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## The Elimination of the Federal Tax Deductibility of State and Local Taxes: Possible Effects on State and Local Tax Structures

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### Recommended Citation

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**The Elimination of the Federal Tax Deductibility of State and Local  
Taxes: Possible Effects on State and Local Tax Structures**

by

John Foster

*Prepared for the Martin School of Public Policy and Administration*

*2006 Public Policy and Management Forum*

## Executive Summary

Through the use of intermediaries such as elected officials and hired advocates, people choose the level of resources that will be used for public goods and services, as well as the manner in which those resources will be used. They also decide how these goods and services will be financed. The extent to which governments utilize taxes on income, wealth, and consumption is guided by considerations of political factors, equity, administrative costs, revenue adequacy, and the effects of the tax system on allocative efficiency. Incentives that are embedded in the federal tax system may also influence state and local tax structures.

Taxpayers who itemize can deduct state and local income and property taxes from income that is subject to the federal income tax. General sales taxes can be deducted in place of income taxes. In 2005, the President's Advisory Panel on Federal Tax Reform recommended the elimination of the federal tax deductibility of all state and local taxes. If state and local tax structures are responsive to federal tax deductibility, then this policy change could affect the extent to which governments rely on the three major personal taxes: income, property, and sales. I attempted to estimate the nature of the effect by conducting a multivariate regression analysis on the cross-section of the fifty states. The results suggest that the elimination of federal tax deductibility would induce a shift in state and local tax structures from income to consumption taxation. Since it is possible that consumption taxation distorts economic behavior to a lesser degree than income taxation, this policy change may increase the efficiency of state and local tax systems. However, consumption taxation tends to place heavier tax burdens on low-income households while income taxation tends to place heavier tax burdens on wealthy

households. This means that the elimination of federal tax deductibility may reduce the vertical equity of state and local tax systems. However, the federal income tax may become more progressive, since the wealthy derive the greatest benefit from the federal tax deductibility of state and local taxes.

### Introduction

State and local taxes have been deductible from the federal income tax to some degree since 1913, when the federal income tax was created. All taxes, including federal, state, and local taxes not directly tied to a benefit, were originally deductible. The nature of the deduction has changed over the years. Legislation enacted in 1964 limited deductibility to a list of explicitly deductible state and local taxes. These were taxes on real and personal property, income, general sales, “and the sale of gasoline, diesel fuel, and other motor fuels” (Maguire 1). In the mid-1980s, the U.S. Treasury Department called for the elimination of the deduction. The resulting legislation contained in the Tax Reform Act of 1986 only eliminated the deductibility of state and local sales taxes (Reuben 498). After 1986, only property and income taxes were deductible. This changed in 2004 with the passage of the American Jobs Creation Act, which reinstated the general sales tax deduction *in lieu of* income taxes (Reuben 498). Itemizers can choose to deduct general sales taxes instead of income taxes. But itemizers in states with income taxes probably pay more income tax than sales tax. Thus, the sales tax deduction will probably be utilized most heavily in states without broad-based personal income taxes. The deduction was set to expire at the end of FY 2005. However, the Tax Relief

Extension Reconciliation Act of 2005, which has been passed by both houses of Congress, extends the deduction through 2008 (United States. Library of Congress).<sup>1</sup>

In 2005, President Bush commissioned the Advisory Panel on Federal Tax Reform. The panel sought to simplify the federal income tax code and reduce its inefficient qualities. Its recommendations included limiting the deductibility of owner-occupied housing, reducing income tax rates, and eliminating the deductibility of state and local taxes. The deductibility of state and local taxes should be eliminated, the panel argued, because it induces higher demand for state and local government services and is thus inefficient. It also involves a transfer of income from jurisdictions that have relatively low demand for state and local services to those that have a relatively high demand. The panel concluded that state and local government services should be treated like any nondeductible personal expense, such as food and clothing and that the costs of those services should not be borne by every taxpayer in the country (President's Advisory Panel on Federal Tax Reform 83).

How would the elimination of federal tax deductibility affect the extent to which state and local governments rely on personal income, sales, and property taxes? In order to answer that question, one must estimate the influence that federal tax deductibility has had on the finance decisions of state and local governments. Federal tax deductibility lowers the cost, or price, of state and local government spending that is financed from deductible taxes. If an individual is an itemizer, an additional dollar of state and local tax payment from a deductible revenue source reduces his or her federal income tax liability. Therefore, the net-of-federal tax price of deductible tax revenue that an itemizer faces is \$1 minus his or her marginal federal tax rate. A lower tax price increases the itemizer's

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<sup>1</sup> As of April 6, 2006, the bill was in conference committee.

preference for deductible revenue sources, holding all other factors constant. The price of a dollar of spending from a nondeductible revenue source is \$1. For a non-itemizer, an additional dollar of state and local spending from any revenue source is \$1. The elimination of the federal tax deductibility of state and local taxes would raise the net-of-federal tax price of deductible revenues to \$1. If state and local tax structures are responsive to tax price, then this policy change could affect state and local tax structures. However, it is also possible that considerations of equity, efficiency, administrative ease, and political feasibility outweigh the influence of tax price. If that is the case, then the elimination of federal tax deductibility would not have a substantial effect on state and local tax structures. The most recent study on the effect of federal tax deductibility on the use of different personal taxes is a 1987 study by Lawrence Lindsey. The author used revenue and taxpayer data from 1983. This research may be outdated. Uncertainty about the impact of the proposed elimination of the federal deductibility of state and local taxes is the policy problem that motivated the present study. The following section describes previous studies on the effect that the elimination of federal tax deductibility may have on state and local tax structures.

### Previous Research

I am aware of four studies that examine the effect of federal tax deductibility on the mix of state and local tax revenues. Two of those studies, Inman (1985) and Hettich and Winer (1984) are highly problematic. Inman studies the influence of federal deductibility on the use of income, sales, and property taxes, as well as fees, in 41 large cities from 1960 to 1980. Hettich and Winer examine the relationship between federal tax deductibility and the extent to which state governments rely on personal income

taxes. While Inman looks only at local government revenues, Hettich and Winer analyze only state government revenues. These approaches ignore the variety in the division of taxing and spending responsibilities between state and local governments among the states (Feldstein and Metcalf 715-716). It is not surprising that these studies report puzzling results. Inman finds that a higher net-of-federal tax price for property tax revenue coincides with a reduced use of income and sales taxes and vice versa (Inman 13-14). Hettich and Winer find that the effect of federal tax deductibility on income tax revenue is insignificant (67).

Feldstein and Metcalf (1987) and Lindsey (1987) estimate the impact that the elimination of federal tax deductibility would have on the mix of combined state and local revenues, along with the impact on state and local government spending. Feldstein and Metcalf conduct a multivariate regression analysis on the cross section of the fifty states to measure the influence of average net-of-federal tax price, along with other factors, on two dependent variables: per capita deductible tax revenue as a percentage of per capita income and per capita nondeductible tax revenue as a percentage of per capita income. The authors find that tax price correlates negatively and significantly with revenue from deductible taxes but insignificantly with nondeductible tax revenue. Lindsey examines the effect that the elimination of federal tax deductibility would have on per capita income, sales, and property tax revenue. He uses various measures of tax price, including Feldstein's and Metcalf's measure of average net-of-federal tax price. He finds that neither property nor sales tax revenues are responsive to tax price. The correlation between tax price and income tax revenue is highly significant and negative. In both studies, the authors utilized taxpayer and revenue data that pre-dated the

elimination of sales tax deductibility in 1986. For that reason, I conducted a statistical analysis on the subject using more recent data.

### Methodology

The impact of the elimination of deductibility is likely to depend on the influence that it has already had on state and local tax structures. With that in mind, I use a multivariate regression model on the cross-section of the fifty states. I quantify the manner in which federal tax deductibility lowers the cost of spending from deductible revenues by following the procedure that Feldstein and Metcalf use in their 1987 study. By multiplying the average marginal federal income tax rate for itemizers in a state by the proportion of itemizers in the state's population,<sup>2</sup> and then subtracting the product from 1, I arrive at the average net-of-federal tax price. The regression model includes the average net-of-federal tax prices for all fifty states, along with other variables, which were used in previous studies, which may influence the amounts of revenue derived from the three personal taxes. Among the control variables are per-capita income and the homeownership rate (see Appendix 2 for a detailed explanation of the regression model). The model is intended to convey the relationship between tax price and revenues from personal income, sales, and property taxes. I express the dependent variables as per capita revenue as a percentage of per capita income. The state and local revenue data is from the 2002 Census of Governments. I used data from the U.S. Internal Revenue Service "Individual Tax Statistics—State Income for 2000 and 2001" to calculate the tax price variable. I used data from the 2001 tax year since it corresponds to the revenue data from

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<sup>2</sup> See Appendix 1 for a detailed explanation of the procedure used to calculate average marginal tax rates.

the 2002 census. In 2001, only state and local income and property taxes were deductible from the federal income tax. Sales taxes were not deductible at that time.

### Results

The results of the estimation of the regression equations indicate that federal tax deductibility of state and local taxes significantly affects state and local tax structures. The specific findings of the analysis are: (1) There is a negative relationship between tax price and income tax revenue as a proportion of personal income that is highly significant. (2) There is a positive relationship between tax price and sales tax revenue as a proportion of income that is also highly significant. (3) The use of property tax revenue does not appear to be sensitive to tax price. It is important to note that the property tax is the primary revenue source for local governments. The lack of a significant relationship may be attributable to the fact that local governments in different states rely on state transfers to different degrees. This variation could mask the influence of tax price. As mentioned in the section on previous research, Inman (1985) isolates local governments in his analysis of the influence of federal tax deductibility on local tax structures and obtains unusual results.

Tables 1 through 3 contain the regression outputs. For the regression on income tax revenue, the tax price coefficient is -0.914. In 2001, the average net-of-federal tax price was \$0.91. The elimination of federal tax deductibility would raise the effective price of one dollar's worth of state and local revenue from formerly deductible sources to \$1 in every state. This means that the policy change may reduce the ratio of income tax revenue to personal income by 8 percentage points on average.<sup>3</sup> The tax price coefficient

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<sup>3</sup> The relationship is negative and significant with the 9 states without broad-based income taxes removed from the analysis. However, the coefficient for tax price is smaller at -0.3.

for sales tax revenue is 0.52. Thus, the elimination of federal deductibility may reduce the ratio of sales tax revenue to personal income by 4.6 percentage points.<sup>4</sup>

**Table 1: Income Tax Revenue Regression Results**

<i>Dependent Variable:</i> Per capita state and local income tax revenue as a proportion of per capita income.	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.9	0.189	4.742	0.0000393
Per Capita Income	-0.000000625	0.000000458	-1.363	0.181
Per Cap Federal Transfers as % of Per Cap Income	0.174	0.13	1.336	0.19
Price*	-0.914	0.146	-6.231	0.000000489
Pupils Per Capita	0.069	0.19	0.366	0.716
Road Mileage Per Capita	0.036	0.113	0.317	0.753
% Nonwhite	0.011	0.022	0.529	0.599
% Poverty	0.095	0.118	0.803	0.427
% Over Age 65	0.397	0.195	2.033	0.05
Homeownership Rate	-0.131	0.0654	-2.015	0.052
% Urban	-0.042	0.026	-1.605	0.118
Married	0.003	0.145	0.0235	0.981
Gini Ratio	0.082	0.155	0.529	0.6
Dividend and Interest Income Per \$ of AGI	-0.562	0.345	-1.627	0.113
Capital Gains Income Per \$ of AGI	-0.0427	0.191	-0.223	0.824
Government Ideology	-0.00009	0.0001	-0.922	0.362
Citizen Ideology	0.0001	0.0002	0.493	0.625
R-Square	0.67			
Adjusted R-Square	0.511			
F Statistic	4.201			
Significance of F	0.0002			

\* Significant at 1 % Confidence Level

<sup>4</sup> The relationship is insignificant when the 9 states without broad-based income taxes are removed from the analysis.

**Table 2: Sales Tax Revenue Regression Results**

<i>Dependent Variable:</i> Per capita state and local general and selective sales tax revenue as a percentage of per capita income.	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	-0.439	0.228	-1.923	0.063
Per Capita Income*	-0.00000221	0.000000551	-4.002	0.0003
Per Cap Federal Transfers as % of Per Cap Income**	-0.358	0.157	-2.282	0.029
Price*	0.52	0.176	2.945	0.005
Pupils Per Capita	0.17	0.229	0.741	0.463
Road Mileage Per Capita	-0.007	0.136	-0.055	0.955
% Nonwhite	0.0343	0.026	1.293	0.204
% Poverty	0.12	0.143	0.84	0.406
% Over Age 65	-0.021	0.235	-0.093	0.926
Homeownership Rate	0.041	0.078	0.522	0.604
% Urban	0.023	0.031	0.749	0.459
Married	-0.037	0.175	-0.216	0.83
Gini Ratio	-0.03	0.186	-0.161	0.872
Dividend and Interest Income Per \$ of AGI	0.04	0.415	0.096	0.923
Capital Gains Income Per \$ of AGI	0.263	0.229	1.145	0.26
Government Ideology	0.00003	0.0001	0.249	0.804
Citizen Ideology	0.00009	0.0002	0.348	0.729
R-Square	0.591			
Adjusted R-Square	0.393			
F Statistic	2.984			
Significance of F	0.003			

\*Significant at the 1 % Confidence Level

\*\*Significant at the 5 % Confidence Level

**Table 3: Property Tax Revenue Regression Results**

<i>Dependent Variable:</i> Per capita state and local property tax revenue as a percentage of per capita income.	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.0009	0.177	0.005	0.995
Per Capita Income	-0.000000558	0.000000428	-1.303	0.201
Per Cap Federal Transfers as % of Per Cap Income	0.126	0.122	1.034	0.308
Price	0.11	0.137	0.809	0.424
Pupils Per Capita	0.169	0.178	0.95	0.348
Road Mileage Per Capita	-0.128	0.106	-1.208	0.235
% Nonwhite	-0.037	0.02	-1.836	0.075
% Poverty*	-0.355	0.111	-3.199	0.003
% Over Age 65	-0.007	0.182	-0.041	0.967
Homeownership Rate	-0.055	0.061	-0.911	0.368
% Urban	-0.033	0.024	-1.358	0.183
Married	-0.105	0.136	-0.778	0.442
Gini Ratio	0.132	0.144	0.917	0.365
Dividend and Interest Income Per \$ of AGI	0.158	0.322	0.49	0.626
Capital Gains Income Per \$ of AGI	0.215	0.178	1.21	0.234
Government Ideology	-0.00003	0.00009	-0.361	0.719
Citizen Ideology	0.0001	0.0002	0.506	0.616
R-Square	0.649			
Adjusted R-Square	0.479			
F Statistic	3.824			
Significance of F	0.000547929			

\*Significant at the 1 % Confidence Level

Since tax price varies among states, the impact of the policy change is likely to vary as well. Table 4 shows the possible effects of the elimination of federal tax deductibility in three states: West Virginia, which had the highest average net-of-federal tax price among states that tax income in 2001; Alabama, which faced an average tax price close to the national median; and Maryland, which faced the lowest average tax price. Since Maryland has the lowest tax price, it is likely to experience the greatest changes in income and sales tax revenues. Income tax revenue as a proportion of personal income may decline by 12.8 percentage points while sales tax revenue as a proportion of personal income may increase by 7.3 percentage points. The impact experienced by West Virginia is likely to be smaller, since it currently faces a higher tax price. In that state, income tax revenue as a proportion of personal income may decrease by 4.7 percentage points while sales tax revenue as a proportion of personal income may increase by 2.6 percentage points. It is hard to guess how the policy change would affect the nine states without broad-based personal income taxes.<sup>5</sup> In 2001, the only revenue type that was deductible in those states was the property tax. Property tax revenue is not responsive to tax price. It is doubtful that the elimination of federal tax deductibility would lead to increased use of sales taxes in states that already rely heavily on sales taxes. The matter is further complicated by the recently enacted deductibility of general sales taxes *in lieu of* income taxes. It is too soon to test the effect of that policy change. However, if sales tax revenue is a substitute for income tax revenue, the sales tax deduction should not alter that relationship.

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<sup>5</sup> Alaska, Florida, Nevada, South Dakota, Texas, Washington, and Wyoming do not have state or local personal income taxes. In New Hampshire and Tennessee, dividend and interest income is taxed.

**Table 4: Estimated Effects of the Elimination of Deductibility in 3 States**

	<b>West Virginia</b>	<b>Alabama</b>	<b>Maryland</b>
% Itemizers	18.5	32.7	47.8
Avg Marg Rate for Itemizers	27.5	26.5	27.6
Price	0.949	0.91	0.86
Income Tax Revenue <sup>6</sup>	3.5	2.6	5.6
Sales Tax Revenue	4.9	5.9	3.7
Estimated Change in Inc Rev	-4.7	-8.2	-12.8
Estimated Change in Sales T Rev	+2.6	+4.7	+7.3

### Limitations of the Analysis

There are characteristics of the data that limit the reliability of the analysis. First, I estimate the average marginal tax rates faced by itemizers in each state by calculating a weighted average statutory rate. This approach does not account for individual circumstances that may cause an itemizer's marginal tax rate to differ from the statutory rate.<sup>7</sup> For example, an itemizer who is in the phaseout range of a tax credit would face a marginal rate that is higher than the statutory rate since his or her taxable income would increase. This problem reduces the precision of the tax price variable. Another problem is the fact that the data set consists of only fifty observations. The regression models do not explain around 40 percent of the variation in revenues. The analysis would have been strengthened by the use of panel data, but collecting the necessary data would have been cost-prohibitive in terms of time. The following section is a discussion of the policy implications of the results of the analysis.

### Policy Implications

The results of the analysis discussed in the previous section suggest that the elimination of federal tax deductibility would induce a shift in state and local taxation

<sup>6</sup> All revenue figures are expressed as per capita revenue as a percentage of per capita income.

<sup>7</sup> Appendix 1 describes the method that I used to approximate average marginal tax rates for itemizers.

from income to consumption. This change may alter the efficiency and equity of state and local tax structures.

The efficiency of a tax depends on the extent to which it alters economic behavior and the resulting allocation of resources. When a tax alters economic decisions, potential gains from trade are lost. Thus, the tax imposes an excess burden in addition to the income that is taxed away. Income taxation reduces the benefit of earning income relative to leisure. Consequently, the imposition of an income tax may encourage people to spend more time on leisure. This is the substitution effect of the income tax. The gains from trade that people could have reaped from the exchange of labor are lost. However, people may work more to recover income that has been taxed away. This income effect may offset the substitution effect (Holcombe 235). Income taxation also reduces the marginal benefit of future consumption relative to present consumption. Thus, it may discourage saving. But there may also be an income effect as people save more for particular purposes, such as a down payment on a car (Holcombe 261).

Consumption taxation, like income taxation, lowers the marginal benefit of labor relative to leisure. However, it does not alter the marginal benefit of future consumption relative to present consumption. Therefore, it is possible that consumption taxation is more efficient than income taxation (Rosen 484). In their 2001 study, economists Dale Jorgenson and Kun-Young Yun used a model of the U.S. economy to measure the excess burden of the major government revenue sources. They compared the efficiency of resource allocation under two scenarios: the 1996 federal tax law and a hypothetical situation in which all revenue is raised with a nondistorting lump sum tax. They estimated the marginal excess burden of a dollar of income tax revenue to be

approximately 35 cents (302). This means that a public project that is funded with income tax revenue would have to produce marginal benefits of more than \$1.35 per dollar of expenditure to improve welfare. The marginal excess burden of a dollar of sales tax revenue is approximately 17 cents. Jorgenson and Yun write that governments can reduce excess burden by shifting taxation from income to consumption (304). By inducing this shift, the withdrawal of federal tax deductibility may spark a trend toward greater efficiency in state and local tax systems. But it may also cause state and local tax systems to become more regressive.

The vertical equity of a tax system refers to the relative tax burdens that it places on households with different incomes. A progressive tax system apportions tax burdens to households in relation to their ability to pay. Thus, a wealthy household would have a higher average tax burden than a low-income household. With a regressive tax system, the opposite is the case. Low-income households spend most of their incomes while wealthy households save substantial proportions of their incomes. Consequently, consumption taxation imposes a higher tax burden on the poor. For this reason, sales taxes tend to be regressive. An income tax is levied both on earned income and income from savings, so it tends to place higher tax burdens on the wealthy. Thus, it tends to be progressive. In their 2003 study, the Institute on Taxation and Economic Policy found that 7 of the 10 states with the most regressive tax systems derived “between half and two-thirds of their tax revenues” from consumption taxes, “compared to the national average of 35 percent” (3).<sup>8</sup> The least regressive states tended to have personal income taxes with progressive rate structures or low reliance on sales taxes (4).<sup>9</sup> If the

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<sup>8</sup> These states are Washington, Florida, Tennessee, South Dakota, Texas, Nevada, and Alabama.

<sup>9</sup> The least regressive states are Delaware, Montana, Vermont, and California.

elimination of federal tax deductibility induces a shift from income to consumption taxation, state and local tax structures would become more regressive. But the policy change could make the federal income tax structure more progressive. Reuban (2005) estimates that the federal income tax burden could increase by 3.5 percent on average for households earning more than \$75,000 a year. Low-income households would be largely unaffected. This is because higher-income households tend to itemize while low-income households are more likely to take the standard deduction (503-504). The federal income tax burden would most likely shift toward states like Maryland, which have large proportions of itemizers.

### Conclusion

The results presented in this paper provide the following conclusions concerning the possible impact of the elimination of federal tax deductibility on the mix of personal tax revenues:

- Net-of-federal tax price is negatively and significantly related to income tax revenue as a proportion of personal income. Thus, the elimination of federal tax deductibility may lead to decreased use of the income tax by state and local governments.
- Sales tax revenue as a proportion of personal income is positively and significantly related to price. This indicates that sales tax revenue is a substitute for income tax revenue. Consequently, the elimination of federal tax deductibility may induce greater reliance on sales taxes.

- These changes could increase the efficiency of state and local tax structures but decrease their equity. However, the federal income tax may become more progressive.

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## Appendix 1

### *Calculation of Average Marginal Federal Income Tax Rates*

In order to calculate the average net-of-federal tax prices for each state, I first had to estimate the average marginal federal income tax rates faced by itemizers in each state. I did this by matching the statutory marginal rate for each group of taxable income with each of the 11 AGI classes reported in the IRS state-level income tax data. The IRS data lists the number of itemizers in each of the 11 classes. I weighted each tax rate with the number of itemizers reported in each class. I added the products to arrive at a weighted average marginal federal tax rate for each state. Table 6 details the procedure for Kentucky.

**Table 5: Official Statutory Tax Rate Schedule, 2001**

	<b>Single Returns</b>	<b>Joint Returns</b>	
<i>Taxable Income</i>	<i>Tax Rate (%)</i>	<i>Taxable Income</i>	<i>Tax Rate (%)</i>
\$0-\$27,050	15	\$0-\$45,200	15
\$27,050-\$65,550	27.5	\$45,200-\$109,250	27.5
\$65,550-\$136,750	30.5	\$109,250-\$166,500	30.5
\$136,750-\$297,350	35.5	\$166,500-\$297,350	35.5
Over \$297,350	39.1	Over \$297,350	39.1

Source: Campbell, David and Michael Parisi. "Individual Income Tax Rates and Shares, 2002."

**Table 6: Estimated Marginal Tax Rate for Itemizers in Kentucky, 2001**

<b>AGI Group</b>	<b>Tax Rate</b>	<b>Number of Itemizers</b>	<b>% Total Itemizers</b>	<b>Adjusted Tax Rate</b>
Less than \$10,000	15	13,646	0.024728092	0.370921387
\$10,000 under \$20,000	15	29,091	0.052716176	0.79074264
\$20,000 under \$30,000	15	48,120	0.087198872	1.307983082
\$30,000 under \$50,000	27.5	128,411	0.232695228	6.39911877
\$50,000 under \$75,000	27.5	157,179	0.284826092	7.832717517
\$75,000 under \$100,000	30.5	86,330	0.156439706	4.77141102
\$100,000 under \$150,000	30.5	54,211	0.098236452	2.996211778
\$250,000 under \$200,000	35.5	14,959	0.027107397	0.962312582
\$200,000 under \$500,000	39.1	16,143	0.029252938	1.143789889
\$500,000 under \$1,000,000	39.1	2,715	0.004919886	0.192367562
Over \$1,000,000	39.1	1,037	0.001879161	0.073475198
Source: Author's calculations using data from U.S. Internal Revenue Service. "Individual Tax Statistics—State Income For 2000 and 2001."			<b>Weighted Average Tax Rate</b>	26.84105142

## Appendix 2

### *Regression Model*

Revenue=B1(Tax Price) + B2(Per Capita Income) + B3(Fed Trans % Inc) + B4(Pupils Per Capita) + B5(Road Mileage Per Capita) + B6(Nonwhite) + B7(Poverty) + B8(Aged) + B9(Homeown) + B10(Urban) + B11(Married) + B12(Gini) + B13(Div Int Per \$) + B14(Cap G Per \$) + B15(Gov) + B16(Citi) + U

### *Description of Variables*

#### Dependent Variables

I used three dependent variables: per capita revenue from state and local income, sales, and property taxes as a percentage of per capita income in each state. Sales tax revenue consists of revenue from general and selective sales taxes (e.g. taxes on gasoline and cigarettes). I obtained data on revenues from the 2002 Census of Governments. The data on per-capita money income and population are from Census 2000.

#### Independent Variables

**Per Capita Income:** The per capita money income for each state.\*\*

**Fed Trans % Inc:** Per capita federal transfers to state and local governments as a percentage of per capita income in each state. Source: 2002 Census of Governments.

**Tax Price:** The cost of \$1 of state and local revenue from deductible taxes. I calculated it by multiplying the proportion of itemizers in each state by the average marginal federal income tax rate for itemizers in the state and then subtracting the product from 1.\*

**Pupils Per Capita:** The number of elementary, secondary, and post secondary students in each state divided by the population of the state.\*\*

**Road Mileage Per Capita:** Road mileage in each state divided by the state's population.\*\*

**Nonwhite:** Percentage of nonwhite citizens.\*\*

**Poverty:** Percentage of households with incomes beneath the federal poverty level.\*\*

**Aged:** Percentage of the state's population over the age of 65. \*\*

**Homeown:** The homeownership rate for each state. This is the percentage of occupied housing units that are owner-occupied.\*\*

**Urban:** Percentage of the state's population living in urban areas.\*\*

**Married:** Percentage of citizens aged 15 and over in each state who are married. This includes those whose spouses are absent from the household. \*\*

**Gini:** The Gini Ratio for each state according to 1999 U.S. Census data ("Table S4"). The Gini Ratio measures the inequality of income distribution. A more negative coefficient indicates greater inequality and vice versa.

**Div Int Per \$:** Dividend and interest income per dollar of AGI for each state. Author's calculations using IRS state-level data.\*

**Cap G Per \$:** Net capital gains per dollar of AGI for each state. Author's calculations using IRS state-level data.\*

**Gov:** The ideology scores for state governments. In their 1998 paper, "Measuring Citizen and Government Ideology in the American States, 1960-93," Berry et al elaborate methods for the quantifying the ideologies of citizens in each state, as well as state governments. State government ideology scores are based on the party affiliation of the governor and the party composition of state legislatures. The score is a weighted average that denotes the strength of each party (332-334). The authors updated the data on both citizen and government ideology and made it available on the Inter-university Consortium for Political and Social Research Publication-Related Archive. The files contain data through 2002. I used the 2001 data in the regression analysis.

**Citi:** The ideology scores for citizens in each state. Berry et al based the scores on interest group ratings on each state's members of Congress and election returns for congressional races. A higher score denotes greater liberalism (330-331).

\*U.S. Internal Revenue Service. "Individual Tax Statistics—State Income for 2000 and 2001."

\*\*Source: *Census 2000*.