32.3%	28.0%	29.7%
Tucson, AZ	631,105,600	561,815,424	992,154,624	4,964	3,525	4,645	127132	159362	213613	148,231	120,121	140,680	31.5%	25.3%	26.2%
Tulsa, OK	576,693,888	510,295,296	828,991,872	3,789	2,595	3,647	152221	196646	227323	117,616	87,982	101,605	30.4%	24.6%	27.4%
Washington-Arlington-Alexandria, DC-VA-MD-WV	4,013,167,872	6,601,027,584	8,239,034,880	8,349	9,371	9,463	480683	704426	870699	203,658	260,940	225,074	38.5%	31.5%	32.9%
Wichita, KS	460,482,208	439,964,768	595,440,128	4,696	3,410	3,967	98055	129026	150090	109,382	85,665	96,959	30.8%	25.1%	27.6%

Appendix Table B: Data for Selected CBSAs

CBSA name	value of aggregate tax benefits ($99)			tax benefit per owner occ unit ($99)			number of owners			mean house value ($99)			marginal tax rates		
	1979	1989	1999	1979	1989	1999	1979	1989	1999	1979	1989	1999	1979	1989	1999
Wilmington, DE-MD-NJ	505,963,968	796,335,040	987,129,664	4,240	5,389	5,686	119345	147772	173622	118,327	165,297	154,280	32.8%	28.6%	29.8%
Winston-Salem, NC	248,565,392	322,453,408	571,343,360	3,532	3,281	4,811	70374	98271	118770	106,231	110,821	132,112	30.2%	25.4%	28.9%
York-Hanover, PA	279,696,768	296,279,584	439,873,792	3,358	3,097	3,899	83291	95670	112816	113,860	115,345	124,982	29.5%	24.8%	26.4%