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Some Regional Implications of Fiscal Federalism

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Abstract

The function of this analysis is to explore the degree to which the level of state and local government spending is influenced by the level of per capita federal aid when states are analyzed, not in aggregate, but by region of location. The data were taken from the *Census of Governments* annual report on governmental finances and was analyzed statistically using a multivariate technique where a set of qualitative regressors was introduced to account for region of location. The results of the work indicate strong regional disturbances in the expenditure-grants function, and do not reveal a strong discernible trend toward interregional equalization of public spending.

IN 1963, state and local governments in New York spent approximately $433 per person; $120 per person more than New Jersey and $220 more than those of South Carolina. With the tremendous pressure which has been brought to bear on state and local governments because of fiscal problems, much recent academic attention has been devoted to explaining this state-to-state variability in public expenditures. That is, before a decision can be reached as to appropriate new sources of revenue, it is desirable to at least partially identify those factors which result in higher or lower levels of per capita expenditures. Furthermore, a knowledge of the determinants of state and local government spending is useful for both the physical and fiscal planning function. For example, if population density is known to be associated with higher levels of spending for police and fire protection, then the fiscal consequences of the development of high density residential pockets may be anticipated.

The function of this paper is primarily to describe regional differences in the effect of federal grants on public expenditure levels. This analysis will be carried out in three sections. First, the statistical methodology will be described in general terms. Second, the results of previous analyses will be briefly surveyed. Third, the importance of intergovernmental flows, i.e., state and federal aid, will be examined for 48 states taken together and again when states are segmented by region.

Because federal grants to states are the primary determinants of the level of government spending, the heart of this paper involves an analysis of the extent to which the stimulative effect of federal aid varies among regions. If regional differences do in fact exist and can be identified, the implications for future federal grant programs to states are apparent.

METHODOLOGY

The variance in per capita state and local government spending has been analyzed primarily with a linear multiple regression model with the set of regressors reflecting a variety of demographic, economic, and socio-political factors. To date, most empirical works have attempted only to maximize explained variation and to rank the explanatory factors in order of importance using a criterion such as a standardized regression or elasticity coefficient.

The objective of the present study is to investigate the pattern of spending when states are analyzed by region. The 48 continental states are segmented into four geographic regions, using the Bureau of Census classification, and qualitative regressors or dummy variables are inserted into a multivariate model to represent each region. A total of four dummy variables are included; one each for those states defined by the Census Bureau to be located in the Northeast, Northcentral, Southern, or Western part of the continental United States. The specific variables are:

$X_1 = 1$ if the state is located in the Northeast, 0 otherwise

$X_2 = 1$ if the state is located in the Northcentral group of states, 0 otherwise

$X_3 = 1$ if the state is located in the South, 0 otherwise

$X_4 = 1$ if the state is located in the West, 0 otherwise

This particular regression technique is statistically equivalent to a one-way classification analysis of variance. The other independent variable examined is per capita federal aid to state and local governments.

PREVIOUS STUDIES

There have been numerous attempts to statistically explain interstate spending disparities but only the most significant will be reviewed here. Fabricant (3) introduced income, density and urbanization as the "basic" determinants of the level of expenditures and concluded that income level was the most important. Fisher (4) found that states having large proportions of families in the lower income brackets spent less and attributed this to greater political resistance to higher taxes (and expenditures). Sacks and Harris (5) have introduced federal aid as an explanatory (though not necessarily an independent) variable and found that interstate variations in expenditures are closely associated with variations in federal grants. The authors have also found federal aid to be an important determinant (1), but have concluded that the importance of federal aid as an explainer has not been increasing through time (2).

RESULTS OF THE PRESENT ANALYSIS

The 1957 and 1963 regressions which include per capita federal aid and one regional dummy variable per run as the independent variables, and per capita state and local expenditures as the dependent variable, result in explained variations ranging from 22 to 54 per cent of interstate expenditure variations. In both years the smallest explained variation observed was when the Northcentral region dummy variable was included in the analysis. Further, the Northcentral dummy variable was the only regional variable that was not statistically different from zero in both years examined.

In both years, the largest proportion of expenditure variation explained occurred when the Southern regional variable was included in the model. In addition, for both years the negative effect of the dummy variable shifted the intercept of the Southern state expenditures significantly below the average expenditure level for all states. This variable was the only one which resulted in a significant negative relationship on the expenditure intercept.

Conversely, the variable which caused the largest positive shift in the expenditure intercept was the Western regional dummy variable. Also the amount of interstate expenditure variations explained by the regressions containing the Western variable was second only to that explained by the regressions containing the Southern variable.

The Northeast region dummy variable resulted in a slight positive shift in the expenditure intercept although it was not a significant shift in 1957.

In both years and in all regressions except that for the 1957 Western region, the net regression coefficient of the federal aid variable was significantly positive. Further, the effect of federal aid on expenditures (as ascertained by the relative magnitude of its beta coefficient) was of greatest importance when the Southern and Western regions were included for both the 1957 and 1960 time periods.

CONCLUSION

The results of this statistical analysis indicate that the relative effect of federal aid on the level of state and local government spending not only varies with differentials in the income and urbanization levels but also with region of location. These data indicate, as would be expected, that states of the Southern region are considerably more dependent on intergovernmental aids than are states of other regions. However, these data also indicate that the federal grant allocation programs have not tended to equalize interregional variability in the level of public expenditures, i.e., the South spends less than the other three regions and the gap is continuing to widen.

It must be emphasized that this brief paper represents a quantitative analysis of what may be a problem more amenable to qualitative study. Factors which of necessity have been omitted here include interstate differences in local government structure and specific considerations of the nature of federal grant programs. What this paper does suggest, however, is that like many other economic issues, the fiscal problems of state and local governments may be beneficially analyzed in a regional framework.

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