

A Cross-Section Study of Public Expenditure Growth among American States

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I. INTRODUCTION

In recent years, numerous empirical studies have been attempted to explain the determinants of public expenditures. Most of these studies can be broadly classified into two groups. The first group of these studies deals with the problem of the public expenditure growth in individual nations or in the context of international comparison. Some of these studies that seem most relevant for this paper are: Peacock and Wiseman, *Growth of Public Expenditures in the United Kingdom* (National Bureau of Economic Research, 1961); S.P. Gupta, *The Size and Growth of Government Expenditures* (doctoral dissertation, University of York, England, 1965); Frederick L. Pryor, *Public Expenditures in Communist and Capitalist Nations* (George Allen & Unwin, 1968); R.A. Musgrave, *Fiscal Systems* (Yale University Press, 1969); R.A. Musgrave, "Expenditure Policy for Development," *University of Florida Conference on Fiscal Policy for Industrialization in Latin America*, (Feb. 17-20, 1971); Jorgen R. Lotz, "Patterns of Government Spending in Developing Countries," *Manchester School*, LX, 2 (June, 1970); and G.S. Sahota, a forthcoming study on Brazilian fiscal performance.

In view of heterogeneous socio-political systems and diverse historical background involved in the international comparison of public expenditure development, international comparisons are subject to serious criticism. It is generally recognized in the field that such international comparisons do not strictly meet the rigorous requirements of statistical techniques usually used in those studies. Much of their results, therefore, may be spurious or may well be due to historical accidents and underlying heterogeneous socio-political institutions.

Another group of empirical studies deals with the state and local government expenditures in the United States. To cite some of the more important works for illustration, there are: R.F. Adams, *Determinants of Local Go-*

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vernment Expenditures (Ph. D dissertation, University of Michigan, 1963); R.L. Harlow, *Factors Affecting American State Expenditures* (Ph.D. dissertation, Yale University, 1966); and a series of articles by G.W. Fischer, A. Sacks, R. Harris, R.W. Bahl, H.J. Saunders, etc., that appeared in the *National Tax Journal* throughout 1960's. Most of these works are empirical studies on the determinants of state and local expenditures patterned after Solomon Fabricant's *The Trend of Government Activity in the United States since 1900* (NBER, 1952). Using mainly cross-section data these studies mostly rely on the multiple regression analysis in their attempt to specify the factors responsible for interstate variation in public expenditures, and emphasize the explanatory variables that can explain statistically the interstate variation and raise R-square.

In reviewing these two groups of studies, an interesting theoretical issue surfaces out of conflicting evidences. Most of the historical studies point to a positive association between the public expenditure variable and the variable representing the level of economic development, while most of the cross-sectional studies seem to produce a negative association between the two variables. It is the purpose of this paper to explain and reconcile this apparent dichotomy.

Due to largely homogeneous social, political and economic institutions and common historical heritages among states, inter-state comparison is free of much of criticisms that can be directed against comparative studies of different national public expenditure developments. Availability of comparable expenditure data, in addition, make them an attractive laboratory for testing the various hypotheses that can resolve the dichotomy mentioned above.

The central issue of the dichotomy concerns the relationship between the process of economic development and the scope of government activities relative to the total resources available to a society. The data availability dictates the use of per capita personal income as a proxy variable to represent the level of economic development among the states. For the variable representing the level of the state government activity relative to the total resources in the state, the ratio of state government expenditure as a percentage of state personal income is used in this paper.

The theoretical issue behind this dichotomy is the thesis of ever-increasing government activity originally formulated by Adolph Wagner¹⁾ some one hundred years ago. He argued that during the process of industrialization,

1) Adolph Wagner, *Finanzwissenschaft* (Leipzig, 1890).

government activity and expenditure will necessarily grow in relative importance. Three reasons were given for this phenomenon. It is argued that as industrialization proceeds, the society becomes more complex and urban, requiring relatively larger expenditures to maintain law and order. It is also argued that cultural and welfare expenditures such as education and transfer payments would increase in relative importance as per capita income grows. Finally, it is argued that as technology becomes more complex, technically efficient sizes of many productive activities would become so great that the state would be forced to invest in such projects directly.

An important aspect of this thesis is the primary concern with the demand for public goods and services during the process of economic development. This clearly suggests the use of the income elasticity concept. It leads to the interpretation that demand for public goods and services is elastic with respect to income. An obvious extension of this idea is that "a significant proportion of publicly provided goods and services are inherently 'superior' or 'luxury' and income elastic in character."²⁾ Everett Hagen is more emphatic when he says that "it is a generally accepted fact that government services are a type of tertiary product, for which there is a high income elasticity of demand, so that as per capita income rises the ratio of government expenditure to GDP rises."³⁾

II. METHODOLOGY

For empirical analysis in this paper, Wagner's thesis is interpreted as a proposition about the elasticity of a variable representing government activity with respect to another variable representing economic development. The underlying assumption is that there exists some functional relationship between these two variables.

As Musgrave has pointed out, Wagner did not specify whether the increase in government activity would occur in absolute or relative terms with rising income levels.⁴⁾ Actually the Wagner thesis can be presented in three different versions. A simplistic version in terms of absolute increase can be stated

2) Richard M. Bird, *The Growth of Government Spending in Canada* (Toronto: Canadian Tax Foundation, 1970), p. 90.

3) Everett E. Hagen, *The Economics of Development* (Homewood, Ill. : Irwin, 1968), p. 315.

4) Richard A. Musgrave, *The Theory of Public Finance* (New York: McGraw-Hill, 1969), p. 51.

symbolically as following:

$$A. (1) E=f(Y)$$

$$(2) e_{E \cdot Y} = \frac{dE}{dY} \cdot \frac{Y}{E} > 1$$

Different specifications of two variables are possible. Some may have E standing for the absolute level of government expenditure and Y for gross national product, as interpreted by Peacock and Wiseman,⁵⁾ or E may represent the number of government employees, and Y , the per capita income, as done by Booms and Greytak,⁶⁾ or E may represent the level of government consumption expenditure, and Y the level of national income per capita.⁷⁾

The absolute version may be deflated by the population factor yielding a relationship between per capita government expenditure and per capita GNP. This can be explicitly stated as following:

$$B. (1) \frac{E}{P} = g\left(\frac{Y}{P}\right)$$

$$(2) e_{\frac{E}{P} \cdot \frac{Y}{P}} = \frac{\frac{dE}{dY} \cdot \frac{Y}{P}}{\frac{dY}{dP} \cdot \frac{E}{P}} > 1$$

The third version in terms of relative increase is preferred by Musgrave. He argues that "the proposition of expanding scale, obviously, must be interpreted as postulating a rising share of the public sector in the economy," or "rising share or ratio of public expenditure to GNP," during the process of economic development of a country from low to higher per capita income.⁸⁾ This version can be stated symbolically as follows:

$$C. (1) \frac{E}{Y} = h\left(\frac{Y}{P}\right)$$

$$(2) e_{\frac{E}{Y} \cdot \frac{Y}{P}} = \frac{\frac{dE}{dY} \cdot \frac{Y}{P}}{\frac{dY}{dP} \cdot \frac{E}{Y}} > 1$$

5) Alan T. Peacock and Jack Wiseman, *The Growth of Public Expenditure in the United Kingdom* (Princeton, New Jersey: Princeton University Press, 1961), p. xxiii.

6) See Bernard H. Booms and David Greytak, "Wagner's Law and the Growth of State and Local Government," *Annals of Regional Science*, Vol. III, June, 1969, pp. 32-33.

7) Frederick L. Pryor, *Public Expenditures in Communist and Capitalist Nations* (Homewood, Illinois: Irwin, 1968), p. 451.

8) Richard A. Musgrave, *Fiscal Systems* (New Haven: Yale University Press, 1969), p. 74.

This relative version is considered superior in this paper because it squarely focuses attention on the issue of community decision-making in the allocation of resources to public and private uses. It implies a crucial allocational choice of society determining the size of the public sector. This version, therefore, is primarily used in this study. However, the per capita version of the variable is also used when it is found to supplement the analysis.

Although the primary concern of this study is with the effect of per capita income variable on the public expenditure variable, a standard technique of stepwise multiple correlation is used to select the most important factors influencing the state expenditure variable. Stepwise multiple correlation analysis is useful in providing information on the independent effect of each significant independent variable while controlling for the effect of all other variables.

The independent variables examined in this study are: state personal income (*SPI*), the size of population in each state (*POP*), the real per capita personal income in constant 1958 dollars (*PCI*), per capita intergovernmental revenue (*PIG*), the degree of urbanization as measured by the percentage of population in urban areas as defined by the Bureau of the Census (*UBI*), a centralization index as defined as the ratio of state direct general expenditure to the combined direct general expenditures of the state and local governments (*CTI*), population per square mile (*DST*), and per capita gross debt of the States (*PGD*).

In order to emphasize the allocation decision making in a community, the variable used in this study is defined as the proportion allocated of the available resources of the community for spending by state government. The precise form of the dependent variable in this study varies from one analysis to another. The variable used in most cases, however, is the value of *general expenditure* of state government as a percentage of state personal income. *General expenditure* of state governments, as defined by the United States Bureau of the Census, includes "all state expenditure other than the specifically enumerated kinds of expenditure classified as liquor stores expenditure and insurance trust expenditure."⁹⁾

The specific expenditure categories in *general expenditure* selected for analysis in this study are: capital outlay, education, highways, public welfare, health and hospital resources, general government, and public safety. The most important components in capital outlay are expenditures for construction

9) U.S. Bureau of the Census, *State Government Finances in 1969* (Washington, D.C.: U.S. Government Printing Office, 1970), p. 53.

of highways and school buildings. Each functional expenditure category includes all types of expenditures serving the purpose; it includes capital outlay and state aid to local governments for the purpose concerned as well as current operational expenditure for that category. Direct general expenditure simply excludes intergovernmental expenditure from *general expenditure*. Most of the functional expenditure categories are self-explanatory. Natural resources includes agriculture, forestry, fish and game, parks and conservation. Public safety includes police and correction. General government covers general control (the legislative and judicial branches, the office of the chief executive, etc.) and financial administration.

All expenditure data came from publications of the United States Bureau of the Census. Although some financial statistics of state governments were assembled for periodic censuses since 1850, the first comprehensive financial data for state governments were compiled in 1902 under the auspices of the their newly established census office. The next census of government finances came in 1913. Annual reporting of state government finances began in 1915 and has continued regularly since except for the years, 1920, 1921, and 1922 through 1936, when all survey operations were suspended for budgetary economic reason. Annual statistics were published under the various titles; *Financial Statistics of States*, from 1915 to 1941; *Compendium of State Government Finances*, from 1942 to 1967; *State Government Finances*, since 1968.

There were several revisions of data classification used in the annual report of state finances during the period. Three periods can be broadly distinguished: 1915 to 1931, 1937 to 1950, and 1951 and subsequent years. Expenditure statistics are directly comparable within each period, but need careful regroupings and adjustments before they are even broadly comparable between the periods. Most of the major functional classifications remain unchanged between the periods. Minor functional categories, such as public welfare, health and hospitals, and public safety, require extensive regroupings and adjustments. Capital expenditure and intergovernmental expenditure for each functional category were handled differently between the periods and caused the most time-consuming editing and regrouping of earlier expenditure statistics in order to generate historically consistent data.

Broadly comparable historical series of state government expenditure were compiled from the annual reports from 1915 to 1971 except for 1920, 1921, and 1932 through 1936. For 1913, the census report for that year was used

to compile comparable expenditure data for state governments. For 1914, the arithmetic means of the expenditure for 1913 and 1915 was arbitrarily assigned as the expenditure for that year. Expenditure data for years 1942 to 1950 were adjusted in accordance with the revisions suggested by the Bureau of the Census.¹⁰⁾

Estimates of the total personal income received by the residents of each state are provided on an annual basis since 1929 by Office of Business Economics of Department of Commerce.¹¹⁾ The initial estimates were later revised and data for subsequent years were reported each year by the *Survey of Current Business*. The time series data for personal income by state from 1929 to 1971 with appropriate revisions were assembled for the present study from these publications.¹²⁾ Similar data for years prior to 1929 are not available. For the years between 1913 and 1928, however, estimates of national total personal income were compiled by the Bureau of the Census.¹³⁾ For the present study, the estimates of personal income by state for the years from 1913 to 1928 were calculated by a pro rata distribution of national total personal income of each year on the basis of each state's share in the national total personal income in 1929. Admittedly this procedure requires heroic assumption. In view of the nature of the study undertaken here, the estimates serve as rough but useful substitutes in the absence of more reliable estimates.

In order to arrive at the real value of personal income, the implicit GNP deflator constructed by the United States Department of Commerce was applied.¹⁴⁾ The data for population, urbanization, and density by states were derived or interpolated from the data available from the various editions of *Statistical Abstract of the United States*. A centralization index is defined as the ratio of direct general expenditure of state government divided by

10) U.S. Bureau of the Census, *Revised Summary of State Government Finances, 1942-1950* (Washington, D.C.: U.S. Government Printing Office, 1953).

11) See Office of Business Economics, *Personal Income by States since 1929, a Supplement to the Survey of Current Business* (Washington, D.C.: U.S. Government Printing Office, 1956).

12) Most of the revisions and updating for the present study were made on the basis of the computer print-out of Table 4 through 62 of Personal Income by States made available to this writer by the Regional Economic Information System, Bureau of Economic Analysis, Regional Economic Division of the U.S. Department of Commerce.

13) See U.S. Bureau of the Census, *Long Term Economic Growth, 1860-1965* (Washington, D.C.: U.S. Government Printing Office, 1966).

14) *Ibid.*

the combined direct general expenditure of state and local governments. The index for the period 1913 to 1971 for each state is constructed from the direct general expenditure data available from the annual edition of *State Government Finances* and *Governmental Finances*. Per capita intergovernmental revenue and per capita gross debt of state governments were also derived from the same source.

III. CROSS-SECTION ANALYSIS OF TOTAL STATE EXPENDITURE

As a preliminary examination of the relationship between the level of per capita income and the size of state expenditures relative to total state personal income, cross-sectional elasticities are calculated for the value of total state expenditures as a percentage of state personal income with respect to per capita state personal income for 48 states for all years between 1913 and 1971. Negative elasticity coefficients were found for all years, and for most of the years the coefficients were statistically significant. The result implies that low income states allocate a higher proportion of their income to state government activities than do higher income states.

This cross-section evidence seems to be in direct conflict with the historical evidence of a rising expenditure share that accompanied the growth of per capita income. Various explanations are possible to reconcile these conflicting results. The historical result may reflect the forces of the process of economic growth common to all states in the United States, whereas the cross-section results may be due to the deeply ingrained diversities of different social, political institutions and heritages. Alternatively, one may argue that "the historical result may reflect the time trend of political and social forces which made for a rising expenditure share, whereas the cross-section results may be primarily a reflection of.....economic factors."¹⁵⁾ Other explanations may be possible, but the first view seems to offer a plausible interpretation that reconciles the historical evidence and the cross-section evidence available from the state expenditure data.

In order to gain a better understanding of the cross-section evidence pertaining to the pattern of state government expenditure, a step-wise regression program is applied to the annual cross-section data to find and to compare the cross-sectional structure of the most important determinant variables that explain statistically the inter-state variation in the share of state government expenditure in state personal income. The procedure is basically inductive

15) Musgrave, *Fiscal Systems*, p. 123.

in that eight independent variables included in the experiment were selected on the basis of a common-sense understanding of the possible relationship and previous inclusion in similar studies of state government expenditures. The stepwise program is used to rank the eight variables in the order of their marginal explanatory power and to select the four most important explanatory variables for inclusion in the linear regression in a stepwise fashion.¹⁶⁾ No attempt is made to build a theoretical model based on an *a priori* hypotheses about the functional relationships between the state expenditure share and independent variables selected.

The experiment is repeated for each set of the annual data from 1913 to 1971. As shown in Table 2 the cross-sectional structure of the four most powerful explanatory variables remains basically stable over the time period under study here. It indicates that per capita income, per capita federal grant, degree of centralization, and per capita gross debt of the states are the important determinants of the state expenditure share. The significant negative partial association of the expenditure variable with the per capita income variable is consistent with the result of negative income elasticities reported above. The significant positive partial association with per capita intergovernmental revenue suggests that federal financial support did have the intended stimulating effects, and states receiving larger per capita federal grants tended to allocate a relatively larger portion of their available resources for state activities.

The positive partial association with the centralization index can be interpreted to show the strength of the tradition of political and institutional heritage. Thus, states with the historical tradition of relatively centralized state functions tended to spend a relatively larger proportion of their income for state activities, whereas states with a strong tradition of local autonomy tended to spend less.

The significant positive association with per capita gross debt can be understood as an indication that financial constraint has little relevance in spending decisions. High spender states are associated with high per capita gross debt suggesting that spending decisions are primarily made on the strength of demand for governmental services regardless of the financial condition of

16) An examination of a matrix of simple correlation coefficients among all possible pairs of eight independent variables reveals substantial collinearities among the variables. It would not, therefore, be meaningful to include all variables in a regression model. Selection of the four most powerful explanatory variables reduces this problem of collinearity. The addition of four remaining variables results in negligible improvement in the coefficient of determination generally,

the state. The relationship also suggests that fiscal conservatism is generally associated with low spending among the states.

When the dependent variable is replaced with per capita state expenditure, the stepwise regression resulted in a significantly positive partial association between per capita state expenditure and per capita state income. The rest of the determinant structure remained largely unaltered. This implies that, when other factors are controlled, high per capita income states tend to spend more than low per capita income states in terms of per capita expenditure. In terms of the proportion of income, high income states tend to spend less. This somewhat intermediate situation characterized the entire period.

An examination of the pattern of distribution of dependent variable reveals three interesting facts. First is the reduction in interstate variation in the state expenditure variable. The second characteristic is the stability of the relative position of states with respect to their ranking of the expenditure variable. The third characteristic is the regional patterns of the expenditure variable.

The relative deviation of state expenditure variable about their means can be measured by the coefficient of variability. This coefficient for the distribution of the state expenditure share in state personal income declined from 0.42 in 1913 to 0.22 in 1971 as shown in the following table. A similar coefficient for the distribution of per capita state expenditure declined from 0.48 in 1913 to 0.21 in 1971. A large reduction in the coefficient was made during the Depression, but subsequent reductions were a slow process.

Except for this reduction in dispersion, the basic patterns of distribution of state ratios of expenditure to income remained relatively stable throughout the period from 1913 to 1971. The relative position of states in the ranking by the size of their expenditure share remained substantially unaltered over some 60 years. Out of the top 15 states with highest expenditure shares in 1913, 11 were still in the top 15 ranking in 1971. Of the 15 lowest in 1913, 8 remained in the lowest 15 ranking in 1971. There were some notable exception. West Virginia and Delaware, both at the lowest end of the array in 1913, subsequently became high spenders and ranked 4th and 12th in the 1971 array respectively. At the other end of the scale, Nevada, ranking second in the 1913 array, became less than the national average spender in subsequent years and ranked 28th in 1971. But high spending states generally remained clustered around in the upper end of the array throughout the period.

Many factors may have been responsible for the reduction of variability

and the stability of the relative position of states in the distribution of the state expenditure shares. An important factor must have been the closely parallel tendencies in the distribution of per capita income of the states. First, a pronounced historical tendency for narrowing the relative differences in the average per capita income levels among the states can be noted. The states with relatively low per capita incomes tended to achieve relatively large gains, and the states with high initial per capita incomes tended to achieve less than the average rate of increase during the past several decades.¹⁷⁾

Secondly, the relative position of states in the ranking of per capita income remained remarkably stable over the past several decades. Thus, a government study for the period from 1927-29 to 1953-55 reports that "the differences were so broad in 1927-29 that the general ranking of the states was not substantially changed by 1953-55."¹⁸⁾ These secular tendencies in the per capita income levels among the states undoubtedly were responsible for similar tendencies observed in the patterns of expenditure shares in state incomes.

Another important factor responsible for reduction in variability of government expenditure share among the states must have been the intergovernmental fiscal activities of the federal government. By means of formal or informal requirements for the receipt of federal funds, such federal activities tended to promote interstate uniformity in the services rendered and the state expenditure allocated for the services. The case can also be made that "the rash of federal programs begun during the Great Depression may have made a special contribution to the marked shrinkage of interstate spending differentials"¹⁹⁾ that occurred during the Depression years.

The third characteristic of the dependent variable in its cross-section setting is its regional patterns. When the states are grouped into geographical regions, some clearly distinguishable patterns of expenditures emerge. These regional patterns of state expenditures seem to represent the historical heritage and development unique to each geographical region. Perhaps the other

17) See Office of Business Economics, U.S. Dept. of Commerce, *Personal Income by States Since 1929* (Washington, D. C.: U.S. Government Printing Office, 1956), pp. 23-29. Refer especially an informative chart of "Relative Differences Among Regions in Per Capita Personal Income" on page 25.

18) *Ibid.*, p. 24.

19) Ira Sharkansky, *Spending in the American States* (Chicago: Rand McNally, 1968), p. 45. He also emphasizes the development of nationwide norms of public services, tax levels, and state government expenditures through national and regional affiliations and organizations of state government officials.

characteristics of the dependent variable as well as the structure of significant determinant variables discussed above can be better understood when this underlying "regional-historical factor"²⁰⁾ is taken into consideration. Sharkansky supports this view and contends that "shared historical experiences and the regional orientation of state and local authorities"²¹⁾ produce a similar pattern of state expenditures for any given region within the country. A recent study of cross-section variation in state expenditures that explicitly incorporates regions as dummy variables in order to determine the effect of the region on the patterns of state policy outputs.²²⁾ The study concludes that when controlled for economic and political variables, the "region itself has a very significant independent effect on welfare and education policy."²³⁾ It also reports that "a regional effect accounted for well over half the differences in state spending for welfare and education."²⁴⁾

It is the contention of this paper that "regional-historical factors" help explain much of the cross-sectional evidence on interstate variation of state expenditures. When the values of the ratio of total state expenditure to state personal income are grouped by geographical regions, the western and southern states are generally among the high spenders, whereas the northern and mid-western states are generally among the low spenders.²⁵⁾

Comparing this regional demarcation with the structure of significant determinant variables, several explicatory observations can be made. First, the southern states have inherited from the colonial period relatively highly centralized state and local governmental relationships and also higher levels of

20) Robert H. Salisbury, "State Politics and Education," in Herbert Jacob and Kenneth N. Vines, ed., *Politics in the American States, A Comparative Analysis* (Boston: Little, Brown and Co., 1971), p. 416.

21) Ira Sharkansky, "Regionalism, Economic Status and the Public Policies of American States," *Social Science Quarterly*, 49, (June, 1968) p. 25.

22) Marvin K. Hoffman and James E. Prather, "The Independent Effect of Region on State Governmental Expenditures," *Social Science Quarterly*, 53, (June, 1972), pp. 52-65. The techniques of analysis used is stepwise multiple correlation using the measures of policy outputs developed by Sharkansky and Hofferbert as the dependent variable, and using the various measures of economic and political variables as well as dummy regional variables as independent variables.

23) *Ibid.*, p. 60.

24) *Ibid.*, p. 63.

25) Two contrasting groups of states historically characterized the southern region. High-spending group was represented by West Virginia, Mississippi, Louisiana, Kentucky; low spending group included Florida, Virginia, Tennessee, Georgia and Texas. North and South Carolina and Arkansas fall in between.

state taxation relative to local taxation.

The southern colonies were basically plantation centered rural settlements. Sparsely populated, they did not develop strong local governmental units but relied more on central state administration for many of their governmental services.

The religious groups that settled in the northern colonies in relatively large numbers set up strong local governments with important autonomous responsibilities. As they migrated westward across the midwestern regions, they brought with them this tradition of strong local governments.

As a result of this contrasting historical development the southern states generally tend to spend relatively large portions of their income for state government activities.²⁶⁾

Because of general poverty, and also because of their ideological reluctance to tax property heavily, local governments in the south rely heavily on the tax revenue collected at the state level. This is clearly evident in Table 7 where the southern states show extremely high scores in the measure of the state proportion of combined state and local tax revenue in 1971.

Secondly, the southern states lie close to the bottom of the scale of average per capita personal income. The Southeast, Southwest, and Rocky Mountain regions score less than the national average in the regional average per capita personal income, and they are generally high-spending states. On the other hand, the states in relatively high per capita income regions of New England, Great Lakes, and Mideast are generally lower than the national average spenders. The states in the Far West constitute a deviation from this pattern being both high-spenders and high per capita income states.

Thirdly, from the history of state debt, it is known that the midwestern states have been the center of fiscal conservatism in the nation;²⁷⁾ consequently they have been extremely reluctant to resort to public debt to meet their expenditure needs. These midwestern states of the Great Lake and Plains regions are also relatively low spenders in the nation.

Thus, the regression found between the dependent variable and per capita gross debt can be partly traced back to this concentration of fiscal

26) In terms of combined expenditures of state and local governments, the southern states tend to spend smaller proportions of their income for public activities than the northern states.

27) See B. U. Ratchford, *American State Debts* (Durham, N.C.: Duke University Press, 1941)

conservatism in the midwest.

In reviewing the discussion in this section, the following three points may require further clarification and stronger evidence for support.

The first point is a negative association between an expenditure variable and real per capita income found in the cross-sectional regression study. This evidence not only conflicts with the historical evidence of a positive association between the two variables but also suggests an improbable characterization of public goods as inferior goods.

The second point is the importance of the "regional historical factors." It was argued in this section that the negative association between an expenditure variable and real per capita income found in the cross-sectional analysis was mainly caused by the various non-economic factors summarized as the regional historical factors.

The third point concerns a particular definition of total state expenditure used in this study. Total general expenditures of a state government as defined by the Bureau of the Census include intergovernmental revenues, the largest component of which is the federal grant.

Since the federal grant is distributed to the states in accordance with the formulae that award larger amounts to the states with low per capita income, the negative association between the expenditure variable and per capita income may have been caused by the use of the expenditure variable that included the federal grant.

In order to account for this problem of an expenditure variable, a statistical test was formulated to examine the relationship between the expenditure variable and per capita income in terms of adjusted total state expenditures that exclude all intergovernmental revenues. Regional dummies were explicitly entered in the test to examine statistically the significance of "the regional historical factors." This statistical test was based on the following model which combined the time series and cross-sectional data for the ten year period between 1962 to 1971:

$$\frac{ATSE}{SPI} = c_{00} + \sum_{i=1}^7 c_{1i} D_i + \sum_{j=1}^5 c_{2j} X_j + c_3 T_r + u$$

where *ATSE* stands for adjusted total state expenditures that exclude all intergovernmental revenues,

SPI stands for state personal income,

C_{ij} stands for coefficients,

D_i stands for regional dummies: *D₁*=New England,

D_2 =Mideast, D_3 =South East, D_4 =Great Lakes,

D_5 =Plains, D_6 =South West, D_7 =Mountains: The dummy for Far West is suppressed.

X_j stands for explanatory variables:

X_1 =per capita income

X_2 =per capita federal grant

X_3 =degree of urbanization

X_4 =degree of state centralization as defined as the ratio of direct general expenditure of a state government divided by the combined direct general expenditure of state and local governments,

X_5 =population per square mile

T , stands for a trend factor; 1962=0, 1963=1, 1964=2,

1965=3, 1966=4, 1967=5, 1968=6, 1969=7, 1970=8, 1971=9,

u stands for the error term.

The statistical result, which is presented as Table 8, supports the analysis made on the basis of the cross-section evidence reported in the first part of this section. The partial association between the adjusted expenditure variable and real per capita income is significantly negative as before, and income elasticity of the expenditure variable is -0.45 . All the dummy coefficients are significantly different from zero, indicating the significance of the geographical region in explaining the variation of the expenditure variable among the states. The regional demarcations are used here as the proxy variables representing the regional historical factors affecting the state expenditure decisions.

The trend factor is significantly positive, indicating the rising trend of the expenditures relative to total personal income over time during the period 1962 to 1971. A similar regression fitted to the unadjusted expenditure variable, TSE/SPI , produced substantially the same result corroborating the conclusions of this section.

It is to be remembered that usually the total state expenditures merely represent a numerical aggregate of many component budget items for which allocation decisions have been independently made. Therefore, the way the regional historical factors influence state spending can be more clearly observed for the cross-section evidence available for each specific functional expenditure category.

While they are somewhat ambiguous for total state expenditures, underlying regional characteristics and regional expenditure patterns are readily identi-

able and explicable in the case of a specific functional expenditure category.

IV. CROSS-SECTION ANALYSIS OF SELECTED FUNCTIONAL EXPENDITURE CATEGORIES

The results of cross-section regressions on educational expenditures show that the proportion of state income allocated for state government expenditure on education was associated negatively with per capita income and density, while it was positively associated with per capita intergovernmental revenue and centralization index. These results, however, may merely reflect historical factors. The strong tradition of locally supported public schools was rooted among the New England states.

Midwestern states of the Great Lakes and Plains regions where settlers from New England brought with them this strong local tradition in public education embraced the tradition early in their histories.²⁸⁾ State support of local schools is less urgent and state expenditure for that purpose tends to be relatively small in these states. The states in Mideast and Far West are also generally low spenders on education. Grouping the low-spending states by geographical regions produces a remarkably consistent pattern as shown in Table 10. The states with low educational expenditures are concentrated in four regions—New England, Mideast, Great Lakes, and Far West—where regional average per capita personal incomes were all above the national average in 1971.

On the other hand, the southern states inherited the colonial tradition of a centralized state administration and a church-dominated school system which in the Post-Civil War period was further hampered by poverty and racial problems. Public education came to maturity in these states only after the principle of state support became generally accepted else-where in the nation. With a weak tradition of locally supported public school, the state governments had to assume relatively larger roles in these states. Thus, in the Southeast where the per capita income level is low and state centralization stronger traditionally, the states tend to allocate larger percentages of their income for educational expenditures. The serious growth of the public school system also came late in the Rocky Mountain region, and the tradition of substantial state aid for public education was established early in their development of

28) See R. Freeman Butts and Lawrence A. Cremin, *A History of Education in the United States* (New York: Henry Holt, 1953).

the public educational system. Most of the high-spending states were concentrated in Southeast, Southwest, and Rocky Mountain regions where per capita income levels were substantially lower than the national average. This must have accounted for a negative association with the per capita income variable in the cross-section regressions. High-spending states of Southwest and Mountain regions where density is obviously low may have similarly influenced the negative regression association with density.

The cross-section regressions for highway expenditures produced significant partial association only with two of the variables with any consistency over the period: per capita intergovernmental revenue and urbanization.

A positive significant partial association with per capita intergovernmental revenue merely confirms the importance of federal financial support and its intended stimulating effects on state highway expenditure decisions.

The association with urbanization was positive and significant in the early years of the period, but after the 1920's it turned significantly negative. In the first few decades of this century, state highway expenditure was generally negligible compared to local highway expenditure, and the state highway activities were largely confined to the northeastern states and some of the western states.²⁹⁾ This must account, to some extent, for a positive partial association with urbanization and a negative partial association with density in the 1910's. The state highway activities expanded enormously after the Depression years, and the emphasis in the later years was in the construction of primary rural roads and a comprehensive network of interstate highways. Thus, the states in the Southeast, Southwest, and Rocky Mountain regions rapidly increased their relative rankings in spending for highways, while the states in the New England, Mideast, Great Lakes, and Far West regions declined in their relative rankings over the period. This historical development must be a factor in producing a negative regression association with urbanization after the 1930's.

In public welfare expenditures, the results of cross-section regressions produced a few interesting patterns. Before the Depression none of the independent variables was significantly related to the ratio of state public welfare expenditures to state personal income. In contrast to local efforts in

29) For example, in 1913, the top-ranking 15 high-spending states dominated the scene, while other states spent practically nothing on highways. Among the top spenders were all six New England states, Maryland, New York, and Pennsylvania of the northeast, and Utah, Idaho, Arizona, New Mexico, and Oregon of the west.

those years, state activities in the public welfare area were extremely limited and negligible in scope. State programs in public welfare were not seriously begun during the Depression when it became clear that local government resources were not capable of coping with the public welfare needs occasioned by the Depression. The variable of state public welfare expenditures began to show significant regression relationships only after the 1930's. Since then it has been consistently associated with per capita income (negative), urbanization (positive), and per capita intergovernmental revenue (positive).³⁰⁾

The regression associations found suggest that budget decisions for state public welfare programs were determined primarily by the need for such programs. Concentration of poverty and public welfare recipients in the major metro-politan centers must account for high rankings of the states with major metropolitan centers³¹⁾ and also for the regression association reported above.

A significant positive partial association found with centralization variable for recent years could be due to a significant movement among some southern states and border states to increase their public welfare expenditures. This movement may have resulted from a change in the federal financial support formulae which now reward low per capita income states and states giving small payments to large number of welfare recipients.³²⁾

Table 14 shows that the southern and border states are prominent among the states making substantial increase in relative rankings in the ratio of public welfare expenditures to state personal income. These poor southern and border states are among the states that spent a relatively large portion of their income for public welfare purposes in recent years.

In health and hospital expenditures, the cross-section regressions do not produce any noteworthy relationships. Only significant associations observed consistently over the years were negative partial association with per capita income and positive partial association with per capita gross debt. Except for these associations more or less common to all expenditure categories, no significant relations were found for health and hospital expenditure variable. It is interesting to observe, however, that apparently the eastern states tend to

30) See Table 13.

31) New York, Pennsylvania, Michigan, and Illinois deviate from their regional pattern of low spending for public welfare programs and rank as relatively high spenders. California and Massachusetts rank the first and second highest spenders in the nation respectively.

32) See Richard E. Dawson and Virginia Gray, "State Welfare Policies," in Herbert Jacob and Kenneth N. Vines, ed., *Politics in the American State, A Comparative Analysis* (Boston: Little, Brown, 1971), p. 459.

be high-spenders while the western states are generally low spenders for health and hospital programs.

Thus, the states in Southeast, New England, Mideast, and Great Lakes all rank relatively high whereas the states in Far West, Southwest, Plains, and Rocky Mountain generally rank low in state expenditures on health and hospital as a percentage of state personal income.

In state expenditure for general government, the dependent variable was positively correlated with centralization and per capita intergovernmental revenue throughout the years. The scattered evidence of positive partial association with density and negative association with the size of population were also observed. It is expected that the value of general government expenditure as a percentage of state personal income would tend to be higher in the states with relatively centralized traditions, and because of economies of scale, higher in small population states. The direction of association with per capita income changed from negative to positive after the mid 1950's indicating that richer states began to spend more even on the basis of percentage of income in recent years for general government purpose.

Regional groupings show that except for the states in the Great Lakes region, the states in high per capita regions generally spend more for general government. The states in Rocky Mountain, in addition, were all found to be high spenders.

The determinant structure for state expenditures on public safety as a percentage of state personal income did not show any consistent pattern. During the 1940's and 1950's the variable was associated positively with centralization and urbanization, but negatively with population.

But during the 1960's its partial relations with urbanization turned significantly negative, and its association with per capita income and per capita gross debt exhibited scattered evidences of positive partial association.

Regional groupings also indicate that there is no discernible pattern of spending in this category.

In summary, the discussions in this section point to the dangers of using the cross-section evidence to infer the patterns of the state expenditure growth. On the surface, the cross-section evidences seem to be in direct conflict with the historical evidence. The cross-sectional evidence, however, were found to reflect significantly the underlying regional historical factors. Moreover, the cross-sectional patterns of interstate variation in the value of state expen-

33) See Table 16.

ditures as a percentage of state personal income were relatively stable over the period with some reduction in their variability. With a relatively stable cross-sectional patterns the state governments responded more or less similarly to the impact of the economic growth by raising their expenditure shares. The following figure schematically expresses these relationships.

V. CONCLUSION

The result of the cross-section analysis attempted in this paper shows that the association between the ratio of state expenditure to state personal income and real per capita income is significantly negative.

This negative relationship is found in a double log linear relationship between the two variables for every year between 1913 and 1971.

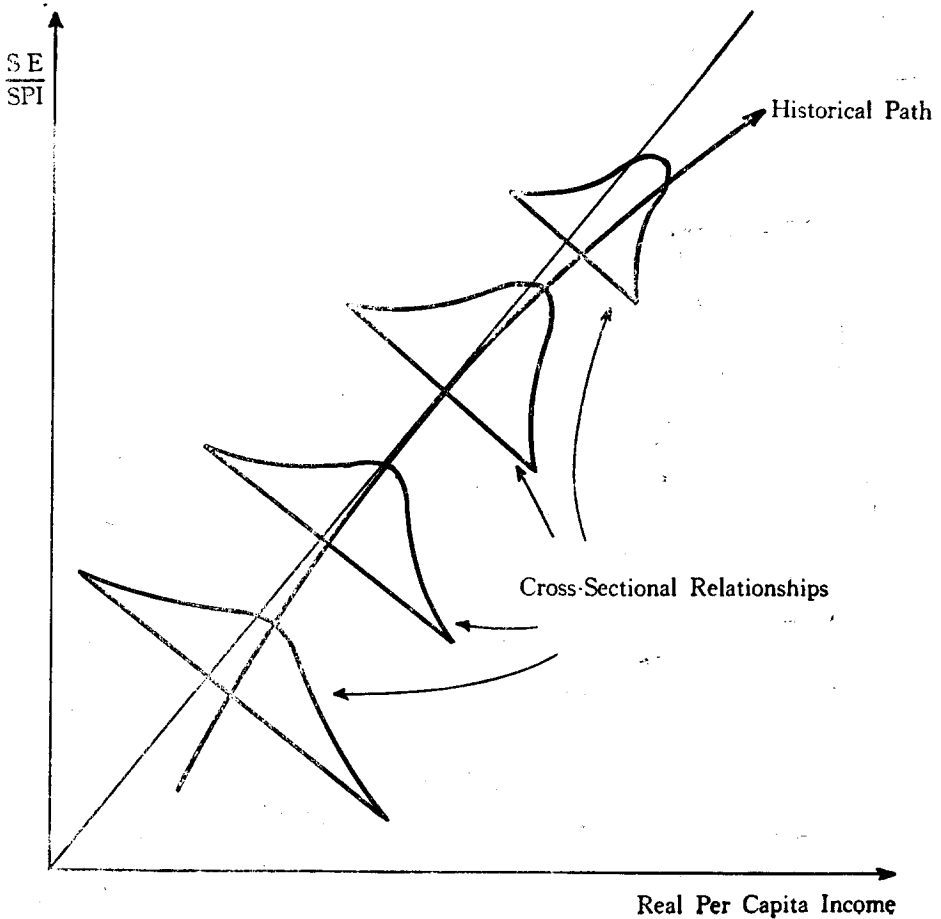
The negative association also holds in the cross-section multiple regression model for every year included in this study. It implies that even when factors such as the amount of federal grant, the role of local governments in a state, population density, and the financial condition of a state are statistically controlled, the partial association of real per capita income is negatively related to the ratio of total state expenditure to state personal income.

This negative association found in the cross-section analysis is contrary to a positive association usually found between the two variables in the historical analysis. It should be remembered that neither historical analysis nor cross-section regressions capture the net economic relationship between the two variables. The present study, however, seems to indicate that the cross-section relationship is more seriously contaminated by non-economic factors and, thereby, provides a distorted picture of the true net economic relationship between real per capita income and the ratio of state expenditure to state personal income.

The historical relationship between the rising per capita income and the rising state expenditure share in state personal income may also reflect non-economic factors. The relative stability of the structure of interstate variation in the ratio of state expenditure to state personal income and the generally similar response of the state expenditure share to a rising per capita income during the six decades covered in this study seem to suggest that the positive association more nearly reflects the net economic relationship that exists between the two variables.

This study, moreover, raises a question about the relevancy of using the measure of total state expenditure for analysis and empirical tests,

If one considers the actual budgetary process of most states, it becomes doubtful whether total state expenditure represents the considered choice of a community or an accidental aggregate of the numerous independent agencies' budgets. The choice of a community may be better reflected in an agency budget or other disaggregated specific expenditure categories;



The functional expenditure categories examined in this study seem to represent more coherent and meaningful patterns of growth than the total state expenditure variable. Further research is needed to study the actual budget decision-making process to determine the most relevant expenditure measure for an analytical study.

Table 1
Cross-sectional Income Elasticities of Selected
Expenditure Categories Derived from Double Log
Regressions with Respect to Per Capita Income
for Selected Years

Expenditure Category	1913	1921	1931	1943	1953	1963	1971
Total State Expenditure	-0.355* (0.133)	-0.384* (0.158)	-0.811* (0.116)	-0.366* (0.094)	-0.731* (0.161)	-0.631* (0.172)	-0.575* (0.201)
Capital Outlay	-0.151* (0.754)	-0.122* (0.287)	-0.794* (0.167)	-0.529* (0.281)	-0.770* (0.222)	-0.774* (0.266)	-1.048* (0.339)
Educational Expenditure	-0.548* (0.235)	-0.660* (0.194)	-0.927* (0.176)	-1.089* (0.225)	-1.344* (0.287)	-0.948* (0.283)	-1.021* (0.231)
Highway Expenditure	-3.232* (1.240)	-0.175* (0.334)	-0.876* (0.167)	-0.571* (0.199)	-1.043* (0.200)	-1.011* (0.253)	-1.538* (0.338)
Public Welfare Expenditure	-0.032 (0.228)	-0.166 (0.273)	-0.339 (0.211)	-0.060* (0.280)	-0.800* (0.320)	-1.190* (0.316)	-0.093 (0.362)
Health and Hospital Expenditure	-0.215 (0.143)	-0.169 (0.149)	-0.128 (0.141)	-0.370* (0.174)	-0.304 (0.172)	-0.340 (0.193)	-0.114 (0.254)
General Government Expenditure	-0.341 (0.193)	-0.394 (0.153)	-0.517 (0.132)	-0.324 (0.182)	-0.251 (0.214)	-0.250 (0.286)	-0.169 (0.368)
Public Safety Expenditure	0.245 (0.274)	0.018 (0.163)	-0.123 (0.122)	0.203 (0.167)	-0.023 (0.156)	-0.096 (0.249)	0.124 (0.323)

Note: The regression equation used is: $\log \frac{(\text{Expenditure})}{SPY} = \log A + B \log (Y_c)$

where SPY stands for state personal income, and Y_c stands for real per capita income.

* Asterisk denotes the significance at the 95 percent level.

Standard errors of elasticity coefficients (B) are presented in parentheses.

Table 2 Cross-Section Stepwise Multiple Regression
Results for Each Year, *TSE/SPI*

Year	Independent Variables							MCC	
	SPI	POP	PCI	PIG	UBI	CTI	DST	PGD	
1913			3	2+		1+		4	0.764
1914				2		1+	4	3	0.706
1915				2		1+	3-	4+	0.724
1916	3+	2-	4			1+			0.725
1917		2				1+	3	4	0.636
1918		2-				1+	4-	3+	0.772
1919		2-				1+	4-	3+	0.741
1922	4			3+	2-			1+	0.856
1923		4		3+	1-			2+	0.843
1924				3+	4-	1+		2+	0.930
1925				3+	4-	1+		2+	0.938
1926				4+	1-	3+		2+	0.936
1927				4+	1-	3+		2+	0.884
1928				4+	1-	2+		3+	0.923
1929			4-	3+		1+		2+	0.909
1930				4	2-	1+		3+	0.896
1931				4+	3-	1+		2+	0.901
1937			3-	2+	1	4+			0.867
1938			4-		1-	2+	3-		0.898
1939			4-	3+	1	2+			0.777
1940			3-	2+	1			4+	0.780
1941			2-	3+	4	1+			0.813
1942				4		1+	2-	3+	0.686
1943			2-	3+		1		4+	0.776
1944			3-	2+		1		4	0.724
1945			2-	3+		1		4+	0.674
1946	3			2+		1		4	0.603
1947			1-	2+	4			3+	07.58
1948			3-	2+		1		4+	0.707
1949			1-	2+			4	3+	0.773
1950			3-	2+		1		4+	0.772
1951			3-	2+		1		4+	0.809
1952			3-	2+		1		4+	0.824
1953			3-	2+		1		4+	0.856

Year	Independent Variables							MCC	
	<i>SPI</i>	<i>POP</i>	<i>PCI</i>	<i>PIG</i>	<i>UBI</i>	<i>CTI</i>	<i>DST</i>	<i>PGD</i>	
1954			4—	2+	1			3+	0.852
1955			3—	2+		1		4+	0.840
1956			2—	1+		4		3+	0.854
1957			3—	2+		1+		4+	0.856
1958			3—	2+		1+		4+	4.828
1959			3—	2+		1		4+	0.874
1960			3—	1+		2		4+	0.834
1961			3—	2+		1		4+	0.856
1962			3—	2+		1		4+	0.883
1963			3—	1+		2		4+	0.888
1964			3—	1+		2		4+	0.847
1965			3—	1+		2		4+	0.863
1966	4		2—	1+		3+		3+	0.938
1967			3—	1+		2+		4+	0.911
1968			3—	1+		2		4+	0.908
1969			3—	1+		2		4+	0.904
1970				1+	3—	2+		4	0.889
1971			4—	1+		2		3+	0.869

Note: Numbers denote the order that a variable was introduced in the regression.

Signs denote the sign of the regression coefficient significant at the 0.05 level.

TSE stands for total state expenditure.

SPI stands for state personal income.

POP stands for the size of population.

PCI stands for real per capita personal income in constant 1958 dollars.

PIG stands for per capita intergovernmental revenue.

UBI stands for urbanization index, percentage of population in urban areas as defined by the Bureau of the Census.

CTI stands for centralization index, which is defined as the ratio of state direct general expenditure to the combined direct federal expenditures of the state and local governments.

DST stands for density, population per square mile.

PGD stands for per capita gross debt of the states.

MCC stands for multiple correlation coefficient.

Table 3 Cross-Section Stepwise Multiple Regression Results for
Each Year, Per Capita Total State Expenditures

Year	Independent Variables								MCC
	<i>TPI</i>	<i>POP</i>	<i>PCI</i>	<i>PIG</i>	<i>UBI</i>	<i>CTI</i>	<i>DST</i>	<i>PGD</i>	
1913			2+	1+		3+		4+	0.831
1914			2+	1		3+		4	0.752
1915			1+	2+		3+		4+	0.806
1916	4	3—	1+			2+			0.763
1917		3—	1+			2+		4	0.798
1918		3—	1+			2+		4+	0.792
1919		2	1	3		4			0.763
1922	4—		3+	1+				2+	0.902
1923		4—	3+	1+				2+	0.912
1924		4—	3+	1+				2+	0.926
1925		4—	3+	1+				2+	0.921
1926	4—		3+	1+				2+	0.895
1927		4—	3+	1+				2+	0.859
1928			3+	1+		4+		2+	0.910
1929			3+	1+		4+		2+	0.894
1930			3+	1+		4+		2+	0.886
1931			3+	1+		4+		2+	0.892
1937			2+	1+		4+	3—		0.918
1938		3	2+	1+				4	0.849
1939			2+	1+			3—	4	0.843
1940			2+	1+		3	4		0.881
1941			1+	2+	4	3+			0.896
1942			2+	1+		3	4		0.786
1943			2+	1+				3+	0.878
1944			2+	1+		3	4		0.734
1945			1+	2+		4	3		0.727
1946		4	2+	1+		3			0.643
1947		4		1+	2+	3			0.724
1948			2+	1+		3		4	0.728
1949			2+	1+			3	4	0.736
1950			3+	1+		4		2	0.789
1951			3+	1+		4		2+	0.819
1952			3+	1+	4			2+	0.804
1953			3+	1+			4—	2+	0.808
1954			3+	1+			4	2+	0.794

Year	Independent Variables							MCC	
	<i>TPI</i>	<i>POP</i>	<i>PCI</i>	<i>PIG</i>	<i>UBI</i>	<i>CTI</i>	<i>DTS</i>	<i>PGD</i>	
1955			3+	1+	4			2+	0.798
1956			2+	1+		3		4	0.800
1957			3+	1+		4+		2	0.849
1958			3+	1+		4+		2	0.865
1959			3+	1+		4		2+	0.885
1960			3+	1+		4		2	0.820
1961			3+	1+			4	2+	0.834
1962			3+	1+			4	2+	0.838
1963			3+	1+			4-	2+	0.876
1964			3+	1+			4	2	0.845
1965			3+	1+			4	2	0.855
1966			3+	1+			4	2+	0.914
1967			3+	1+		4		2+	0.862
1968			3+	1+	4			2+	0.869
1969			3+	1+	4			2+	0.870
1970			3+	1+	4			2+	0.876
1971			3+	1+			4	2+	0.848

Note: For explanation of symbols, see Table 2, Note.

Table 4 Cross-Sectional Variability of State Expenditures as a Percent of State Personal Income, for Selected Years

Expenditure Category		1913	1923	1930	1942	1953	1963	1971
<i>TSE/SPI</i>	<i>AV</i>	1.49	2.72	4.49	5.09	7.28	9.88	12.69
	<i>SD</i>	0.64	1.29	1.97	1.50	2.14	2.47	2.80
	<i>CV</i>	0.43	0.47	0.44	0.29	0.29	0.25	0.22
<i>TSE/POP</i>	<i>AV</i>	4.22	14.78	21.87	42.73	116.97	221.34	485.37
	<i>SD</i>	2.01	8.34	7.76	13.47	32.95	54.69	102.96
	<i>CV</i>	0.48	0.56	0.35	0.32	0.28	0.25	0.21
<i>EDE/SPI</i>	<i>AV</i>	0.28	0.77	1.09	1.13	1.85	2.95	4.66
	<i>SD</i>	0.20	0.38	0.59	0.54	0.93	1.11	1.26
	<i>CV</i>	0.71	0.49	0.54	0.48	0.50	0.38	0.27
<i>HWE/SPI</i>	<i>AV</i>	0.07	0.84	1.92	1.27	1.74	2.57	2.32
	<i>SD</i>	0.11	0.66	1.14	0.48	0.66	1.05	1.01
	<i>CV</i>	1.57	0.78	0.59	0.38	0.38	0.41	0.43

Expenditure Category	1913	1923	1930	1942	1953	1963	1971
<i>AV</i>	0.05	0.04	0.04	0.80	1.09	1.11	1.72
<i>PWE/SPI SD</i>	0.03	0.04	0.02	0.42	0.61	0.57	0.61
<i>CV</i>	0.60	1.00	0.50	0.53	0.56	0.51	0.35
<i>AV</i>	0.06	0.21	0.29	0.27	0.47	0.57	0.70
<i>HHE/SPI SD</i>	0.16	0.08	0.10	0.10	0.13	0.14	0.18
<i>CV</i>	2.66	0.38	0.34	0.37	0.28	0.25	0.26
<i>AV</i>	0.19	0.16	0.20	0.17	0.17	0.21	0.27
<i>GGE/SPI SD</i>	0.15	0.07	0.09	0.06	0.06	0.08	0.10
<i>CV</i>	0.79	0.44	0.45	0.35	0.35	0.38	0.37
<i>AV</i>	0.11	0.09	0.13	0.11	0.15	0.21	0.27
<i>PSE/SPI SD</i>	0.11	0.04	0.04	0.06	0.04	0.09	0.10
<i>CV</i>	1.00	0.44	0.31	0.54	0.27	0.43	0.37

Note: *TSE/SPI* denotes per capita total state expenditures.

AV=national average

SD=standard deviation

CV=coefficient of variability

For explanation of other symbols, see Table 2, Note.

Table 5 Matrix of Rank Correlations Among the Rankings of State Expenditure Share in State Personal Income in Selected Years Between 1902 and 1971

Year	1913	1923	1930	1942	1953	1963	1971
1913	1	0.478 (3.690)	0.434 (3.269)	0.374 (2.738)	0.409 (3.039)	0.485 (3.758)	0.524 (4.168)
1923		1	0.708 (6.797)	0.613 (5.256)	0.695 (6.563)	0.621 (5.374)	0.542 (4.371)
1930			1	0.583 (4.869)	0.749 (7.558)	0.668 (6.093)	0.496 (3.872)
1942				1	0.813 (9.458)	0.763 (8.001)	0.685 (6.384)
1953					1	0.888 (13.118)	0.779 (8.432)
1963						1	0.888 (13.080)
1971							1

Note: Rank correlation coefficients are Spearman's coefficients. Numbers in parentheses are t-values which represent the significance of coefficients.

Table 6 Relative Positions of States in *TSE/SPI* Between 1913 and 1971

States Showing Consistently High Rankings

Vermont
 New Mexico
 Mississippi
 Louisiana
 Utah
 Montana
 Maine
 Alabama
 Idaho
 North Dakota

States Showing Consistently Low Rankings

New Jersey
 Illinois
 Indiana
 Ohio
 Texas
 Missouri
 Nebraska
 Connecticut

States Showing Substantial Increase in Rankings

West Virginia
 Washington
 Wyoming
 Oklahoma
 Delaware
 Oregon

States Showing Substantial Decrease in Rankings

Virginia
 Massachusetts
 Nevada
 Maryland
 Kansas
 South Dakota

Table 7 The Percent State Collected in Total State-Local Tax Receipts, by Regions (1970)

Southeast (83) ¹		Southwest (89)		Rocky Mountain (92)		Plains (95)	
S.C.	76.5% (76)	N.M.	74.9% (79)	Utah	63.3% (83)	Minn.	60.7% (97)
N.C.	75.3 (82)	OKla.	64.1 (85)	Idah.	62.9 (82)	N.D.	52.4 (85)
Miss.	74.0 (67)	Ariz.	62.9 (94)	Wyo.	58.6 (95)	Mo.	51.1 (95)
Ala.	73.7 (74)	Tex.	55.7 (90)	Colo.	50.8 (100)	Iowa.	50.9 (93)
W.V.	73.3 (79)			Mont.	46.6 (87)	Kans.	48.5 (101)
Ky.	73.0 (80)					Nebr.	44.4 (97)
Ark.	72.6 (74)					S.D.	42.4 (83)
La.	69.5 (78)						
Ga.	65.7 (87)						
Tn.	62.6 (79)						
Va.	60.4 (94)						
Fla.	60.3 (95)						

Midwest (113)		Far West (109)		New England (107)		Great Lakes (105)	
Del.	79.3% (112)	Wash.	68.0% (99)	Vt.	64.5% (88)	Wis.	59.3% (64)
Pa.	58.6 (100)	Nev.	59.0 (116)	R.I.	59.0 (99)	Mich.	58.0 (107)
Md.	57.2 (109)	Oreg.	51.5 (95)	Main	54.9 (81)	Ind.	54.0 (97)
N.Y.	51.4 (120)	Cal.	49.2 (112)	Conn.	50.4 (120)	Ill.	53.0 (115)
N.J.	41.5 (116)			Mass.	49.2 (110)	Ohio.	46.5 (100)
				N.H.	38.5 (91)		

Note: 1. Numbers in parenthesis denote state and regional per capita income as percent of national average in 1971.

Sources: Advisory Commission on Intergovernmental Relations, *State-Local Finances: Significant Features and Suggested Legislation* (Washington, D.C.: Government Printing Office, 1972), p. 4.
Dept. of Commerce, *United States Department of Commerce News* (August 28, 1972), p.6

Table 8 The Statistical Result of the Regression
of Adjusted Total State Expenditure Variable,
Combined Time Series and Cross-Section Data
for 1962-1971.

Independent Variable	Estimated Regression Coefficient	Standard Error	t-Statistic
C_{00}	.08434653	.00940953	8.96394825
X_1	-.00001538	.00000261	-5.88232517
X_2	.00019087	.00002508	7.60910130
X_3	-.00006929	.00007968	-86961597
X_4	.00075800	.00010421	7.27415085
X_5	-.00000762	.00000510	-1.49436283
D_1	-.01192969	.00306531	-3.89184475 (8.04)
D_2	.00020170	.00317275	.06357336 (9.41)
D_3	-.02207011	.00311705	-7.08043957 (7.78)
D_4	-.01067485	.00271407	-3.93315220 (8.18)
D_5	-.02520036	.00265227	-9.50143909 (6.56)
D_6	-.01908470	.00306540	-6.22584724 (7.24)
D_7	-.02062416	.00276100	-7.46981144 (7.08)
T'	.00158389	.00033138	4.77965546

$R^2=0.6467$

Number of Observations=480

Standard Error of the Regression=0.01146

Note: For explanation of symbols, see the model as explained on page 59.
t-statistics in parentheses are computed in accordance with the procedure suggested by Johnston. See J. Johnston, *Econometric Methods* (New York: McGraw-Hill, 1972), p. 179.

Table 9 Cross-Section Stepwise Multiple Regression Results for
Each Year, *EDE/SPI*

Year	Independent Variables							MCC
	<i>SPI</i>	<i>POP</i>	<i>PCI</i>	<i>PIG</i>	<i>UBI</i>	<i>CTI</i>	<i>DST</i>	<i>PGD</i>
1913			4	3+		1	2	0.627
1914				3	1	2+	4	0.698
1915			3	4		1+	2-	0.677
1916		3			4	1+	2	0.611
1917		4			1	2	3	0.603
1918	4	3-			1-	2		0.688
1919				2	1	3+	4	0.677
1922					1	4	3	2+
1923					1	4	3	2+
1924		4			1-	3	2	0.614

Year	Independent Variables							MCC
	SPI	POP	PCI	PIG	UBI	CTI	DST	PGD
1925		4		2+	1-	3		0.675
1926				2+	1	3+	4-	0.695
1927			4	2+		1+	3	0.760
1928				2+	1	3+	4	0.718
1929					4	1+	2	0.658
1930				3	1	2	4	0.632
1931			4	3	1	2		0.626
1937		3	4			1+	2	0.619
1938	4		3-			2+	1	0.672
1939	3		2-			1+	4	0.701
1940		3+	2-			1+	4	0.711
1941		3+	1-	4		2+		0.703
1942	3+		2-	4		1+		0.708
1943	3	4	2-			1+		0.746
1944				4		1+	2-	0.699
1945	3+		2-	4		1+		0.697
1946		4+	2-	3+		1+		0.735
1947	3		1-			2+	4	0.736
1948	4		1-	2+		3+		0.759
1949			2-		4+	1+	3-	0.681
1950		4	2-	3+		1+		0.744
1951			2-	3+		1		0.734
1952			2-			1	3-	0.735
1953			1-			2	3-	0.703
1954			4-	2+	1			0.717
1955		4	3			1+	2	0.634
1956			1-	2+			4	0.701
1957		4+	2-	1+				0.747
1958		3		4		1+	2-	0.649
1959			4			1	2-	0.646
1960			4	3		1	2	0.618
1961			3-	4		1	2	0.625
1962			1-	2			4	0.631
1963				3		2	1-	0.608
1964			2-	1+			4	0.634
1965			2-	1+			4	0.645
1966			2-	1+			4	0.783
1967			2-	1+			4-	0.791
1968			2-	1+			3-	0.784
1969			1-	2+			4	0.739
1970			1-	2+			4-	0.765
1971			4	3		1	2	0.696

Note: For explanation of symbols, see Table 2, Note.

Table 10 State Educational Expenditure as Percentage of State Personal Income, by Regions, 1971

Southeast (83) ¹		Southwest (89)		Rocky Mountain (92)		Plains (95)	
Miss.	6.06% (17-15-6) ²	N.M.	8.26% (9-1-1)	Utah	7.58% (2-7-2)	N.D.	5.31% (6-9-15)
Ala.	5.91 (25-13-7)	Ariz.	5.48 (14-2-11)	Wyo.	5.43 (20-14-12)	Minn.	5.13 (4-12-16)
La.	5.88 (32-5-8)	Okla.	4.83 (22-6-19)	Mont.	4.96 (15-23-17)	S.D.	4.46 (3-22-21)
N.C.	5.79 (24-4-9)	*Tex.	4.27 (35-11-31)	Idah.	4.76 (1-21-20)	*Iowa	4.29 (16-42-28)
W.V.	5.56 (23-3-10)			Colo.	4.75 (21-32-21)	*Kans.	3.52 (8-33-39)
S.C.	5.37 (13-10-13)					*Mo.	3.12 (27-28-43)
Ky.	5.34 (26-26-14)					*Nebr.	3.05 (12-40-44)
Ga.	4.87 (31-17-18)						
*Ark.	4.53 (28-16-25)						
*Fla.	4.29 (36-19-29)						
*Tenn.	4.26 (47-27-32)						
*Va.	4.12 (44-30-33)						

National Average=4.66% (s.d.=1.26)

New England (107)		Midwest (113)		Great Lakes (105)		Far West (109)	
*Vt.	6.52% (10-37-5)	*Del.	6.56% (39-8-4)	Wis.	4.66% (7-34-24)	*Wash.	6.61% (19-18-3)
*Main	4.67 (11-38-23)	N.Y.	4.33 (40-31-26)	Ind.	4.05 (34-25-34)	Oreg.	4.02 (18-41-35)
R.I.	4.29 (29-47-30)	Pa.	3.98 (42-35-3)	Ill.	3.35 (41-45-41)	Nev.	3.70 (5-39-37)
Conn.	3.25 (46-48-42)	Md.	3.60 (45-44-38)	Ohio	2.63 (43-29-47)	Cal.	3.47 (30-24-40)
N.H.	3.01 (38-36-45)	N.J.	2.31 (48-43-48)	Mich.	4.32 (33-20-27)		
Mass.	2.67 (37-46-46)						

1) Numbers in parenthesis by each region represent the regional average per capita personal income as percent of national average in 1971.

2) Numbers in parenthesis by each state refer to the rankings of *EDE/SPI* in years, 1913, 1942, and 1971 respectively.

* States with asterisk represent exceptions to the dominant regional characteristic.

Table 11 Cross-Section Stepwise Multiple Regression
Results for Each Year. *HWE/SPI*

Year	Independent Variables								MCC
	<i>SPI</i>	<i>POP</i>	<i>PCI</i>	<i>PIG</i>	<i>UBI</i>	<i>CTI</i>	<i>DST</i>	<i>PGD</i>	
1913		4			3+	2+		1	0.699
1914					2	3+	4	1	0.668
1915					2+	3+	4—	1+	0.736
1916					2+	4+	3—	1+	0.698
1917					2+	4+	3—	1+	0.659
1918					3+	2+	4—	1+	0.695
1919	2	1			3+		4—		0.559
1922	4			1+			3	2+	0.788
1923	3			1+			4	2+	0.748
1924				1+	3—	4		2+	0.778
1925				1+	2—	4		3+	0.801
1926				2+	1—	4+		3+	0.773
1927		3			1—	2		4	0.711
1928				3	2—	1+	4		0.822
1929			3	2+		1+		4	0.787
1930				4	2	1+		3	0.774
1931			4	2+		1+		3+	0.871
1937		4	2—	1+				3	0.899
1938			4—	2+	3	1+			0.864
1939			3—	2+	1—		4		0.836
1940		4	3	2+	1				0.746
1941		4	3	2+	1—				0.863
1942		3	4	2+	1—				0.821
1943			4	2+	1—	3—			0.823
1944		2		3+	4—		1		0.798
1945		4		2+	1—			3	0.792
1946		3		2+	1—	4			0.843
1947			3	1+	2—	4			0.851
1948		4	3	2+	1—				0.829
1949				2+	1—	4	3		0.895
1950			4	2+	1—	3+			0.880
1951				2+	4—	1		3+	0.828
1952				2+	1—		3	4	0.788
1953		3		2+	1—			4	0.811
1954		4		2+	1—		3		0.844
1955				2+	1—	4	3		0.765
1956		1—		2+	3—	4			0.726
1957		2—	4	1+	3—				0.823
1958		4		1+	2—			3+	0.848
1959		3		1+	2—		4		0.903
1960			4	1+	2—		3		0.919
1961			4	1+	2—		3+		0.901
1962			4	1+	2—		3+		0.949
1963				1+	2—	3+		4	0.939
1964				1+	2—		3	4	0.912
1965				1+	2—		3	4	0.923
1966				1+	2—		3+	4	0.955
1967				1+	2—	3	4		0.949
1968				1+	2—		3+	4—	0.942
1969				1+	2—		3+		0.925
1970	3	4		1+	2—				0.914
1971	3			1+	2—			4	0.903

Note: For explanation of symbols, see Table 2, Note,

Table 12 State Highway Expenditure as Percentage of State Personal Income, by Regions, 1971

Southeast (83) ¹		Southwest (89)		Rocky Mountain (92)		Plains (95)	
W. V.	5.25% (48-5-2)	N.M.	2.99% (13-1-10)	Wyo.	5.53% (48-2-1)	N.D.	3.70% (48-6-5)
Miss.	3.14 (32-8-8)	Okla.	2.23 (48-15-21)	Mont.	4.25 (48-11-4)	S.D.	3.37 (48-14-6)
Ky.	3.14 (48-17-9)	Ariz.	2.19 (9-10-23)	Idah.	3.21 (8-9-7)	Iowa	2.58 (28-16-14)
La.	2.56 (18-29-16)	*Tex.	1.57 (48-35-39)	Utah	2.67 (4-25-12)	Neb.	2.08 (22-23-24)
Ala.	2.47 (30-18-17)			*Colo.	1.94 (24-33-28)	*Minn.	1.90 (23-12-31)
Ark.	2.29 (48-41-20)					*Kans.	1.81 (48-27-33)
Tenn.	2.21 (48-19-22)					*Mo.	1.76 (31-42-34)
Va.	2.08 (16-26-25)						
*S.C.	1.92 (48-7-29)						
*N.C.	1.91 (48-28-30)						
*Fla.	1.62 (48-21-36)						
*Ga.	1.45 (48-32-41)						

National Average=2.32% (s.d.=1.01)

New England (107)		Midwest (113)		Great Lakes (105)		Far West (109)	
*Vt.	4.45% (3-3-3)	Del.	2.00% (29-37-26)	Ind.	1.65% (48-22-35)	Oreg.	2.70% (15-20-11)
*Main	2.67 (6-24-13)	Pa.	1.96 (12-34-27)	Ill.	1.59 (27-44-37)	Nev.	2.56 (19-4-15)
*N.H.	2.37 (14-13-19)	Md.	1.84 (1-40-32)	Ohio.	1.58 (21-30-38)	Wash.	2.41 (11-39-18)
Conn.	1.46 (5-36-40)	N.J.	1.33 (26-46-44)	Wis.	1.42 (25-31-41)	*Cal.	1.41 (17-43-43)
Mass.	1.07 (10-45-46)	N.Y.	1.01 (7-47-47)	Mich.	1.29 (20-38-45)		
R.I.	0.83 (2-48-48)						

1) Numbers in parenthesis by each region represent the regional average per capita personal income as percent of national average in 1971.

2) Numbers in parenthesis by each state refer to the rankings of *HWE/SPI* in years, 1913, 1942, and 1971 respectively.

* States with asterisk represent exceptions to the dominant regional characteristic.

Table 13 Cross-Section Stepwise Multiple Regression Results
For Each Year, PWE/SPI

Year	Independent Variables							MCC
	<i>SPI</i>	<i>POP</i>	<i>PCI</i>	<i>PIG</i>	<i>UBI</i>	<i>CTI</i>	<i>DST</i>	
1913	4	2	3				1	0.517
1914	4	3	2					0.271
1915	4	2			3		1+	0.406
1916		2	4	3			1+	0.373
1917		1		3	4		2	0.381
1918	2		4				3	0.356
1919		2	4				1+	0.473
1922		1-		4		2		0.372
1923	1	2	3					0.213
1924		1	4			2		0.417
1925		1				2	4	0.396
1926		1-				4	2	0.369
1927	4	1		3			2	0.324
1928		1	4	2			3	0.327
1929		1	4	2			3	0.446
1930		1			4		3	0.376
1931		1	4				3	0.335
1937				4	3	1	2	0.383
1938				4	3	1	2	0.428
1939			3-	4+	2+		1-	0.527
1940				1	4	2	3-	0.472
1941			2-	1+	3+		4-	0.657
1942			2-	1+	3+		4-	0.628
1943			2-	1+	3+		4-	0.536
1944			2-	1+	3+		4	0.664
1945			2-	1+	3+		4	0.819
1946			2-	1+	3+		4	0.723
1947			2-	1+	3+		4-	0.623
1948			2-	1+	3+		4	0.677
1949			2-	1+	3+		4-	0.677
1950			2-	1+	3+			0.679
1951			2-	1+	3+			0.656
1952			2-	1+	3+			0.640
1953			2-	1+	3+			0.697
1954			1-	2+	3+			0.738
1955			1-	2+	3+			0.678
1956			1-	2+	3+			0.658
1957	7		1-	2+	3+			0.640
1958			1-	2	3+	4+		0.632
1959			2-		3+	1+	4-	0.662
1960			1-		2+	3+	4-	0.655
1961			1-		3+	2+	4	0.667
1962			1-		3+	2+	4	0.675
1963	4		2-		3+	1+		0.669
1964			1-		2+	4	3	0.615
1965			1-		2+	4	3	0.623
1966			1-		2+	4	3	0.663
1967		2	3-		4+	1+		0.605
1968	2+		4-		3+	1+		0.635
1969		3+		2		4+	1	0.577
1970		3+		2		4+	1	0.644
1971		3+		2		4+	1	0.617

Note: For explanation of symbols, see Table 2, Note.

Table 14 State Public Welfare Expenditure as Percentage of State Personal Income, by Regions, 1971

Southeast	New England	Far West	Southwest
Miss. 2.40% (28-40-6) ¹	Mass. 3.16% (1-9-2)	Cal. 3.25% (32-29-1)	Okl. 2.94% (35-2-3)
La. 2.37 (45-7-7)	R.I. 2.88 (3-37-4)	Wash. 2.32 (27-4-10)	N.M. 2.07 (17-22-12)
Ala. 2.32 (42-46-9)	Vt. 2.66 (24-24-5)	Oreg. 1.66 (18-21-23)	*Tex. 1.56 (30-34-27)
Ga. 2.04 (44-38-13)	Main. 2.37 (4-14-8)	*Nev. 0.89 (11-41-46)	*Ariz. 0.84 (47-5-47)
Ark. 1.97 (34-35-15)	*Conn. 1.56 (15-39-28)		
Ky. 1.85 (8-36-17)	*N.H. 1.17 (19-25-40)		
W.V. 1.67 (40-8-21)			
Tenn. 1.66 (41-30-22)			
*N.C. 1.22 (20-45-37)			
*S.C. 0.97 (29-42-42)			
*Fla. 0.95 (46-32-43)			
*Va. 0.94 (38-48-44)			

National Average=1.72% (s.d.=0.61)
Median Percentage=1.60%

Plains	Rocky Mountain	Great Lakes	Midwest
Mo. 1.61% (43-11-24)	*Colo. 1.83% (27-4-10)	*Ill. 1.81% (39-15-19)	*N.Y. 2.24% (31-33-11)
S.D. 1.59 (2-9-25)	Utah 1.68 (25-3-20)	Wis. 1.51 (14-26-31)	*Pa. 2.01 (23-16-14)
Minn. 1.54 (5-10-29)	Mont. 1.36 (6-6-34)	Ohio 1.09 (26-18-41)	N.J. 1.59 (36-43-26)
N.D. 1.48 (7-12-33)	Idah. 1.17 (13-13-39)	Ind. 0.78 (21-31-48)	Md. 1.51 (22-44-30)
Kans. 1.30 (9-23-35)	Wy. 0.94 (37-28-45)	*Mich. 1.91 (33-27-16)	Del. 1.49 (48-37-32)
Nebr. 1.22 (12-17-36)			
Iowa 1.19 (10-20-38)			

1) Numbers in parenthesis by each state refer to the rankings of *PWE/SPI* in years, 1913, 1942, and 1971 respectively.

* States with asterisk represent exceptions to the dominant regional characteristic.

Table 15 Cross-Section Stepwise Multiple Regression
Results for Each Year, *HHE/SPI*

Year	Independent Variables							MCC
	<i>SPI</i>	<i>POP</i>	<i>PCI</i>	<i>PIG</i>	<i>UBI</i>	<i>CTI</i>	<i>DST</i>	
1913			2-			4	3+	0.547
1914			2-			3	4	0.517
1915			2		4	3	1+	0.430
1916			4	2		1	3	0.404
1917	1		4	3			2+	0.412
1918			4	3		1	2	0.439
1919			4	3		2	1+	0.399
1922		4		3		2	1+	0.465
1923			4			1	3	0.454
1924		4	2				3+	0.457
1925		2-				4	3	0.481
1926		4				2+	3+	0.535
1927			4			1	2+	0.473
1928					3	1	2+	0.436
1929					4	2	3	0.420
1930					4	2	3+	0.406
1931	4	3		2-			1+	0.456
1937		4	1+	3-		2+		0.518
1938		2-		4			3	0.641
1939				3	4	2+	1+	0.518
1940		4		3		2	1+	0.549
1941		2-		3	4		1+	0.600
1942		4		3		2	1+	0.548
1943		2		3	4		1+	0.618
1944		2-		3-	4		1+	0.605
1945		2		3		4	1+	0.622
1946	2-		4		3		1+	0.611
1947	2			3		4	1+	0.588
1948				4		2+	3	0.529
1949		4	2-		3		1+	0.553
1950			2-		3	4	1+	0.631
1951		4	2-		3		1+	0.631
1952			2-	4	3		1+	0.577
1953			2-	4			3	0.605
1954		4	2-				3	0.531
1955			4	3		1	2+	0.508
1956			2			4	3	0.526
1957		4			2	3	1+	0.629
1958			2-	4	3			0.582
1959			2-	4	3+			0.552
1960			2-		3	4		0.609
1961			2-		4	3		0.631
1962			2-			4	3	0.587
1963			2-			4	3	0.572
1964			2-			4	3	0.563
1965			2-			4	3	0.523
1966		4	2-				3	0.534
1967			4			2	3	0.473
1968			2-	4			3	0.583
1969		4	1-			3	2+	0.485
1970			3			4	1+	0.563
1971				4	3		2	0.538

Note: For explanation of symbols, see Table 2, Note.

Table 16. State Health and Hospital Expenditure as Percentage of State Personal Income, by Regions, 1971

Southeast		New England		Midwest		Great Lakes	
La.	1.17% (2-1-1) ¹	R.I.	1.10% (15-21-3)	N.Y.	1.14% (15-8-2)	Wis.	0.83% (23-30-11)
Va.	0.93 (19-24-5)	Vt.	0.91 (9-5-6)	Md.	0.98 (14-29-4)	Mich.	0.79 (34-14-13)
S.C.	0.86 (12-18-8)	Mass.	0.89 (1-7-7)	Del.	0.84 (38-6-10)	Ind.	0.75 (31-40-17)
Ga.	0.77 (21-34-14)	Conn.	0.86 (18-12-9)	Pa.	0.79 (11-19-12)	*Ill.	0.58 (42-33-36)
Miss.	0.77 (10-10-15)	Main	0.73 (3-9-18)	*N.J.	0.51 (43-36-42)	*Ohio	0.45 (41-48-46)
N.C.	0.77 (30-35-16)	N.H.	0.67 (13-2-26)				
W.V.	0.70 (25-3-22)						
Ala.	0.68 (33-37-24)						
*Tenn.	0.66 (44-27-27)						
*Ky.	0.64 (16-28-31)						
*Fla.	0.56 (32-31-39)						
*Ark.	0.61 (29-16-33)						

National Average=0.70% (s.d.=0.18)

Far West		South West		Rocky Mountain		Plains	
Wash.	0.60% (4-46-35)	Okla.	0.69% (48-17-23)	*Colo.	0.71% (35-11-21)	*Minn.	0.72% (8-15-20)
Oreg.	0.58 (28-38-37)	N.M.	0.53 (45-13-40)	Utah	0.61 (36-39-32)	*Kans.	0.73 (27-32-19)
Cal.	0.49 (39-44-43)	Tex.	0.48 (47-45-44)	Wyo.	0.64 (26-23-30)	Neb.	0.67 (24-26-25)
Nev.	0.39 (17-47-48)	Ariz.	0.41 (46-41-47)	Mont.	0.60 (7-25-34)	N.D.	0.65 (4-4-28)
				Idah.	0.57 (20-43-38)	Mo.	0.65 (37-42-29)
						S.D.	0.51 (6-22-41)
						Iowa	0.45 (22-20-45)

1) Numbers in parenthesis by each state refer to the rankings of *HHE/SP1* in years, 1913, 1942 and 1971 respectively.

* States with asterisk represent exceptions to the dominant regional characteristic.

Table 17. Cross-Section Stepwise Multiple Regression
Results for Each Year, *GGE/SPI*

Year	Independent Variables							MCC
	<i>SPI</i>	<i>POP</i>	<i>PCI</i>	<i>PIG</i>	<i>UBI</i>	<i>CTI</i>	<i>DST</i>	
1913			4	1+		2+		0.801
1914				1+	4	2+		0.765
1915			4	2+		1+		0.738
1916		4		2		1+		0.644
1917		2			4-	1		0.614
1918		4		2+		1+		0.727
1919			4	3		1+		0.738
1922					3-	1+		0.737
1923	4	2-		3		1+		0.778
1924			3		4	1+		0.725
1925			3		4	1+		0.712
1926			3			1+	4	0.698
1927		3		4		1+		0.775
1928	2		4	3		1+		0.639
1929	3			2+		1+		0.770
1930		2			4-	1+	3+	0.764
1931				2+	4	1		0.763
1937		3		2		1+	4	0.697
1938			3-	4+	2+	1+		0.710
1939		2		4		1+		0.656
1940	3		4			1		0.611
1941			3-	2+	4+	1+		0.633
1942			4	3		1		0.566
1943		3-			2	1+		0.657
1944		2-	4		3+	1+		0.621
1945	4+	3-			2+	1+		0.739
1946			4	3+		1+	2+	0.653
1947		3-	4		2+	1+		0.693
1948			4-	3+	2+	1+		0.690
1949	4	3-			2	1+		0.670
1950		4	3-		2+	1+		0.666
1951	4+	3-			2	1+		0.653
1952		4		2+		1+	3+	0.621
1953		4		2+		1+	3	0.638
1954				2+	4	1+	3+	0.679
1955		4		1+		2+	3+	0.676
1956		4		1+		2+	3+	0.681
1957			4	1+		2+	3+	0.745
1958				1+	4	2+	3+	0.714
1959			2+	3+		1+	4	0.741
1960			4	2		1+	3	0.609
1961			4	2		1+	3	0.620
1962				2+		1+	4	0.652
1963			2	3+		1+	4	0.659
1964			2+	3+		1+	4	0.667
1965			3	2+		1+	4	0.678
1966		3		1+			4	0.780
1967	4	3		1+				0.819
1968	4	3-		1+				0.821
1969		3-	4+	1+				0.865
1970		3-	4+	1+				0.838
1971		3-	2+	4+		1+		0.798

Note: For explanation of symbols, see Table 2, Note.

Table 18. State General Government Expenditure as Percentage of State Personal Income, by Regions, 1971

New England		Rocky Mountain		Far West		Midwest	
Vt.	0.57% (2-4-1) ¹	Mont.	0.41% (1-28-8)	Nev.	0.43% (1-21-4)	Del.	0.54% (33-16-3)
Conn.	0.42 (21-29-6)	Wy.	0.38 (14-5-9)	Oreg.	0.42 (37-6-5)	Md.	0.29 (26-48-16)
R.I.	0.41 (8-10-7)	Idah.	0.37 (5-24-10)	Wash.	0.33 (35-47-13)	N.Y.	0.28 (34-35-20)
Main	0.34 (16-31-12)	Colo.	0.36 (7-15-11)	*Cal.	0.22 (45-36-31)	*Pa.	0.19 (41-25-39)
N.H.	0.29 (20-17-17)	Utah	0.31 (12-13-14)			*N.J.	0.18 (43-41-44)
*Mass.	0.24 (24-20-29)						

Southeast		Great Lakes		Plains		Southwest	
*N.C.	0.29% (47-44-15)	Wis.	0.26% (29-39-25)	S.D.	0.27% (10-26-23)	*N.M.	0.54% (4-1-2)
*Ky.	0.29 (3-3-18)	Mich.	0.19 (39-32-38)	N.D.	0.26 (18-11-24)	*Okla.	0.28 (23-7-19)
*Va.	0.28 (15-23-21)	Ill.	0.19 (48-37-40)	Minn.	0.20 (36-38-35)	Ariz.	0.25 (6-8-26)
W.V.	0.27 (38-14-22)	Ind.	0.15 (42-45-46)	Kans.	0.20 (27-18-36)	Tex.	0.13 (32-33-47)
Ark.	0.25 (30-9-27)	Ohio	0.12 (46-46-48)	Mo.	0.18 (31-36-42)		
La.	0.25 (9-2-28)			Nebr.	0.18 (4-42-43)		
Miss.	0.22 (13-12-30)			Iowa	0.16 (28-40-45)		
Tenn.	0.22 (25-43-32)						
Fla.	0.22 (22-22-33)						
Ga.	0.21 (40-27-34)						
S.C.	0.20 (17-34-37)						
Ala.	0.18 (19-19-41)						

1) Numbers in parenthesis by each state refer to the rankings of GGE/SPI in years, 1913, 1942, and 1971 respectively.

* States with asterisk represent exceptions to the dominant regional characteristic.

National Average=0.27% (s.d.=0.10)

Table 19. Cross-Section Stepwise Multiple Regression
Results for Each Year, *PSE/SPI*

Year	Independent Variables							MCC	
	SPI	POP	PCI	TRG	UBI	CTI	DST	PGD	
1913		3				1	4	2	0.424
1914		2		1			4	3	0.429
1915		2		1			4	3	0.449
1916	4	3-		1+		2+			0.754
1917	4	3		1+		2			0.515
1918				2+	3+	1+	4		0.742
1919				1+		2	3	4	0.623
1922		4				2	3	1+	0.684
1923					4	2+	3-	1+	0.716
1924					4	2+	3	1+	0.712
1925					4	2+	3	1+	0.703
1926	4	2		1+				3+	0.732
1927	4	1-				3		2	0.575
1928	2+	1-				3+	4		0.661
1929	2+	1-				3		4	0.647
1930	3+	1-				2+	4		0.670
1931	3+	1-					4-	2+	0.663
1937	2+	1-				3	4		0.544
1938	2+	1-				3	4		0.520
1939		1-			4		3-	2	0.478
1940	3+	2-				1+	4		0.558
1941					2+	1+	3-	4	0.537
1942					3+	4+	2-	1+	0.592
1943	4	3-			2			1+	0.589
1944	4	3-			2+	1+			0.686
1945	4+	3-			2+	1+			0.669
1946		1-		4	2+	3+			0.555
1947	4+	3-			2+	1+			0.604
1948	4+	3-			2+	1+			0.633
1949			3+	2-		1+		4	0.519
1950			4	2		1+		3	0.492
1951	2+	1-				3+		4	0.538
1952	2+	1-	4		3				0.529
1953	3+	2-	4			1+			0.547
1954	2+	1-	3-			4			0.546
1955	2+	1-	3-			4			0.564
1956		4		2		1		3	0.472
1957		4		2		1		3	0.561
1958			2+	4	3	1+			0.617
1959			2+		3-	1+		4	0.582
1960			3	4	1			2	0.445
1961			3	4	1			2	0.465
1962			2	4	1-		3		0.392
1963			2	4	1-		3		0.411
1964			2+	4	1-		3		0.456
1965			2	4	1-		3		0.477
1966			3+	1+	2-		4		0.651
1967			4	1+	3-			2	0.660
1968			4+	1+	3-			2	0.617
1969			4+	3+	2-			1+	0.667
1970		2		3	4			1+	0.560
1971	4		3		2-			1+	0.584

Note: For explanation of symbols, see Table 2, Note.

Table 20. State Public Safety Expenditure as Percentage of State Personal Income, by Regions, 1971

New England		Midwest		Great Lakes		Far West	
Vt.	0.72% (8-5-1) ¹	Md.	0.55% (22-48-2)	Wis.	0.31% (17-32-11)	Nev.	0.40% (11-43-4)
Main	0.33 (9-9-9)	Del.	0.52 (31-11-3)	Ohio	0.20 (34-47-35)	Wash.	0.36 (20-28-6)
Conn.	0.24 (21-18-26)	N.Y.	0.22 (26-26-30)	Mich.	0.20 (43-38-37)	Cal.	0.31 (35-3-12)
R.I.	0.25 (14-12-23)	Pa.	0.20 (27-16-36)	Ill.	0.19 (29-22-41)	Oreg.	0.31 (13-27-13)
N.H.	0.23 (15-4-29)	N.J.	0.20 (30-17-40)	Ind.	0.18 (40-29-43)		
Mass.	0.21 (16-25-32)						
Southeast		Southwest		Rocky Mountain		Plains	
N.C.	0.38% (33-30-5)	N.M.	0.34% (7-2-8)	Idah.	0.35% (6-33-7)	Iowa	0.25% (23-39-24)
La.	0.30 (1-1-14)	Ariz.	0.32 (12-31-10)	Mont.	0.30 (2-10-15)	S.D.	0.21 (18-40-34)
Va.	0.28 (41-36-17)	Okla.	0.27 (36-34-18)	Colo.	0.28 (19-23-16)	Kans.	0.20 (25-42-39)
S.C.	0.26 (37-7-20)	Tex.	0.17 (46-20-45)	Wyo.	0.26 (5-19-19)	Nebr.	0.18 (28-24-42)
Ky.	2.25 (38-35-21)			Utah	0.24 (10-14-25)	Minn.	0.18 (3-6-44)
Miss.	0.25 (24-44-22)					Mo.	0.16 (39-46-47)
Ga.	0.23 (45-37-27)					N.D.	0.14 (4-15-48)
Fla.	0.23 (42-13-28)						
Tenn.	0.21 (48-41-31)						
Ark.	0.21 (47-45-33)						
W.V.	0.20 (32-8-38)						
Ala.	0.17 (44-21-46)						

1) Numbers in parenthesis by each state refer to the rankings of *PSE/SPI* in years, 1913, 1942 and 1971 respectively.

* National average was 0.27% with standard deviation of 0.10.

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