NBER WORKING PAPER SERIES

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Working Paper No. 2564

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
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April 1988

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ABSTRACT

This study examines regional variation in average subsidy rates for charitable donations. Because the tax incentive for contributions is embodied in an itemized deduction, the subsidy rate for an individual depends on the taxpayer's itemization status and marginal tax rate. It is well known that this subsidy rate rises with income. On a regional level, one would expect that subsidy rates would be higher in wealthier regions. What is not clear is the extent of such variation or whether subsidy rates vary systematically independent of income. In order to examine the various sources of variation, we decompose subsidy rates. We find significant variation in subsidy rates independent of income, in what appears to be an unintended regional bias in the federal policy toward charitable giving. If most contributions remain in the state or region of the donor, this bias will tend to affect the regional development of the nonprofit sector.

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3/2/88

IS THERE A REGIONAL BIAS IN FEDERAL TAX SUBSIDY RATES FOR GIVING?*

by

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Introduction

It is well known that the use of deductions in the federal income tax to encourage certain expenditures results in unequal subsidy rates. In the case of most charitable contributions, for example, the government's effective rate of subsidy is equal to the taxpayer's marginal tax rate if the taxpayer is an itemizer. The resulting "upside-down" pattern of subsidies, in which "the opportunity cost of virtue falls as one moves up the income scale" (Musgrave and Musgrave, 1980, p. 362), has been criticized for its "plutocratic bias" (Vickrey, 1947, p. 131)[1]. Others accept this pattern as a natural by-product of using the deduction form in tax incentives.[2] Whatever

its desirability, no one can doubt that rich taxpayers typically face a lower net cost of contributing a dollar than taxpayers at lower incomes.

A question that is less well understood is how much average federal subsidies differ by state and region of the country. Dispersion at the state or regional level may well take on greater significance for tax policy than individual differences. It appears, for example, that a dollar of contributions on average receives more federal subsidy in some regions than others. Such differences may, of course, be due to differences in income. But, because subsidy rates depend on whether a taxpayer is an itemizer and on the amount of other deductions, there are other factors that affect regional differences. If most charitable gifts tend to stay close to a donor's home, variations in subsidy rates may have a significant impact on regional patterns of giving and on relative growth rates in the nonprofit sector. Without evidence on the extent of variation in subsidy rates by state or region, however, it is impossible to judge whether such differences in aggregate subsidy rates are worth worrying about.

Our objective in this paper is to document and analyze differences in average tax subsidy rates among states. We calculate the subsidy rate for charitable contributions, but the results would be about the same if we had chosen mortgage interest or a number of other expenditure items subsidized through personal deductions. We focus on the federal subsidy rate because criticisms of the disparities in subsidy rates are strongest when applied to the federal tax alone. Finally, the analysis is positive, not normative, although criticisms of disparities in subsidy rates do tend to be based on normative considerations of efficiency and equity. We begin by considering the reasons why subsidy rates differ among individual taxpayers. We then examine average subsidy rates by state. In order to separate the principal influences on subsidy rates, we present a decomposition of subsidy rates.

Why Subsidy Rates Differ

When the income tax allows a taxpayer to deduct an item of personal expediture, such as mortgage interest or

charitable contributions, the government in effect subsidizes the expenditure at the taxpayer's marginal tax rate. The subsidy rates applying in such cases differ among individuals for two reasons. First, marginal tax rates differ, generally rising with income. Second, deduction-based subsidies are available to taxpayers who itemize their deductions. The majority who take the standard deduction receive no subsidy at all for additional expenditures on favored items. The standard sort of subsidy we wish to consider here is an itemized deduction allowed in the calculation of taxable income. The rate of subsidy (s) in this case is equal to the marginal tax rate (m) for taxpayers who itemize their deductions and zero for those who do not. The effect of this subsidy is to reduce the taxpayer's net cost per dollar of the expenditure to $1(1-s). Subsidy rates can of course be calculated for other types of provisions, such as tax credits, deductions subject to ceilings or floors, or percentage deductions, but in the present paper we restrict our attention to a simple deduction with no limitation.

Where I is the probability of being an itemizer, the

expected subsidy rate is s=Im. Because the standard deduction offers a kind of threshold for itemization, the probability of itemization is a function of deductible expenses (D), which in turn are a function of income (Y), the number and cost of deductible items (X), and tax status (e.g., single, joint returns). A taxpayer's marginal tax rate is a function of taxable income. Where Z represents other characteristics such as tax status and number of exemptions, the subsidy rate may be written

$$s = I(D(Y,X),Z)\ m(Y,D(Y,X),Z). \qquad (1)$$

This formulation makes clear that subsidy rates vary on the basis of three factors: income, deductible expenditures, and taxpayer characteristics such as family size and marital status.[3] The effect of income on the subsidy rate is likely to be positive, but the effect is not unambiguous due to the negative effect of increased deductible expenditures on the marginal tax rate, given by the partial derivative m'(D).

$$s'(Y) = \underset{+}{m}\ \underset{+}{I'(D)}\ \underset{+}{D'(Y)} + \underset{+}{I}\ [\underset{+}{m'(Y)} + \underset{-}{m'(D)}\ \underset{+}{D'(Y)}]. \qquad (2)$$

In general, however, one expects subsidy rates to rise

with income in a progressive tax system. Thus average subsidy rates will tend to be higher in wealthier states and regions.

Similarly, the opportunity to make deductible expenditures has opposing effects on the subsidy rate. When income is exogenous, the effect is

$$s'(X) = \underset{+}{m\, I'(X)} + \underset{-}{I\, m'(X)}. \qquad (3)$$

Where the increase in the subsidy rate due to an increase in itemization shown by the first term on the right outweighs the effect due to the reduction in the marginal tax rate, the overall impact of having more or more expensive deductible items is to increase subsidy rates. This effect is illustrated by the observation that one of the best predictors of a taxpayer's subsidy rate for charitable gifts is whether the taxpayer is a homeowner, since home ownership is usually accompanied by large deductions which make it advantageous to itemize deductions. Similarly, living in a state with expensive housing increases a taxpayer's chance of itemizing.

At the aggregate level, the effect of deduction levels

on subsidy rates implies that in states and regions with higher levels of deductible expenditures (other than charitable contributions) subsidy rates for contributions will tend to be higher. States with expensive housing and heavy tax burdens, for example, will have more itemizers and thus higher average subsidy rates for giving. In particular, the amount of state and local taxes paid by a household is largely nondiscretionary given one's state of residence. Taxpayers in a given state have little control over the amount of state taxes they pay, although they can influence the amount of local taxes through their choice of a house. There is more individual control over the size of the mortgage interest deduction, though that cost is certainly a function of the cost of housing in a given region. Other deductible items would appear to have only a limited regional component.

The Extent of Dissimilarity in Average Subsidy Rates

As the above discussion implies, tax subsidy rates may differ systematically across states and regions due to differences in income, deductions other than contributions,

and taxpayer characteristics. The question then becomes, Is this empirically important? In order to answer this question, we have calculated average subsidy rates for charitable contributions by state for 1983 using the TAXSIM model of the National Bureau of Economic Research. The sample consists of 75,960 records of taxpayers with incomes under $200,000. This cutoff is necessitated because the public-use tax files do not provide state of residence for taxpayers in the highest income classes. The excluded returns constitute about 0.2 percent of all returns and account for 4.6 percent of total adjusted gross income. For the purpose of comparison, average subsidy rates are calculated in two ways: unweighted and weighted by adjusted gross income. While the unweighted averages show the subsidy rates that apply to the typical taxpayer, the weighted values reflect the potential importance of the subsidy as measured by dollars of expenditure.

Table 1 illustrates the existing degree of divergence in subsidy rates by showing the extreme values among the states in 1983. The unweighted averages vary from a low of .04 in South Dakota to a high of .12 in Washington, D.C.

The states at the top have rates roughly twice the size of those at the bottom. When individual subsidy rates are weighted by income, the absolute differences are greater, although the rates are still roughly twice as high in the top states as in the bottom states. At the extremes, the figures indicate that the average dollar of income receives a subsidy rate of .24 in Washington, D.C. compared to rate of only .10 in South Dakota. The average price of giving a dollar of income in the District was .76, about 15 percent less than the average price of .90 in South Dakota. If the price elasticity of contributions is -1.3, this difference in the net cost of giving would imply differences in contributions of roughly 20 percent.[4] To the extent that differences such as this merely reflect geographical differences in income alone, this gap is just an aggregate manifestation of the income-bias inherent in the deduction form of subsidy. In order to assess the importance of these disparities, it is necessary to distinguish the pure effect of income from the effect of other regionally-specific aspects.

Decomposing Average Tax Subsidy Rates

Part of the difference among average subsidy rates no doubt is due to differences in income. Such disparities in rates are inevitable as long as subsidies are provided in the form of deductions within a progressive income tax with a standard deduction. For the purpose of judging regional effects of tax policy, however, it is necessary to be more precise in identifying how large a part income differences play in determining average subsidy rates. To this end, we decompose state i's average subsidy rate using the following identity:

$$s_i \equiv \sum d_{ik} s_{ik}$$

$$= \sum d_{ik} (s_{ik} - s_k) + \sum s_k (d_{ik} - d_k) + \sum d_k s_k, \quad (4)$$

where k is the index for income classes.[5] For unweighted subsidy rates, d_{ik} is the proportion of state i's taxpayers in income class k and d_k is the proportion of all taxpayers in income class k and d_k is the proportion of all taxpayers in income class k. For subsidy rates weighted by income, d_{ik} and d_k are the proportion of total income received by taxpayers in class k in the state and nation. The subsidy

rates s_{ik} and s_k are defined analogously to s_i. The third term on the right-hand side of (4) is a baseline subsidy rate calculated using national mean values by income class and the national income distribution. The second term on the right reflects the effect of the state's income distribution. Taxpayers in income classes with low average subsidy rates make up a more important component of the whole in poorer states as compared to affluent states. The first term captures the effect of divergencies of state subsidy rate from average national subsidy rate at each income level.

It is useful to make a further decomposition in this first term. Two effects are at work in causing state subsidy rates at a given income level (s_{ik}) to vary from the norm (s_k): different frequencies of itemization and different federal marginal tax rates. Since $s_{ik} = I_{ik}\, m_{ik}$,

$$\sum d_{ik}\,(s_{ik} - s_k) = \sum d_{ik}\, m_{ik}\,(I_{ik} - I_k) + \sum d_{ik}\, I_k\,(m_{ik} - m_k) \quad (5)$$

The second term on the right reflects differences in

federal marginal tax rates in state i from the national average at each income level. These rates would vary by state only to the extent that tax status or the amount of deductions varied by state. In states where deductions tend to be large, marginal tax rates would be lower and this term would be negative. The first term is the itemization effect: states that tend to have more itemizers at each income level will have a positive term here. Of these two terms, the itemization effect is likely to have the greater influence, for the same reason that a deduction's positive impact on the subsidy rate through the itemization effect will usually dominate the countervailing marginal rate effect, as in (3).

To summarize, we can decompose a state's average subsidy rate into four components:

$$
\begin{aligned}
s_i \equiv & \sum d_{ik}\, m_{ik}\, (I_{ik} - I_k) && \text{(itemization)} && \text{(e)} \\
& + \sum d_{ik}\, I_k\, (m_{ik} - m_k) && \text{(tax rates)} && \text{(f)} \\
& + \sum s_k\, (d_{ik} - d_k) && \text{(income distribution)} && \text{(c)} \\
& + \sum d_k\, s_k && \text{(constant)} && \text{(d)}
\end{aligned}
\qquad (6)
$$

Table 2 gives the values of these components for the 50 states and Washington, D.C. in 1983. Because the focus of our study is on federal subsidy rates, the rates in Table 2 are calculated using federal taxes only. The rates are weighted by income in order to suggest the potential importance of the subsidy for dollars of contributions. The average federal tax subsidy rate in 1983 was .1855, compared to an unweighted average of .0895. Adding this base rate to columns (e), (f) and (c) for any state yields the subsidy rate given in the first column.

The effect of income is shown in column (c). Jurisdictions with the highest average income, such as Alaska, Connecticut and Washington, D.C., have positive entries, reflecting higher federal marginal tax rates and thus higher average subsidy rates. The correlation between per capita income and the income distribution effects shown in column (c) is 0.88. It is evident from scanning Table 2 that this component is responsible for a sizable proportion of the total variation in average subsidy rates. The range of the income distribution effect is the largest of the component, 0.0997. Its importance can also be illustrated

by comparing the standard deviation of average subsidy rates with and without this component: with, it is .027, and without, it drops to .019, a reduction of 30 percent.

Of the remaining components, tax rates have much less impact on total subsidy rates, with a range of only 0.0289. By contrast, itemization is relatively important, with a range of 0.0724.

It is useful to illustrate this decomposition for specific states to get an idea of the relative importance of each component. Table 3 focuses on Michigan and Maine, states whose average subsidy rates differ widely, by about .09. Of this difference, the disparity in income distributions accounts for almost half and the itemization effect for slightly more than half. Differences in the tendency of taxpayers to itemize their deductions therefore is more important in explaining the difference in subsidy rates than is the disparity in incomes between the states. Income is important, but it is by no means the whole reason why average subsidy rates vary. If Maine and Michigan had identical income distributions equal to the national distributions, their subsidy rates would be closer, .16

versus .21 (line 7), but would still differ by .05.

The Role of the State and Local Tax Deduction

As the previous section makes clear, the itemization effect exerts a significant effect on subsidy rate dispersions. The amount of itemized deductions, holding income level constant, evidently differs markedly among states. One important deduction that varies by region is the state and local tax deduction. Taxpayers in states with heavy tax burdens are more likely to itemize, other things equal, than taxpayers in low-tax states. Column (a) in Table 2 shows that if there had been no state and local tax deduction in 1983 the average subsidy rate for contributions would have been .07 lower in such high-tax states as New York and Michigan but less than .02 lower in relatively low-tax states like Florida and Texas (the latter relying on the non-deductible severance tax). For the pair of states shown in Table 3, the state and local tax deduction by itself had the effect of increasing the disparity in subsidy rates by about 0.02 (line 8). If this effect were removed along with the income effect, the

remaining difference in subsidy rates between Maine and Michigan -- due largely to differences in other itemized deductions -- would be only .03, a reduction from the actual subsidy rate differential of two-thirds and a reduction from the income-adjusted differential of almost half.

Table 4 shows similar calculations of the effects of income and the state and local tax deductions for the high- and low-rate jurisdictions from Table 1. Again, income distributions explain only a portion of subsidy rate disparities. For all states taken together, removing the income effect reduces the standard deviation in subsidy rates from .027 to .019, as noted above. When the effect of the state and local tax deduction is removed, the standard deviation falls to .017.

Implications

It comes as no surprise that subsidy rates for charitable giving differ among individuals or that average subsidy rates differ across states. Such differences are a direct consequence of using a deduction as a tax incentive

within a progressive tax structure. As noted above, the "upside-down" nature of the charitable tax subsidy is understood and, to a large extent, accepted. It is surprising, however, that a significant portion of the variation in subsidy rates is not explained by income. It appears, rather, that the likelihood of becoming an itemizer varies independently of income, causing taxpayers in high-itemization states to be subsidized at high rates than other taxpayers. In particular, taxpayers in high-tax states tend to receiving higher federal matching rates for their contributions than taxpayers living in low-tax states. This regional pattern of subsidy rates is difficult to justify on the basis of conventional concepts from welfare economics.

To what extent these disparities affect the regional pattern of giving depends on the price-sensitivity of charitable giving and the degree to which contributions tend to be directed to local or regional institutions. As an illustration, suppose the price elasticity of giving is -1.3. Eliminating the deductions for state and local taxes alone would reduce the difference in subsidy rates between

Maine and Michigan by .02, which would increase the relative size of Maine's giving by 4 percent compared to Michigan's. By contrast, substituting for the deduction a tax credit equal to the average subsidy rate of .1855 would increase Maine's giving relative to Michigan's by 16 percent.[6]

If most contributions end up in the donor's home region, which seems likely, such simulations suggest that the current deduction's system does have a built-in regional bias. The size of the bias seems small when considering a marginal change such as eliminating the apparently unrelated deductibility of state and local taxes, but it appears quite significant when considering the deduction itself as the form of the charitable incentive.

FOOTNOTES

*An earlier version of this paper was presented to a meeting held at the Center for the Study of Philanthropy and Voluntarism at Duke University. We are grateful to participants at that meeting for helpful comments and Marshall Adesman and Jon Danielsson for research assistance

**Duke University and the National Bureau of Economic Research.

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[1] See, for example, the line of argument summarized by Simon (1978).

[2] Break and Pechman (1975, p. 27), for example, accept this effect, but only if a deduction can be justified as "an appropriate refinement of income in judging relative tax liabilities."

[3] When calculating the subsidy rate for any given

expenditure item, it is the usual practice in empirical work to take all other expenditures as given but perform calculations on the first dollar of expenditures on the item in question so that the subsidy rate will not depend on the amount of that item. This is the approach followed in the present paper.

[4] For a summary of econometric models to contributions, see Clotfelter (1985).

[5] The income classes used in the paper break at $2000 intervals from $2000 to $20,000, then at $25,000, $30,000, $50,000, $100,000 and $200,000.

[6] For state i and j, the change in relative giving is :

$$(G_{2i}/G_{2j})/(G_{1i})/G_{1j}) = [(P_{2i}/P_{2j})/(P_{1i}/P_{1j})]^{-1.3}.$$

Table 1

Jurisdiction with Highest and Lowest Average Federal Subsidy Rates for Giving, 1983

		Average subsidy rate (s_i)	
Rank	Jurisdiction	Unweighted	Weighted by income
1	Washington, D.C.	.12	.24
2	Michigan	.11	.21
3	New York	.11	.22
4	Maryland	.11	.22
5	Colorado	.11	.21
47	Mississippi	.06	.15
48	New Hampshire	.06	.14
49	West Virginia	.06	.14
50	Maine	.05	.12
51	South Dakota	.04	.10

Table 3

Illustrative Decomposition of Subsidy Rates for Two States

	Michigan	Maine	Difference
Decomposition of actual subsidy rate			
(1) Base rate (d)	.1855	.1855	.0000
(2) + Itemization effect (e)	.0233	-.0248	.0481
(3) + Tax rate effect (f)	.0023	.0000	.0023
(4) + Income distribution effect (c)	.0035	-.0392	.0427
(5) = Average subsidy rate (s_i)	.2146	.1215	.0931
Hypothetical adjustments			
(6) - Income distribution effect (c)	-.0035	.0392	-.0427
= Income-adjusted subsidy rate	.2111	.1607	.0504
(7)			
(8) - State and local tax deduction effect (a)	-.0722	-.0514	-.0208
(9) = Income adjusted subsidy rate without state and local deductions (s_i^*)	.1389	.1093	.0296

Table 4

Selected Actual and Hypothetical Subsidy Rates, 1983

Weighted by Income

	Actual	Income-Adjusted	Income-adjusted with no state and local tax deduction
High subsidy rates			
District of Columbia	.24	.22	.15
Michigan	.21	.21	.14
New York	.22	.21	.14
Maryland	.22	.20	.15
Colorado	.21	.20	.17
Low subsidy rates			
Mississippi	.15	.19	.16
New Hampshire	.14	.15	.13
West Virginia	.14	.15	.10
Maine	.12	.16	.11
South Dakota	.10	.13	.11
Range	.14	.09	.06

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