

November 1980

## The Determinants of Public Sector Fiscal Variations Among Nations

Kim Quaile Hill

George E. Antunes

Follow this and additional works at: <https://digitalcommons.coastal.edu/jops>



Part of the [Political Science Commons](#)

---

### Recommended Citation

Hill, Kim Quaile and Antunes, George E. (1980) "The Determinants of Public Sector Fiscal Variations Among Nations," *Journal of Political Science*: Vol. 8 : No. 1 , Article 3.

Available at: <https://digitalcommons.coastal.edu/jops/vol8/iss1/3>

This Article is brought to you for free and open access by the Politics at CCU Digital Commons. It has been accepted for inclusion in Journal of Political Science by an authorized editor of CCU Digital Commons. For more information, please contact [commons@coastal.edu](mailto:commons@coastal.edu).

## The Determinants of Public Sector Fiscal Variations Among Nations

KIM QUAILE HILL

*University of Houston at Clear Lake City*

and

GEORGE E. ANTUNES

*University of Houston*

Previous cross-national studies have suggested three primary theoretical explanations for public sector fiscal variations: an "institutional development" explanation; a "political effects" view; and an "economic effects" hypothesis. Unfortunately, no systematic research has offered an empirical test of the relative efficacy of these three views. The present article reports such a test. The results of our research offer an interesting composite explanation of nation-level public expenditure patterns. Before examining the results of our analysis, however, we will consider briefly the theoretical antecedents for this work.

First, several scholars have argued that overall public expenditure levels should reflect the "capacity" or institutional development of the polity. An early statement of this view is that of Almond and Powell.<sup>1</sup> They suggest that expenditure levels measure the "distributive capacity" of a government, and that a principal determinant of government capacity is the extent of differentiation and specialization of the organizational apparatus of government. Similar implications for the meaning of expenditure behavior can be drawn from Huntington's<sup>2</sup> treatment of political "institutionalization." He argues that increasing size, scope, complexity, and age of official political structures indicate increasing "institutionalization" and, hence, viability. Roughly similar views have been offered by Diamant and Blank and Rustow.<sup>3</sup> Based on the preceding theoretical discussions, we hypothesize that nations with well-institutionalized political systems should capture a larger proportion of the total wealth of the society in the form of governmental expenditures.

<sup>1</sup> Gabriel A. Almond and G. Bingham Powell, *Comparative Politics: A Developmental Approach* (Boston: Little, Brown, 1966), pp. 198-199.

<sup>2</sup> Samuel P. Huntington, *Political Order in Changing Societies* (New Haven: Yale University Press, 1968).

<sup>3</sup> Alfred Diamant and Blanche D. Blank, "Measuring National Bureaucracies: The Interaction of Theory and Research," *Journal of Comparative Administration* 1 (1), 1969, p. 121; and Dankwart A. Rustow, *A World of Nations* (Washington, D. C.: Brookings, 1967), p. 75.

The second major perspective on cross-national expenditures, emphasizing the importance of regime type or regime ideology is well articulated by Groth<sup>4</sup> who argues that it is systematic political differences between types of regimes which account for public spending differences among nations. Examinations of expenditure differences for democracies and communist systems have been provided by Pryor and by Groth and Wade.<sup>5</sup> Several related studies have compared variations in social welfare policies and expenditures with variations in system democratization, usually measured in Western terms.<sup>6</sup> In the same vein, a number of scholars have contrasted the expenditure patterns of military as opposed to civilian regimes.<sup>7</sup>

The findings of empirical studies of regime types and expenditure levels have been rather diverse. Groth<sup>8</sup> and Groth and Wade<sup>9</sup> have found differences between democracies and communist systems they attributed to regime type; Pryor<sup>10</sup> did not. Cutright's<sup>11</sup> early findings that democratization was associated with spending and policy changes have been challenged by Jackman's<sup>12</sup> more sophisticated analysis of this issue.

<sup>4</sup> Alexander J. Groth, *Comparative Politics: A Distributive Approach* (New York: Macmillan, 1971).

<sup>5</sup> Frederic Pryor, *Public Expenditures in Communist and Capitalist Nations* (Homewood, Ill.: Irwin, 1968); Alexander J. Groth and Larry L. Wade, "Educational Policy Outcomes in Communist, Democratic and Autocratic Systems," paper delivered at the American Political Science Association annual meeting, Los Angeles, 1970; and Alexander J. Groth and Larry L. Wade, "International Educational Policy Outcomes," pp. 11-142 in D. Sidjanski (ed.) *Political Decision-Making Processes* (San Francisco: Jossey-Bass, 1973).

<sup>6</sup> Phillips Cutright, "Political Structure, Economic Development, and National Social Security Programs," *American Journal of Sociology*, 70(5), 1965, pp. 537-550; Phillips Cutright, "Inequality: A Cross-National Analysis," *American Sociological Review*, 32(4), 1967, pp. 562-578; Phillips Cutright, "Income Redistribution: A Cross-National Analysis," *Social Forces*, 46(1), 1967, pp. 180-190; and Robert W. Jackman, "Political Democracy and Social Equality: A Comparative Analysis," *American Sociological Review*, 39(1), 1974, pp. 29-45.

<sup>7</sup> Eric A. Nordlinger, "Soldiers in Mufti: The Impact of Military Rule Upon Economic and Social Change in the Non-Western States," *American Political Science Review*, LXIV(4), 1970, pp. 1131-1148; Philippe D. Schmitter, "Military Intervention, Political Competitiveness, and Public Policy in Latin America: 1950-1967," pp. 425-506 in M. Janowitz and J. von Doorn (eds.) *On Military Intervention* (Rotterdam: Rotterdam University Press, 1971); R. D. McKinlay and A. S. Cohan, "A Comparative Analysis of the Political and Economic Performance of Military and Civilian Regimes," *Comparative Politics*, 8(1), 1975, pp. 1-30; R. D. McKinlay and A. S. Cohan, "Performance and Instability in Military and Nonmilitary Regime Systems," *American Political Science Review* 70(3), 1976, pp. 850-864; Robert W. Jackman, "Politicians in Uniform: Military Governments and Social Change in the Third World," *American Political Science Review* LXX(4), 1976, pp. 1078-1097.

<sup>8</sup> *Comparative Politics: A Distributive Approach*.

<sup>9</sup> "Educational Policy Outcomes . . ." and "International Educational Policy Outcomes . . ."

<sup>10</sup> *Public Expenditures in Communist and Capitalist Nations*.

<sup>11</sup> "Political Structure, Economic Development . . ."

<sup>12</sup> "Political Democracy and Social Equality . . ."

The literature on civilian versus military regime spending has generally argued for significant differences in the outputs of such regimes. Nordlinger<sup>13</sup> and Schmitter<sup>14</sup> found significant differences in the outputs of the two. However, McKinlay and Cohan<sup>15</sup> and Jackman's<sup>16</sup> more extensive analyses of this issue argue that regime type so distinguished has no such independent effects. A central difficulty of all this last research is that it only examines spending differences for explicitly civilian or military *regimes*. That is, it does not attempt to account for the *general* influence of the military on public policy, regardless of the character of the ruling elite.<sup>17</sup> It is the latter issue which our analysis examines.

A third view of nation expenditures has been that of some economists such as Gupta<sup>18</sup> and Musgrave<sup>19</sup> who have examined the predictability of national expenditures on the basis of per capita national income level. Their concern is with the so called "rising share" hypothesis that changes in per capita income levels should lead to similar changes in expenditure levels as a proportion of the gross national product. Musgrave's evidence bearing on this hypothesis is mixed, with different findings for different expenditure measures and for different sets of countries grouped by per capita income levels. However, he finds no *general* relationship between per capita income and spending. Furthermore, he observes that the absence of any such finding may result from his failure to control for the influence of any noneconomic factors.

To test the relative and combined explanatory capacity of these three explanations, we have collected a large body of cross-national data. We will describe briefly the character of our empirical measures and the hypotheses which will be examined.

### *The Data*

The sample for this study includes 79 independent nations at 1965. These nations were chosen on the basis of two criteria: a population greater than one million and data availability for the larger set of indicators from which the present variables are drawn. This group of

<sup>13</sup> "Soldiers in Mufti . . ."

<sup>14</sup> "Military Intervention, Political Competitiveness and Public Policy. . ."

<sup>15</sup> "A Comparative Analysis of the Political and Economic Performance . . ." and "Performance and Instability in Military and Nonmilitary Regime Systems."

<sup>16</sup> Robert W. Jackman, "Politicians in Uniform . . ."

<sup>17</sup> Kim Quaile Hill, "Military Role vs. Military Rule: A Research Note on Allocations to Military Activities," *Comparative Politics*, 11(3), 1979, 371-377.

<sup>18</sup> S. P. Gupta, "Public Expenditure and Economic Development—A Cross-Sectional Analysis," *Finanzarchiv* 28(1), 1968, pp. 26-41.

<sup>19</sup> Richard Musgrave, *Fiscal Systems* (New Haven: Yale University Press, 1969), pp. 73-83.

countries, which is generally representative of all regions except sub-Saharan Africa, is listed in the Appendix.

As dependent variables, we employ several different central government expenditure measures. The ratio of total current government expenditures to the GNP is employed as an index of the overall size of the public sector. As measures of the character of government spending by functional categories, we utilize spending in three specific areas operationalized in both of two ways. First, we have measures of total current public spending on education, on health and welfare, and on military goods and services as *proportions of the GNP*. Second, we examine the *proportions of total government spending* devoted to the same three functional categories.

Most of our spending data were derived from the United Nations *Yearbook of National Accounts Statistics*.<sup>20</sup> Missing data were filled in from such supplemental sources as national yearbooks, central bank reports, and descriptive case studies. Our GNP data came from Taylor and Hudson.<sup>21</sup> As a check against gross errors, our expenditure figures were compared to available budget data, and the military spending data were further compared with Stockholm International Peace Research Institute<sup>22</sup> figures. As a further test of the reliability of these variables, we correlated the absolute expenditure figures for education and for military purposes with the comparable data in the 1972 Taylor and Hudson *World Handbook*. The latter data were gathered entirely independently from our own and provide the only other single source for such figures. (The *World Handbook* does not include data on total government spending or on health and welfare spending.) The intercorrelations between the comparable spending measures for both sets were quite satisfactory; all the product moment correlations exceeded 0.99.

Our independent variables were operationalized as follows. For the concept "political institutionalization" or bureaucratization, we employ two measures: The date of independence of the nation and the number of government ministries in the central government. Both of these variables are drawn from the *World Handbook*. The first is one proposed explicitly by Huntington.<sup>23</sup> We recognize that these are weak operationalizations of a very abstract theoretical construct. However, we feel that

<sup>20</sup> (New York: United Nations Department of Economic and Social Affairs, 1969).

<sup>21</sup> Charles Lewis Taylor and Michael C. Hudson, *World Handbook of Political and Social Indicators* (New Haven: Yale University Press, second edition, 1972).

<sup>22</sup> *Yearbook of World Armaments and Disarmaments, 1968/1969* (New York: Humanities Press, 1969).

<sup>23</sup> Samuel P. Huntington, *Political Order in Changing Societies*.

the hypothesized relationship is so important that even a weak test is warranted.

For the general concept of regime ideology, we employ two distinct measures. One of these is a Socialist Ideology Index, a judgmental scale for the period 1945-1965 based on the criteria of Anderson, von der Mehden, and Young.<sup>24</sup> The 4 point ordinal scale ranges from completely non-socialist nations to those characterized by "Militant, Mobilization Socialism." Scores on this variable for most of the developing nations in our sample were taken from Anderson, von der Mehden, and Young; the remainder were coded by the authors.

The second ideology measure is an index of "Regime Coerciveness-Openness." The values on this index are factor scores from a single factored principal components solution derived from a set of regime characteristics measuring democratic process and regime ideology variations. The individual variables were an Index of Legislative Party Fractionalization from Rae,<sup>25</sup> an Index of Press Freedom from the University of Missouri Freedom of Information Center,<sup>26</sup> an Index of Electoral Stability from the 1972 *World Handbook*, and a communist regime dummy variable. The associations of the individual variables with the resultant single dimension indicate that higher legislative fractionalization covaries with greater press freedom, more competitive and free elections, and non-communist regimes. Consequently, the factor scores from this dimension provide a composite index of regime orientation.<sup>27</sup>

As a measure of the importance of the military, we include an index of the proportion of the working age population in the military. This variable is taken from Russett, *et al.*<sup>28</sup> This particular measure, rather than an index of military versus civilian control of formal political institutions, is utilized in order to assess the general influence of the military in politics rather than simply their appropriation of political control.

In addition to the preceding measures based on the three primary theoretical perspectives to be tested, we include in our analysis three

<sup>24</sup> Charles Anderson, Fred von der Mehden, and Crawford Young, *Issues of Political Development* (Englewood Cliffs, N. J.: Prentice-Hall, 1967).

<sup>25</sup> Douglas Rae, *The Political Consequences of Electoral Laws* (New Haven: Yale University Press, 1967).

<sup>26</sup> School of Journalism, University of Missouri at Columbia, "World Press Freedom, 1966," Freedom of Information Center Report No. 181.

<sup>27</sup> The factor loadings on this single dimension were: Legislative Fractionalization, -0.83; Press Freedom, -0.92; Electoral Stability, -0.78; and the communist regime dummy variable, 0.75. The eigenvalue was 2.71.

<sup>28</sup> Bruce M. Russett, H. R. Alker, Karl W. Deutsch, and Harold D. Lasswell, *World Handbook of Political and Social Indicators* (New Haven: Yale University Press, 1964).

control variables. The latter include: (1) an index of ethnic cleavage,<sup>29</sup> (2) population size, and (3) population density. The first of these variables allows us to control for possible effects of divisive ethnic politics on public policy. The last two measure social traits of the character of given populations which may also independently influence public expenditure patterns.

In the analysis below we will first examine the bivariate associations between our expenditure measures and the hypothetically important independent variables. Then we will examine the relative importance of individual independent variables by means of multiple regression analysis.<sup>30</sup>

### *Associations with Spending as a Proportion of Gross National Product*

In this section we examine the correlates of various spending measures as a proportion of gross national product. Table 1 presents the bivariate Pearsonian correlations with these expenditure variables. If one surveys the results in that table, almost all of the expenditure variables have a moderate association in the appropriate direction with an institutionalization, an ideology, and an economic wealth independent variable.

<sup>29</sup> The social cleavage index is a composite measure based on the factor scores on the single principal component derived from the factor analysis of three measures of this concept. The original variables and their factor loadings were indices of Group Discrimination (0.73), Separatist Potential (0.75), and Ethnolinguistic Fractionalization (0.88). The first two of these were taken from Ted Gurr, *New Error—Compensated Measures for Comparing Nations* (Princeton: Princeton University Center of International Studies, 1966). The third variable was taken from the second edition of the *World Handbook of Political and Social Indicators*.

<sup>30</sup> We should note at this point two additional observations about our treatment and interpretation of the data. First, we have transformed via logarithms all those variables with extremely skewed distributions in order to make them more suitable for regression analysis. The variables so transformed are population, population density, gross national product per capita, the number of government ministries, and military personnel per capita. Second, we also considered the extent of intercorrelation among our independent variables—a potential problem which could threaten our ability to make inferences about the relative importance of different independent variables. However, those associations are generally quite low and appear to pose no such difficulty. The average Pearsonian  $r$  among our independent variables was 0.17. The highest  $r$  was 0.51 between population and the number of government ministries.

TABLE 1  
*Bivariate Associations with Expenditure  
 Measures as a Proportion of GNP*

<i>Independent Variables</i>	<i>Total Expenditures/ GNP</i>	<i>Education Expenditures/ GNP</i>	<i>Health &amp; Welf. Expenditures/ GNP</i>	<i>Military Expenditures/ GNP</i>
No. of government ministries . . . . .	.43	.31	.21	.36
Date of Independence . . . . .	.11	.03	-.08	.07
Socialist Ideology . . . . .	.34	.23	.32	.22
"Openness-Coerciveness" Index . . . . .	.29	.09	.13	.25
Military Personnel/capita . . . . .	.17	.21	.16	.38
GNP/capita . . . . .	.34	.40	.55	.05
Population . . . . .	.09	-.08	-.13	.19
Population density . . . . .	-.14	-.24	.02	-.08
Social Cleavage Index . . . . .	-.14	-.15	-.19	.10

For the total spending/GNP measure four of the correlations are of notable magnitude. Size of the governmental establishment has the highest Pearsonian  $r$ , indicating that political institutionalization as measured by this variable is an important correlate of the size of the public sector. Other especially prominent associations are those for GNP/capita, Socialist Ideology, and the "Openness-Coerciveness" Index. This last variable indicates that communistic systems and those with less fractionalized legislatures and more coercive characteristics have higher public spending to national wealth ratios. The remaining independent variables are only weakly correlated with the total spending index.

For the categorical spending variables, the associations are generally a bit weaker. Yet, in every case at least two independent variables have moderate correlations as hypothesized. For education spending, per capita wealth and size of the government bureaucracy are the best correlated variables. Also, Socialist Ideology has a moderate correlation in the appropriate direction. The negative relationship with population density suggests that there may be some spending economies associated with more densely settled populations.

For health and welfare spending, per capita wealth is the best associated variable, indeed, this is the strongest correlation in the entire table. Socialist Ideology and size of the bureaucracy also have moderate associations in the expected direction.

The military spending measure is best explained by the military personnel index, size of the bureaucracy, and the regime coerciveness measure. Interestingly, Socialist Ideology is positively associated with military expenditure/GNP while per capita wealth is virtually *unassociated* with that dependent variable.



If we survey all the results in Table 1, size of the bureaucracy, wealth, and Socialist Ideology are the most potent independent variables. Thus, all three of the principal theoretical perspectives are given some support by these bivariate results. But other variables also are prominent with some individual spending measures, indicating the appropriateness of separate theoretical explanations for each. It should also be noted that age of national institutions and population size were virtually inconsequential explanatory variables, and population density was prominent only in regard to educational spending. Also, while the Social Cleavage Index indicated that spending of all kinds was slightly lower in more divided societies, the variance shared with this variable was very low in every case.

Because none of the preceding correlational results was particularly large in absolute magnitude of the  $r^2$ , it is probable that a multivariate explanation is needed to account for any sizable portion of the variation in spending levels. In order to explore such an avenue, we fitted full multiple regressions to our spending variables employing all of the independent variables discussed above save age of the national institutions. These multiple regression results are reported in Table 2.

The regressions are reasonably successful with approximately 40 percent variance explained in three of the four cases. For military spending the explained variance falls to 29 percent. Across all these regressions, the most prominent explanatory variables are size of the bureaucracy, wealth per capita and Regime Coerciveness-Openness. Yet, other independent variables are important for some of the spending measures.

In fact, the results in Table 2 support different explanatory rationales for each of the four dependent variables. For example, the overall size of public sector spending (as measured by total spending/GNP) is a function of several variables including wealth, bureaucratization, political regime characteristics, and even population density to a lesser extent. Thus, there is no single predominant explanation for variations in the "scope of governmental authority." Instead, a variety of forces can operate to increase the size of the public sector. It may be that a single characteristic like wealth or ideology might determine whether a particular nation has an especially high or especially low total spending ratio. However, these cross-sectional results indicate that no one of the independent variables we examined could be called a general explanation for differences in the size of the public sector.

Educational spending variations, on the other hand, are shown in Table 2 to be largely a function of wealth and of size of the bureau-

TABLE 2

*Multiple Regressions with Expenditure Measures as a Proportion of GNP*

<i>Expenditure Measure</i>	<i>Independent Variable</i>	<i>Regression Coefficient</i>	<i>Standard Error</i>	<i>Standardized Coefficient</i>	<i>R</i>	<i>R<sup>2</sup></i>
Total Spending as Pct. GNP	Govt. Ministries . . . . .	.092	.032	.335	0.65	0.42
	GNP/cap . . . . .	.042	.013	.376		
	Socialist Ideology . . . . .	.007	.009	.080		
	Coerciveness-Openness . . . . .	.040	.013	.336		
	Military Personnel/cap. . . . .	-.011	.012	-.094		
	Population Density . . . . .	-.018	.009	-.201		
	Population . . . . .	-.003	.010	-.034		
	Social Cleavage Index . . . . .	-.016	0.12	-.135		
	(constant) . . . . .	-.234				
Education Spending as Pct. GNP	Govt. Ministries . . . . .	.012	.005	.306	0.60	0.36
	GNP/cap . . . . .	.006	.002	.359		
	Socialist Ideology . . . . .	.001	.001	.082		
	Coerciveness-Openness . . . . .	.002	.002	.132		
	Military Personnel/cap. . . . .	.0003	.002	.020		
	Population Density . . . . .	-.003	.001	-.262		
	Population . . . . .	-.002	.001	-.158		
	Social Cleavage Index . . . . .	-.002	.002	-.088		
	(constant) . . . . .	-.013				
Health and Welfare Spending as Pct. GNP	Govt. Ministries . . . . .	.006	.011	.067	0.66	0.43
	GNP/cap . . . . .	.023	.004	.644		
	Socialist Ideology . . . . .	.003	.003	.123		
	Coerciveness-Openness . . . . .	.012	.004	.308		
	Military Personnel/cap. . . . .	-.006	.004	-.157		
	Population Density . . . . .	-.0004	.003	-.013		
	Population . . . . .	-.002	.003	-.064		
	Social Cleavage Index . . . . .	-.002	.004	-.048		
	(constant) . . . . .	-.121				
Military Spending as Pct. GNP	Govt. Ministries . . . . .	.013	.007	.237	0.54	0.29
	GNP/cap . . . . .	-.001	.003	-.066		
	Socialist Ideology . . . . .	.002	.002	.093		
	Coerciveness-Openness . . . . .	.001	.003	.056		
	Military Personnel/cap. . . . .	.009	.003	.387		
	Population Density . . . . .	-.002	.002	-.132		
	Population . . . . .	.001	.002	.042		
	Social Cleavage Index . . . . .	.002	.003	.099		
	(constant) . . . . .	.004				

cracy. Thus, political and ideological differences among nations are not important in their influence on this variable. The negative influence of population density probably reflects a special characteristic of educational public service facilities. Schools, perhaps more than any other kind of service facility, must be geographically proximate to client populations. Less dense populations must build a greater number of facilities in order to achieve acceptable accessibility. In addition, there is little substitutability across different kinds of educational institutions. An elementary school cannot substitute for a high school the way a health clinic often can for a hospital. Thus, it is plausible that population density has a greater negative influence on education spending than on military or health and welfare allocations.<sup>31</sup>

For health spending the predominant explanatory variable is per capita wealth. This finding suggests that health and welfare activities may be a "surplus" governmental phenomenon. Only after more essential services have been provided or higher priority needs met will such spending rise. Thus, it is essentially wealth variations rather than political or institutional ones which determine health and welfare spending. The only qualification to this view arises from the important but weaker influence of Regime Coerciveness. This probably reflects the great concern of communist societies with population health levels. While it is important, this influence is certainly secondary to that with wealth levels.

For military spending yet another rationale is indicated by our results. Our empirical results indicate that neither wealth nor domestic political variations are related to military spending variations. In fact, our ability to account for military spending variations was comparatively weak. These results indicate that military spending is an important priority for diverse kinds of polities—rich, poor, competitive, coercive, and so on. Evidently, *domestic* political and social characteristics of nations have only limited independent capacity to explain military spending variations. One important reason for this finding, of course, lies in the special prominence of *international* influences on military expenditure levels.<sup>32</sup>

#### *Associations with Categorical Spending Levels as Proportions of the Total Budget*

In this section we examine a somewhat different dimension of public fiscal behavior—the correlates of categorical spending as a proportion of

<sup>31</sup> For within-nation evidence supporting this view see Kim Quaile Hill, "The Within-Nation Distribution of Public Expenditures and Services," *American Journal of Political Science* XX(2), 1976, pp. 303-318.

<sup>32</sup> On this point, see Kim Quaile Hill, "Domestic Politics, International Linkages, and Military Expenditure Levels," *Studies in Comparative International Development* XIII.1) 1978, pp. 38-59.

total spending. That is, we examine here allocations within the total budget package as opposed to categorical allocations relative to total societal wealth. Budgetary allocations reflect the importance of different activities as a portion of all government activities, whereas spending proportionate to GNP reflects the importance of governmental activities relative to gross societal resources. The empirical results we obtain in this section are somewhat different from those in the preceding analysis. After explaining the present findings, we will explicate the broader meaning of both analytic approaches.

In table 3 we present the bivariate associations among our various independent variables and the three categorical spending measures as a proportion of total expenditures. The most striking aspect of these correlations is their generally low magnitude.

TABLE 3

*Bivariate Associations with Categorical Spending Measures as a Proportion of Total Expenditures*

<i>Independent Variables</i>	<i>Education Expenditures/ Total Spending</i>	<i>Health &amp; Welf. Expenditures/ Total Spending</i>	<i>Military Expenditures/ Total Spending</i>
No. of govt. ministries	-.06	.03	-.01
Date of Independence	-.12	-.19	-.01
Socialist Ideology	.03	.21	.06
"Openness-Coerciveness" Index	-.15	-.05	.14
Military Personnel/Capita	.05	.10	.18
GNP/capita	.15	.55	-.17
Population	-.27	-.15	.09
Population density	-.20	.05	.02
Social Cleavage Index	-.07	-.22	.11

For education spending the largest associations are the negative ones with population size and density. Per capita wealth has a slight positive influence and regime coerciveness a similar negative one on this dependent variable. Yet, none of these variables shares as much as 10 percent common variation with the educational spending measure.

The health and welfare variable exhibits the only truly sizable association in the table—that with per capita wealth, the two variables sharing about 30 percent common variance. Socialist Ideology has a lesser positive association here, while the Social Cleavage Index and Date of Independence have slight negative associations with health spending.

The military spending measure demonstrates the weakest associations of all three dependent variables in Table 3. Its highest  $r$  is the

0.18 with military personnel per capita. GNP per capita has a negative association of comparable magnitude and regime coerciveness a slight positive association. As with the two other categorical spending measures in Table 3, many of these findings are in the hypothesized direction; yet, most are of inconsequential magnitude.

Given the weak bivariate results in Table 3 we examined multiple regression results for the same dependent variables in hopes that a multivariate model would better account for spending variations. Employing all the independent variables in Table 3, we were only able to explain 13 percent of the variation in education spending and 12 percent of that in military spending. Because the fit of these models was so poor, we have not reproduced the results in a separate table. They add nothing significant to our understanding beyond the bivariate results reported above.

In the multiple regression model with health and welfare spending as a percentage of total government spending 35 percent of the variance in health spending is accounted for. Yet, 30 percent of the total variance is explained by the positive influence of per capita wealth alone, and no other variable has a significant independent influence on health spending.

On first glance, the results in this section appear disappointingly weak and difficult to assimilate with those of the preceding analysis. While the association of many of our independent variables with categorical budgetary allocations is in the hypothesized direction, in most cases the magnitude of the relationship is very weak. In short, we cannot account well for variations in such budgetary allocations on the basis of this rather diverse set of independent variables. In order to understand the meaning of these findings we must incorporate them with those of the preceding section, taking account of the different substantive meanings of our dependent variables.

### *Conclusions*

In order to provide an adequate summary explanation of our results, we must examine separately the results for the policy area of education, health and welfare, and the military. These explanations should also provide some theoretical linkage for the different multivariate results for each of our two spending measures in each policy area. Additionally, we must incorporate in these explanations the influence of those control variables which, although they were not included in our three primary hypotheses, were also considered as plausible explanatory variables.

In the area of education our results show that wealth and governmental institutionalization best account for spending relative to the GNP. None of our primary independent variables has much of an influence, however, on education spending as a proportion of total spending. On the average, then, rich and poor nations spend a roughly comparable portion of their *budget* on education, but a *wealth effect* associated with higher per capita GNP allows the wealthier nations to devote larger portions of *total societal resources* to this area. Finally, none of our other predictors indicates important conditions under which the relative budgetary priority of education would change. At best, the correlates of that variable in Table 3 reflect a slight economy of scale associated with larger and more densely settled populations. This finding agrees with our earlier discussion of the relatively unique locational imperatives which constrain the disposition of educational capital.

When we turn to our various results for health and welfare spending, the situation changes. Initially, we determined that health expenditures relative to the GNP were predominately a function of per capita wealth and to a lesser extent regime coerciveness. Only per capita wealth had a sizable independent influence on the proportion of the *budget* devoted to health and welfare expenditures. The strong relationship of per capita GNP to health spending as a portion of GNP suggests what we termed above a *wealth effect*. As in the case of education, wealthier societies devote a larger portion of total resources to this policy area. The second finding with health spending as a portion of the total budget indicates a wealth-related *priorities effect*. Thus, wealthier societies also accord health and welfare a greater priority related to all *other governmental activities*, and health and welfare policies receive the benefits of two distinct kinds of allocational changes associated with increasing national wealth. The combination of these two influences is unique to this policy area among the three examined here.

In the case of military spending we also have a distinct set of findings explainable in issue-specific terms. Our initial results with spending relative to the GNP were that the size of the military establishment and, more weakly, the institutionalization of the governmental bureaucracy were important independent predictors. Yet, we were not able to account for as much of the variation in military spending/GNP as we were with education and health. Furthermore, our correlations with military spending as a portion of total spending were especially weak. Surprisingly even the size of the military establishment had only a slight positive effect on this variable. All these findings suggest that,

compared to the other categorical spending measures, military allocations are relatively less explainable by the nation attributes analyzed here. Especially noteworthy are the findings that neither wealth nor regime ideology differences account for military spending variations. Thus, various kinds of nations—rich, poor, coercive, competitive—have fairly similar military spending priorities on average. This generalization is appropriate for both of the ways in which we have examined governmental priorities.

Finally, our analysis for the size of the public sector (total spending/GNP) indicated several independent variables that have unique effects upon that spending measure. Richer nations, those with more institutionalized political systems and those with more coercive and "closed" political systems tended to have larger government budgets relative to their societal wealth. Yet, none of these influences on total spending overwhelms the others in explanatory capacity. A multivariate model is necessary to account for any significant portion of total spending variations, and a substantial amount of total variance remains unexplained nonetheless.

Generalizing beyond the specific results of our empirical analyses, some broader conclusions are also indicated. First, we have shown that all three of these separate theoretical perspectives discussed in our introduction have some validity. In the terms of recent debate over the determinants of spending levels for other units of analysis, political, social, and economic infrastructure variables all have unique influences on some kinds of spending variations.

Despite the preceding conclusion, our results also indicate that broad theoretical perspectives have only limited explanatory capacity in this area. Our statistical analyses based on these perspectives could only account for moderate proportions of the expenditure variations among nations, even in the best cases. These results indicate that considerable theoretical work is needed to identify more potent explanatory models.

It would appear that a final aspect of our own work points to the major direction which future research should pursue. Our discussions of categorical expenditure variations suggest that issue specific explanations are necessary to account for allocational differences within given policy areas. Thus, future research will likely profit from less concern with aggregate public spending and greater attention to the unique policy problems, priorities, and constraints of implementation associated with specific issue areas.

## APPENDIX

*List of Nations Included in the Study*

01	Afghanistan	41	Japan
02	Argentina	42	Jordan
03	Australia	43	Lebanon
04	Austria	44	Liberia
05	Belgium	45	Libya
06	Bolivia	46	Malaysia
07	Brazil	47	Mexico
08	Bulgaria	48	Morocco
09	Burma	49	Netherlands
10	Cambodia	50	New Zealand
11	Canada	51	Nicaragua
12	Ceylon	52	Norway
13	Chile	53	Pakistan
14	China Mainland	54	Panama
15	China Taiwan	55	Paraguay
16	Colombia	56	Peru
17	Costa Rica	57	Philippines
18	Cuba	58	Poland
19	Czechoslovakia	59	Portugal
20	Denmark	60	Romania
21	Dominican Republic	61	Saudi Arabia
22	East Germany	62	South Africa
23	Ecuador	63	South Korea
24	El Salvador	64	Spain
25	Ethiopia	65	Sudan
26	Finland	66	Sweden
27	France	67	Switzerland
28	Ghana	68	Syria
29	Greece	69	Thailand
30	Guatemala	70	Tunisia
31	Haiti	71	Turkey
32	Honduras	72	UAR
33	Hungary	73	United Kingdom
34	India	74	Uruguay
35	Indonesia	75	USA
36	Iran	76	USSR
37	Iraq	77	Venezuela
38	Ireland	78	West Germany
39	Israel	79	Yugoslavia
40	Italy		