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Longitudinal Patterns of Centralization and Development: Testing Theories of Government Organization

DALE KRANE

In attempting to cope with the challenges of modernization, government officials are urged by specialists in development and comparative administration to manipulate the organization of public activity. Prescriptions for altering the public sector usually advocate one of two simple but contradictory options: centralization or decentralization. Adopting one or the other of these administrative arrangements reputedly yields important benefits which have system-wide impact on the course of development.¹ Unfortunately, no a priori principle exists to guide the choice between these sharply divergent alternatives. The present study was designed to compare the consequences of these organizational strategies in order to evaluate their utility as developmental courses of public action.

The argument for centralization emphasizes its greater productive capabilities. Because centralization permits the extraction, coordination, and utilization of resources nationwide, a centralized government presumably can provide greater levels of public goods in contrast to a decentralized one.² However, reliance on central coordination often results in a

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¹ Joseph LaPalombara, "Penetration: A Crisis of Government Capacity," in *Crises and Sequences in Political Development*, ed. Leonard Binder et al. (Princeton, NJ: Princeton University Press, 1971), pp. 205-32; Marion J. Levy, Jr., *Modernization: Latecomers and Survivors* (New York: Basic Books, 1972); Ted R. Gurr, "Persistence and Change in Political Systems, 1800-1971," *American Political Science Review* 68 (December 1974): 1482-1504; Bruce M. Russett and R. Joseph Monsen, "Bureaucracy and Polyarchy as Predictors of Performance: A Cross-National Examination," *Comparative Political Studies* 8 (April 1975): 5-31.

² Jan Tinbergen, *Central Planning* (New Haven, CT: Yale University Press, 1964); Emmette Redford, "Centralized and Decentralized Political Impacts on a Developing Economy: Interpretations of American Experience" (Bloomington, IN: Comparative Administration Group occasional paper, 1967); Yehezkel Dror, "Planning in the United States? Some Reactions by a Foreign Observer," *Public Administration Review* 31 (May-June 1971): 393-403; Marshall W. Meyer, *Bureaucratic Structure and Authority: Coordination and Control in 254 Government Agencies* (New York: Harper and Row, 1972).

standardization of public service provision which disregards individual and group preferences within the nation. This insensitivity to varying tastes hampers the greater experimentation, innovation, and responsiveness that supposedly derives from decentralized arrangements.³

These trade-offs—between more responsiveness and less coordination, between more productivity and less public satisfaction—pose directly opposite hypotheses, as outlined in table 1. For example, both organizational prescriptions claim to foster economic growth. One guarantees productivity; the other promises efficiency. As for political development, each approach also points to the same desired end, but by different means. Centralization, it is argued, allows political leaders to impose the order necessary to coordinate development. Conversely, advocates of decentralization declare that only through dispersed decisionmaking can the allegiance necessary to political development be obtained.

TABLE 1
HYPOTHETICAL RELATIONSHIP OF CENTRALIZATION TO VARIOUS
ASPECTS OF DEVELOPMENT

Centralization associates positively with:	Decentralization associates positively with:
<ul style="list-style-type: none"> economic growth production political development stability 	<ul style="list-style-type: none"> economic growth efficiency response regime support
Centralization associates negatively with:	Decentralization associates negatively with:
<ul style="list-style-type: none"> participation 	<ul style="list-style-type: none"> coercion protest

These competing propositions create a quandary for statesmen and scholars: which administrative recommendation should be followed? Escape from this prescriptive dilemma requires an approach which assists the public official in determining what form of national organization will facilitate development. This can be done by abandoning the arguments which link centralization or decentralization to development. Instead, the alternative formulated here stresses a choice between strategies of control over the allocation of societal resources to developmental tasks. Whether nation-builders opt for the construction of a centralized bureaucracy or the interaction of autonomous decisionmakers, they must ultimately establish an effective pattern of control over resource allocation.

In using the mode of organization to govern development, national leaders can make adjustments in public action along three principal lines: (1)

³ Robert T. Holt and John E. Turner, *The Political Basis of Economic Development* (Princeton, NJ: Van Nostrand, 1966); Emil J. Sady, "Improvement of Local Government and Administration for Developmental Purposes," in *Readings in Comparative Public Administration*, ed. Nimrod Raphaeli (Boston: Little, Brown, 1967), pp. 239-57; David Hart, "Theories of Government Related to Decentralization and Citizen Participation," *Public Administration Review* 32 (October 1972): 603-21; Norman Furniss, "The Practical Significance of Decentralization," *Journal of Politics* 36 (November 1974): 958-82.

the internal structure of government, (2) the scope of public activity, and (3) the degree of resource commitment to a given substantive policy.

Structure and scope have been and continue to be a source of controversy. Variations in the internal structure of government raise classic questions of unitary versus federal arrangements. Fluctuations in the size of the public domain likewise raise classic issues of socialism versus laissez-faire. The third dimension of public organization—substantive mix—can also be viewed as an important strategy of control. Changes in resource amounts devoted to a given program provide an organizational tool by which control can be exercised over national development.⁴

But what becomes of centralization? Rather than retaining its conventional meaning, it can be transformed into an indicator of the pattern of control achieved in any of the public sector's organizational dimensions. In this study, changes in centralization-decentralization will chart shifts in the nature of public control over resource allocation accomplished through administrative adjustments in each dimension of public activity. Centralization, therefore, can occur through the augmentation of national control within the governmental structure, through the expansion of governmental action into new realms, or through the concentration of public resources in a particular policy area.

Restating the above in a somewhat different fashion, the manner in which the public sector is organized selectively affects development. This means that as national leaders make modifications in the government's administrative structure, its scope, or its substantive policy mix, developmental progress in its economic, social, and political components will vary. By considering centralization-decentralization as a property of each organizational dimension, a more accurate reading of the adjustments made in the public sector can be obtained and the consequences of those changes can be analyzed.

Analytic Procedure

Studies of centralization reveal numerous alternative operational measures.⁵ Most of them break down in comparative and/or longitudinal research due to problems of cross-national equivalence or data availability. Expenditure-based measures of centralization possess the highest research utility because of their longitudinal extension and their flexibility, which facilitates rearrangement into comparable indicators despite differences in national accounting practices.⁶

⁴ Naomi Caiden and Aaron Wildavsky, *Planning and Budgeting in Poor Countries* (New York: Wiley, Interscience, 1974); Aaron Wildavsky, *Budgeting: A Comparative Theory of Budgetary Processes* (Boston: Little, Brown, 1975).

⁵ Any catalogue of indicators of centralization would include: (1) formal constitutional pattern, (2) information flows, (3) geographic dispersion of activities, (4) form of decision-making, (5) political party control, and (6) expenditure and personnel compensation patterns.

⁶ Peter C. Sederberg, "National Expenditure as an Indicator of Political Change in Ghana," *Journal of Developing Areas* 7 (October 1972): 37-55; Douglas Ashford, "The Effects of Central Finance on the British Local Government System," *British Journal of Political Science* 4 (July 1974): 305-22.

Centralization measures were constructed for each dimension of public organization—structure, scope, and substantive policy mix.⁷ Two ratios describe the distribution of policy control among levels of government. The first provides a basic comparison using all expenditures, while the second focuses solely on domestic activity. The public domain's size in respect to national output is employed as the fundamental measure of scope. In this study, two indices gauge changes in scope; the first utilizes national expenditure, while the other includes all governmental spending. The direct dichotomy between defense and other policy areas was chosen over more elaborate possibilities as a first analysis of substantive policy mix.⁸

Just as with centralization, diverse indicators typify research on development. The chief problem is the selection of conceptually adequate measures from the many useful ones. A number of different theories state that development happens through a process of increasing the capability to produce desired outcomes and the engagement of the total society in the production and use of the outcomes.⁹ These outcomes have been defined by Needler as "the attainment of a mass participation polity, the promotion of economic development, and the establishment of a welfare state."¹⁰ Taken together, this syndrome identifies the crucial components of the dependent variable and considerably reduces the task of selecting appropriate measures.

Economic growth is represented by three standard indices detailing changes in total national output, composition of the labor force, and production of steel. Social modernization outcomes are measured by

⁷ The following expenditure ratios serve to measure the degree of centralization in each of the dimensions of public organization:

1. Structure
 - (a) National government expenditure as a percentage of total government expenditure (NGE/TGE)
 - (b) National government expenditure minus defense expenditure as a percentage of total government expenditure minus defense expenditure (NGE-Def.E/TGE-Def.E)
2. Scope
 - (a) National government expenditure as a percentage of gross national product (NGE/GNP)
 - (b) Total government expenditure as a percentage of gross national product (TGE/GNP)
3. Substantive mix

Defense expenditure (including veterans' benefits) as a percentage of national government expenditure (Def.E/NGE)

⁸ Public spending can also be disaggregated by ministries or collected into programmatic categories such as human resources, commercial development, general government, and national security. A project compiling ministerial spending on a comparative-longitudinal basis is being carried out by the author.

⁹ Albert O. Hirschman, *The Strategy of Economic Development* (New Haven, CT: Yale University Press, 1958); Fred W. Riggs, "The Theory of Political Development," in *Contemporary Political Analysis*, ed. James C. Charlesworth (New York: Free Press, 1967), chap. 16; Samuel P. Huntington, "The Change to Change: Modernization, Development, and Politics," *Comparative Politics* 3 (April 1971): 283-322; Robert P. Clark, Jr., *Development and Instability: Political Change in the Non-Western World* (Hinsdale, IL: Dryden Press, 1974).

¹⁰ Martin C. Needler, *Political Development in Latin America: Instability, Violence, and Evolutionary Change* (New York: Random House, 1968), p. 118.

increases in literacy and school enrollment as well as decreases in infant mortality.¹¹

While these conventional indicators of economic and social development can be applied in a straightforward fashion, determining "a mass participation polity" requires examining legitimate and illegitimate political behavior as well as obtaining some information about constraints on participation. Status of the legislature and conditions of suffrage chart the possibility of institutionalized political participation. Two indices outline nonlegitimate opposition to the prevailing government and the level of

TABLE 2
SERIAL CORRELATIONS BETWEEN STRUCTURAL CENTRALIZATION
AND ECONOMIC GROWTH

PATTERN	ECONOMIC GROWTH		
	GNP	Percentage Agriculture	Steel Production
<i>I (Stable)</i>			
France	.522*	-.043	-.197
Italy	-.337	-.140	-.053
Sweden	.199	-.177	.340
Belgium	-.658**	.568*	-.729***
Brazil	-.491*	.896****	-.751***
Romania		.951****	-.904****
Peru	.859****		
<i>IIa (Linear increasing)</i>			
United States	.626**	-.802****	.824****
Germany	.947****	-.905****	.575*
India	.929****	.953****	.881****
<i>III (Curvilinear)</i>			
Japan	.035	-.341	.293
United Kingdom	.073	-.332	.363
Norway	.308	-.288	
Australia	.244	-.401	.456*
Switzerland	-.351	.161	

NOTE: Index of forecasting efficiency (E) (applies as well to tables 3-6):

- * 10% - 20%
- ** 21% - 30%
- *** 31% - 40%
- **** above 40%

¹¹ For economic and social development, the following indices are used:

1. Economic growth
 - (a) GNP
 - (b) Percentage of the labor force employed in the primary sector (percentage agriculture)
 - (c) Steel production
2. Social modernization
 - (a) Percentage of persons (usually over 14 years of age) able to read and write (percentage literate)
 - (b) Number of children in primary schools (elementary education)
 - (c) Deaths of children under 1 year of age per 1,000 live births (infant mortality)

domestic political violence. The last index, which may be the only indicator of political activity in some nations, measures the government's efforts to limit participation.¹²

The public expenditure data chosen for the centralization ratios were drawn from sources (see Appendix A) which can be termed "primary" in that the original data were either collected or reconstructed for use in scholarly or statistical exposition.¹³ The nations examined are Australia, Belgium, Brazil, Canada, France, Germany, India, Italy, Japan, Norway, Peru, Romania, Sweden, Switzerland, the United Kingdom, and the United States. While this set of countries in no way constitutes a technical sample of nation-states, it does include units with varying characteristics. For each nation, serial correlation coefficients have been calculated using average decade values (see Appendix B for the decade averages by country).¹⁴ In arranging the analysis and interpretation of the serial correlations, nations were grouped according to their longitudinal pattern for each dimension of public sector organization.¹⁵

Longitudinal Analysis of Centralization and Development

Because their political and even physical survival may depend on their choice, national leaders need to know what difference it makes if they adopt some adjustment in the government's operation. Despite the severe problems common to macrocomparative research, empirical evaluations of prevailing theories of government organization must be attempted if students of development hope to furnish useful information to public

¹² The data for political participation comes from the Minnesota Political Data Archive. Detailed descriptions of each measure are available from Professors William Flanigan and Edwin Fogelman, MPDA, University of Minnesota.

¹³ Wolfgang Zapf and Peter Flora, "Some Problems of Time-Series Analysis in Research on Modernization," *Social Science Information* 10 (June 1971): 53-102.

¹⁴ Instead of the usual *F* test of significance, which takes sample size into account, the index of forecasting efficiency was chosen. The computing formula can be found in N. M. Downie and R. W. Heath, *Basic Statistical Methods*, 2nd ed. (New York: Harper and Row, 1965), pp. 223-26.

¹⁵ To assign individual national expenditure series to empirically identifiable temporal patterns, the following parameters were established:

1. Pattern I (stable over time)
 - (a) range does not exceed 0.15
 - (b) no inter-decade fluctuation to exceed ± 0.15
2. Pattern IIa (linear increasing over time)
 - (a) range exceeds 0.15
 - (b) no inter-decade declines to exceed -0.10
 - (c) contemporary value must exceed by $+0.20$ or more the earliest decade average
3. Pattern IIb (linear decreasing over time)
 - (a) range exceeds 0.15
 - (b) no inter-decade increases exceeding $+0.10$
 - (c) contemporary value must be -0.20 or more in comparison to the earliest decade average.
4. Pattern III (curvilinear over time)
 - (a) range exceeds 0.15
 - (b) series must exhibit at least one inter-decade increase of $+ 0.15$
 - (c) series must also exhibit at least one inter-decade decrease exceeding -0.15 .

For a discussion of temporal pattern analysis, see Richard A. Pride, "Pattern Analysis: An Alternative Approach to Quantitative Historical Data," *Comparative Political Studies* 4 (October 1971): 361-69.

officials. The following analysis explores the impact of temporal shifts in centralization on three basic aspects of development.

Economic growth. Table 2 contains serial correlations between structural centralization (national government expenditure as a percentage of total government expenditure NGE/TGE) and economic growth. As predicted by the advocates of centralization, nations with linear increasing ratios (pattern IIa) display the strongest associations. Likewise, countries exhibiting structural variability (curvilinear pattern) yield a similar, but weaker relation with economic progress. Conversely, the results obtained with nations possessing relatively stable governmental structures (pattern I) suggest that they deviate from the centralization prescription. Theoretically, these nations should have strong positive correlations with GNP and steel production. The negative signs directly contradict this proposition. The deviation becomes more striking with the discovery that this group of nations is characterized by very centralized governmental structures.

From the above, it seems an impasse has been reached. Countries with increasing or variable patterns of national structure confirm the centralization viewpoint, while countries with relatively stable, highly centralized structures disconfirm it. Can this contradiction be resolved?

Reconciliation of the correlational results with the two opposing models of government organization can begin with an examination of the current levels of centralization distinctive to the nations of pattern I in contrast to those of patterns IIa and III. Of the latter group, Australia, Germany, India, the United Kingdom, and the United States exhibit an almost equal distribution of government spending (especially when corrected for defense expenditure) between national and local governments during the 1960s.¹⁶ Japan and Norway show approximately a two-thirds national to one-third local distribution. These differences point to the existence of two thresholds which stymie economic growth. Pattern I nations typify the upper limit. That is, a nation which spends the vast bulk of its public resources through its central government (0.75 plus) overburdens the country with a costly, rigid structure. At the other level, a nation which fails to erect a central organization (less than 0.30) will not be able to meet the shocks of economic growth like urbanization nor provide the social overhead capital essential to development.

When the focus is moved to the size and substance of the public sector, the relationships between changes in scope and economic growth run counter to the expectations of the centralization strategy. Similar findings for the three patterns indicate that alterations in the proportional size of the public sector do not necessarily improve economic conditions.¹⁷ On the other hand, substantive policy mix presents a clear connection with economic growth. Table 3 demonstrates that increasing defense outlays depress all three growth measures. This confirmation of the classic "guns versus butter" choice stands out sharpest in the negative correlations with steel production

¹⁶ The respective NGE-Def.E/TGE-Def.E scores are: Australia 0.50, Germany 0.59, India 0.49, Japan 0.70, Norway 0.63, United Kingdom 0.57, and the United States 0.41.

¹⁷ A set of tables listing the complete correlational results are available on request from the author.

and GNP for the pattern III nations.¹⁸ Concentration of public resources into this single policy area thus brings about a most extensive and negative impact on economic growth.

TABLE 3
SERIAL CORRELATIONS BETWEEN SUBSTANTIVE CENTRALIZATION
AND ECONOMIC GROWTH

DEF. E	ECONOMIC GROWTH		
	NGE		
PATTERN	GNP	Percentage Agriculture	Steel Production
<i>I (Stable)</i>			
Brazil	-.379	.140	-.823****
Peru	.853		
Belgium	.239	.707**	.181
Norway	-.009	.182	
Sweden	-.442	.219	-.268
<i>IIb (Linear decreasing)</i>			
India	-.939****	-.872****	-.959****
<i>III (Curvilinear)</i>			
United States	.371	-.452*	.443*
Japan	-.615**	.882****	-.712**
Canada	-.977****	.987****	-.991****
Australia	-.165	.141	.257
United Kingdom	-.515*	.634**	-.558*
Germany	-.827****	.901****	-.675**
France	.131	-.077	.002
Italy	-.878****	.767***	-.817****
Romania		.947****	-.939****
Switzerland	.043	-.352	

Social modernization. Inspection of the temporal changes in public organization as they pertain to social modernization highlights the effect of scope. Modifications in the size of the public sector relative to national output directly condition the possibility of social advance. This is especially true when the results with total public scope are examined (see table 4). Increased total scope (signifying active subnational governments) generates substantial associations with the three modernization indices. If efforts at social improvement can be seen as a form of system responsiveness to citizen demands, then these findings support the decentralization prescription.

¹⁸ Some might argue that Def.E/NGE is merely a proxy for international conflict and the depressant effect shown in table 3 can be explained by wartime situations. While this is a plausible counterproposition, it does not account for the correlations with Brazil, India, Sweden, and Switzerland. Of course, the proper test would be to factor out the war years and only rely on peacetime expenditure data for generating the correlations. Approximately one-half of the possible data for both world wars is missing from the data set. This fact alone makes the correlations in table 3 even stronger as a test of substantive mix's effect.

TABLE 4
SERIAL CORRELATIONS BETWEEN CENTRALIZATION OF TOTAL GOVERNMENT
SCOPE AND SOCIAL MODERNIZATION

TGE GNP	SOCIAL MODERNIZATION		
	Percentage Literate	Infant Mortality	Elementary Education
<i>I (Stable)</i>			
Australia	.672**	-.226	.383
Brazil			.952****
Peru			.880****
India	.990	-.983	.998
<i>IIa (Linear increasing)</i>			
United States	.865****	-.899****	.815****
Germany	.475*	-.994****	.441*
Norway		-.874****	.485*
Sweden	-.001	-.952****	.153
<i>III (Curvilinear)</i>			
Japan		-.547**	.748****
France	.287	-.732***	-.337
United Kingdom	.716***	-.764***	-.084
Italy	.757***	-.731***	.826****
Switzerland		-.504*	-.424
Belgium	.269	-.060	.377

The other two organizational dimensions of public activity have little bearing on social progress. For structural centralization, the analysis tentatively hints that the developmental thresholds also operate in regard to social modernization, but this possibility still needs further testing. Only ambiguous and muddled correlations emerge between substantive policy mix and social development. It would appear, then, that of the three organizational dimensions only manipulation of the public sector's scope influences the course of social modernization.

Political development. Propositions linking government organization and political development concentrate on issues of participation and suppression. Centralized polities are hypothesized to be nonparticipatory and more repressive. National behavior along the structural dimension of public activity (table 5) outlines a sharp dichotomy in the relation of centralization with legitimate versus illegitimate and suppressive politics.¹⁹ The absence of association between structural centralization and legitimate participation for Australia, France, Switzerland, the United Kingdom, and the United States is a reflection of the longevity of their formal participatory institutions. The other nine countries fall into two categories: (1) nations which have recently achieved functioning legislatures and/or full and unrestricted suffrage, and (2) nations which have had difficulty maintaining representative assemblies and/or widespread electoral participation. More importantly, the appearance of two groups of nations—those with long, continuous histories of formalized political participation and those with

¹⁹ For indicators of legitimate participation, low codes signify highly legitimate actions; on the other three indices, low codes denote an absence of illegitimate or suppressive action.

TABLE 5
SERIAL CORRELATIONS BETWEEN STRUCTURAL CENTRALIZATION AND
POLITICAL PARTICIPATION

PATTERN	POLITICAL PARTICIPATION				
	Status of Legislature	Suffrage	Non-legitimate Participation	Domestic Political Violence	Political Suppression
<i>I (Stable)</i>					
France			.381	.253	.355
Italy	.866****		.343	.152	.781***
Sweden		.481*			.458*
Belgium	-.272	.703**	-.714**	-.647**	-.207
Brazil	-.176	.800***	.819****	.114	-.087
Romania		-.544*	.169	-.662**	.298
Peru	-.169		.492*	.477*	-.931****
<i>IIa (Linear increasing)</i>					
United States			.313	.381	-.305
Germany	.564*	.564*	.339	.493*	.593*
India	-.999****	-.999****	-.667**	-.559*	-.999****
<i>III (Curvilinear)</i>					
Japan	.811****	-.217	-.435	-.443*	.369
United Kingdom			.556*	.429	
Norway	.542*		.542*		.542*
Australia			.647**	.448*	.749***
Switzerland			-.639**	-.376	-.376

TABLE 6
SERIAL CORRELATIONS BETWEEN CENTRALIZATION OF TOTAL GOVERNMENT
SCOPE AND POLITICAL PARTICIPATION

TGE GNP	POLITICAL PARTICIPATION				
PATTERN	Status of Legislature	Suffrage	Non-legitimate Participation	Domestic Political Violence	Political Suppression
<i>I (Stable)</i>					
Australia			.769***	.774***	.348
Brazil	.362	-.830****	-.743***	-.024	.362
Peru	-.856****		-.707**	-.640**	-.985****
India	.446*	.446*	.776***	.739***	.446*
<i>IIa (Linear increasing)</i>					
United States			.317	.483*	-.405
Germany	.481*	.481*	.398	.539*	.513*
Norway	.510*		.509*		.509*
Sweden		-.481**			-.106
<i>III (Curvilinear)</i>					
Japan	.642**	-.737***	.016	.009	.479*
France			-.234	-.129	-.463*
United Kingdom			.334	.264	
Italy			-.279	-.029	.205
Switzerland			-.112	-.206	-.206
Belgium	.654**	-.295	-.301	-.223	-.132

recent or unsuccessful experience—implies that the effect of structural centralization on legitimate political action is discontinuous.

The indices of illegitimate and suppressive political behavior give support to the proposition that decentralized polities suffer less nonlegitimate and violent politics and that they resort less frequently to participation-suppressive measures. Specifically, the correlations for the stable, highly centralized nations (pattern I) with illegitimate action are stronger than those for the other nations. In essence, this result bolsters the decentralization prescription and adds another bit of evidence to the threshold concept.

Changing the organizational dimensions of public activity to scope (table 6) essentially reproduces the direction, but not the strength, of association obtained with structure. The outstanding difference between structure and scope appears in the results for nations with substantial variability in their public arrangements (pattern III). With structure, the expected positive association of increasing centralization and illegitimate behavior occurs. For scope, these same variables produce very weak correlations, suggesting declining regime opposition. Combining these two findings, one can speculate that expansion of public activity will not be opposed so long as the delivery systems remain reasonably decentralized.

Instead of substantive mix's preeminent impact on economic growth or scope's effect on social modernization, the structure of public activity significantly contributes to the character of national political life. The clearest evidence derives from the differential results by pattern of public sector organization. These pattern-by-pattern differences outline a more complex relationship between public organization and national progress than assumed by the competing prescriptions. For example, pattern I nations that possess stable, centralized structures unlike those characteristic of nations with linear increasing or curvilinear trends display moderate to strong associations with illegitimate political participation.²⁰ For scope, the pattern I nations feature comparatively small public sectors, but continually conflictual politics. This contrasts with pattern IIa nations which have enlarged the public sector's scope and have experienced declining expressions of opposition. For substantive policy mix, no consistent distinction between patterns was discerned. Therefore, on one hand, the correlational analysis of structural centralization and political development supports the decentralization prescription; but on the other hand, the results with the scope of public activity tend to confirm the centralization approach. So, in choosing between competing strategies for organizing the public sector, the analysis here leads to an impasse. To resolve it, it will be necessary to step back a bit from the tabular details and return to the original question.

Public Sector Organization as a Developmental Tool

That a political end can be reached by various administrative means is, by now, an old principle of political science.²¹ In applying this axiom to the

²⁰ Switzerland with its decentralized "domestic" structure is the deviant case. Its strong correlations under nonlegitimate participation, domestic violence, and political suppression are connection to events during the decade of the 1940s.

²¹ David M. Levitan, "Political Ends and Administrative Means," *Public Administration Review* 3 (Winter 1943): 353-59.

pursuit of national development, some theorists have advised government officials that centralization of the public sector will promote progress, while others have asserted that development really follows from a decentralized polity. Rather than postulating in advance which prescription should be adopted, the approach used here accentuates the national leaders' efforts to exert control over societal resource allocation through manipulation of the government's structure, scope, and policy mix. As public officials vary their strategies of control, national development in its economic, social, and political aspects will be selectively modified. By transforming centralization-decentralization into a behavioral property of each organizational dimension, a more detailed charting of administrative adjustments and their impact can be obtained.

Table 7 summarizes the correlational analysis by listing for each dimension of public organization that component of development most susceptible to shifts in centralization. Instead of one prescription or the other leading invariably to progress, changes in the degree of control within the public sector differentially condition developmental outcomes. Put another way, because changes in the degree of centralization in some areas of public activity have little or no relation with a given aspect of development, the empirical findings seriously undermine the basic advice of either the centralization or decentralization strategies.

TABLE 7

THE IMPACT OF PUBLIC ORGANIZATION ON NATIONAL DEVELOPMENT

ORGANIZATIONAL DIMENSIONS OF PUBLIC ACTIVITY	ASPECTS OF DEVELOPMENT
Substantive mix	Economic growth
Scope	Social modernization
Structure	Political participation

The significance of table 7 is the immediate frustration of any effort to choose between models of public organization. From the longitudinal results in all three developmental areas, the decentralization prescription receives some measure of support. It should be recalled that for economic growth, nations with high levels of spending on national defense constrained their economy's progress. Social modernization received an assist when total public scope increased. And for political development, nations with highly centralized public structures most often experienced nonlegitimate and violent political participation. While these findings add weight to the decentralization argument, others were discovered that preclude its uncritical acceptance. For example, nations which started with very low degrees of structural centralization and proceeded to moderate levels appear to have achieved substantial economic growth. Though increased activity by local jurisdictions boosted social improvements, the sheer expansion of the national government also contributed to these improvements. And for political participation, the serial correlations point to those countries with small and unchanging scopes as being the least

developed politically. While these empirical discoveries demonstrate the analytic advantage gained by a multifaceted approach to public organization, they still leave the prescriptive quandary unresolved.

Further study of the polity's organization and its impact on development will have to grapple with this dilemma. For example, the preliminary work here has identified a series of variable relations between different organizational formats and developmental outcomes which cast some doubt on previous administrative advice. From these seemingly contradictory results comes the importance of the developmental thresholds alluded to earlier. The possible existence of parameters governing the effect of different degrees of organizational control would mean that one could specify "the consequences of such variations (in administrative infrastructure) for productivity and/or about what productive effects could be achieved with marginal improvement."²² Thus, one could hypothesize that expanding the public sector's size relative to national output may be very beneficial to transitional nations. It would spur social modernization and improve regime support. The longitudinal analysis verifies the efficacy of this advice and goes further to caution that an increase in scope should be composed of nondefense items and implemented on a decentralized basis (i.e., total public scope should increase). Solid confirmation of this tentative threshold finding would allow developmental practitioners to diagnose, and possibly direct with enhanced perception, needed organizational changes in the public sector.

Designing a research strategy to identify and analyze these thresholds should produce considerable gain in terms of practical assistance to national leaders. Comparative and longitudinal expansion of the units under investigation is an obvious first step. A more complicated but rewarding task would be to disaggregate the independent variable within each organizational dimension. One may ask, for example, whether changes in the structure or scope of diverse public policies such as education or health provision sustain or constrain sectoral progress. Likewise, one may examine the developmental effect of public innovation, which is simply a change in substantive policy mix brought about by either the commencement of new activities or a reordering of previous priorities.

Whatever the course of future research, its thrust must remain on the alternatives open to a nation and the consequences of the choices made. The concern cannot be with a single panacea, but must be with the "elasticity of control" in public organization.²³ Government officials as they manipulate the dimensions of the public sector will differentially influence the course of development. Sensitivity in this manipulation can help avoid crises, or conversely, failure adequately to adjust public sector organization can lead to developmental traps.

²² Warren F. Ilchman and Norman Thomas Uphoff, *The Political Economy of Change* (Berkeley: University of California Press, 1969), p. 246.

²³ Herbert H Werlin, "Elasticity of Control: An Analysis of Decentralization," *Journal of Comparative Administration* 2 (August 1970): 185-209.

Appendix A: Public Expenditure Data Sources

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Appendix B: Public Expenditure Ratios: Average Decade Values by Country

APPENDIX B TABLE 1

AVERAGE DECADE RATIO OF NATIONAL TO TOTAL GOVERNMENT EXPENDITURE

	AU	BE	BR	CA	FR	GE	IN	IT	JA	NO	PE	RO	SD	SZ	UK	US
1870		.809			.828											
1880					.789	.293		.741		.639						
1890		.806			.774	.339		.746	.667	.674					.593	.331
1900		.812	.614		.758	.347		.735	.695	.632		.786			.568	.332
1910	.468	.790	.639		.775	.353		.737	.652	.592			.656	.368	.759	.292
1920	.362	.861	.583		.797	.479	.135	.763	.531	.531	.921	.956	.509	.336	.675	.341
1930	.373	.783	.557		.719	.609	.125	.804	.710	.535	.929	.939	.531	.304	.635	.403
1940	.758	.759	.547	.760	.827			.867	.907	.721	.945		.653	.566	.857	.692
1950	.627	.736	.490	.623	.829	.623	.517	.743	.725	.664	.957	.878	.603	.352	.725	.609
1960	.549	.736	.507	.556			.529	.729	.701	.675		.854	.619	.322	.645	.578

NOTE: For Appendix B, tables 1-5, the following abbreviations apply:

Australia: AU
 Belgium: BE
 Brazil: BR
 Canada: CA

France: FR
 Germany: GE
 India: IN
 Italy: IT

Japan: JA
 Norway: NO
 Peru: PE
 Romania: RO

Sweden: SD
 Switzerland: SZ
 United Kingdom: UK
 United States: US

APPENDIX B TABLE 2
 AVERAGE DECADE RATIO OF NATIONAL TO TOTAL GOVERNMENT EXPENDITURE,
 BOTH CORRECTED FOR DEFENSE EXPENDITURE

	AU	BE	BR	CA	FR	GE	IN	IT	JA	NO	PE	RO	SD	SZ	UK	US
1870		.756			.789											
1880					.739	.065		.682								
1890		.785			.714	.135		.693	.551						.442	.273
1900		.796	.546		.691	.184		.691	.614			.761			.315	.173
1910	.368	.772	.592		.672	.203		.656	.549	.492			.511		.510	.183
1920	.349	.851	.529		.763	.460	.080	.756	.426	.504	.904	.945	.458	.289	.620	.337
1930	.348	.763	.484		.631	.545	.081	.752	.669	.496	.911	.922	.470	.238	.562	.228
1940	.590	.770	.461	.655	.742			.897	.705	.928			.541	.346	.735	.490
1950	.659	.702	.419	.500	.774	.569	.455	.698	.618	.943		.865	.542	.262	.643	.389
1960	.501	.715	.454	.475			.487	.710	.697	.633		.847	.573	.248	.575	.405

APPENDIX B TABLE 3
 AVERAGE DECADE RATIO OF NATIONAL GOVERNMENT EXPENDITURE
 TO GROSS NATIONAL PRODUCT

	AU	BE	BR	CA	FR	GE	IN	IT	JA	NO	PE	RO	SD	SZ	UK	US
1870					.129											
1880					.125	.029		.102		.027						
1890					.151	.045		.137	.067	.029					.057	.026
1900					.140	.054		.133	.132	.096					.077	.026
1910	.159	.138	.072		.127	.062		.157	.104	.088			.118		.257	.025
1920	.127	.449	.079	.106	.302	.134	.032	.156	.104	.094			.097	.051	.172	.044
1930	.086	.222	.069	.091	.245	.221	.041	.258	.564	.083	.065		.121	.072	.176	.094
1940	.275	.446	.100	.253	.199			.728	.224	.224	.104		.143	.145	.517	.250
1950	.179	.230	.100	.167	.284	.255	.094	.157	.377	.186	.114	.562	.202	.078	.285	.193
1960	.228	.242	.113	.179			.165	.213	.321	.198		.608	.241	.081	.266	.201

APPENDIX B TABLE 4
 AVERAGE DECADE RATIO TO TOTAL GOVERNMENT EXPENDITURE
 TO GROSS NATIONAL PRODUCT

	AU	BE	BR	CA	FR	GE	IN	IT	JA	NO	PE	RO	SD	SZ	UK	US
1870					.159											
1880					.157	.100		.139		.042						
1890					.196	.132		.184	.095	.043					.096	.079
1900					.182	.157		.181	.181	.153					.134	.079
1910	.314	.175	.114		.170	.177		.213	.155	.148			.177		.302	.085
1920	.320	.499	.136		.381	.279	.230	.197	.186	.177			.191	.143	.253	.128
1930	.230	.287	.181		.343	.362	.332	.346	.696	.155	.069		.225	.207	.276	.232
1940	.349	.541	.192	.465	.237				.827	.311	.110		.242	.343	.595	.338
1950	.287	.314	.210	.268	.341	.410	.188	.228	.514	.280	.119	.639	.334	.227	.393	.312
1960	.321	.328	.222	.322			.278	.293	.458	.293		.717	.390	.251	.413	.347

APPENDIX B TABLE 5
 AVERAGE DECADE RATIO OF DEFENSE EXPENDITURE TO
 NATIONAL GOVERNMENT EXPENDITURE

	AU	BE	BR	CA	FR	GE	IN	IT	JA	NO	PE	RO	SD	SZ	UK	US
1870		.272			.221											
1880					.239	.832		.250								
1890		.122			.269	.695		.233	.378						.458	.239
1900		.095	.244		.286	.576		.194	.294			.132			.638	.580
1910	.369	.101	.182		.398	.532		.318	.350	.278			.275		.719	.459
1920	.055	.082	.194	.085	.179	.077	.439	.195	.341	.103	.203	.188	.186	.200	.218	.196
1930	.104	.108	.254	.043	.204	.227	.378	.252	.173	.140	.219	.244	.203	.273	.226	.365
1940	.514	.100	.292	.419	.282				.090	.073	.256		.358	.436	.271	.579
1950	.188	.156	.273	.394	.292	.198	.228		.048	.182	.284	.123	.219	.353	.317	.600
1960	.182	.100	.190	.277			.175	.037	.031	.170		.051	.173	.306	.255	.504