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PATTERNS OF CENTRALIZATION AND DEVELOPMENT: A LONGITUDINAL TEST OF THEORIES OF OPTIMAL GOVERNMENT CONFIGURATION IN SIXTEEN NATIONS, 1870-1970

A THESIS
SUBMITTED TO THE FACULTY OF THE GRADUATE SCHOOL
OF THE UNIVERSITY OF MINNESOTA

By

DALE ANTHONY KRANE

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
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CHAPTER I

MODELS OF PUBLIC ORGANIZATION

To meet the challenge of modernity, contemporary governments often find themselves with only a handful of tools which are at once effective and available. Among these, making changes in the organization of public activity offers immediate and important benefits to the nation and its leadership. Not only do organizational changes influence policy implementation, they also have system-wide impact on the various aspects of development. This inquiry into the effects of organizational changes on economic growth, social modernization, and political development aims at answering a fundamental question: what are the consequences of alternative forms of public sector organization on national development?

Contradictory Models

As in so many scholarly areas, the theoretical literature offers mutually contradictory answers to important questions.[1] Prescriptions for organizing public activity suggest two simple alternatives -- centralization or decentralization. The argument for centralization stresses the greater productive capabilities of this organizational arrangement.

Because centralization permits the extraction, coordination, and utilization of resources nationwide, a centralized government can provide greater levels of public goods in contrast to a decentralized one. But reliance on central coordination results in a standardization of public service provision which ignores individual and group preferences within the nation.

This insensitivity to varying tastes provides the opening wedge for proponents of decentralization. Since decentralized government implies the presence of numerous independent public decision-makers, their different preferences will lead to experimentation, innovation, and responsiveness in public activity. This trade-off between more responsiveness and less coordination, though possibly lowering productive rates, appears to boost public satisfaction, thus accounting for the attraction of the decentralized form.

Separate theoretical justifications support each of these prescriptions. Those who advise the creation of a unitary government might best be labelled the "bureaucratic" school because the foundation of their thesis is the necessity of a modern bureaucracy for development. From this perspective, it is only a short step to urge the immediate building of a centralized bureaucratic structure in developing states. A

proposition exemplifying this line of thought can be found in the writings of William Siffin who asserts: "for political development to continue over time a differentiated and centralized polity must come into being which must be able to command resources from and power over more (increasing numbers of) spheres and regions of the society".[2]

On the other hand, those opting for a decentralized public sector do not hide their reliance on formal models which suggest the desirability of reciprocal information flows between a variety of decision-makers. Because this approach to organizing public activity implies the dispersal of control over public resources to independent units through its use of concepts such as informational autonomy, it can conveniently be termed the "resolved" model. David Apter's statement that modern states require free and open information systems and that highly centralized nations (especially those where coercion is high) strangle their economic growth on an insufficient information flow is typical of "resolved" prescriptions calling for decentralization.[3]

Conventional Hypotheses

Research emanating from either model relates the organization of public activity to economic growth or political development. These latter two processes are

usually expressed in the standard terminology of production, capacity, innovation, and stability. Reconstructing the conventional logic of the two models into propositional form produces directly opposite hypotheses, as outlined in Table I-1.[4]

Table I-1: Hypothetical Relationship of Centralization-Decentralization with Economic Growth and Political Development, by Model of Public Sector Organization

"Bureaucratic" model	"Resolved" model
Centralization associates positively with:	Decentralization associates positively with:
1. economic growth	1. economic growth
2. production	2. efficiency
3. political development	3. response
4. stability	4. regime support
Centralization associates negatively with:	Decentralization associates negatively with:
1. participation	1. coercion
	2. protest

Notice that the two models yield polar propositions as to the effect of changes in the organization of public activity. For example, both prescriptions claim to foster economic growth, with one guaranteeing productivity, the other efficiency. As for political development, each model also promises that its prescription can achieve the desired end. The "bureaucratic" approach argues that centralizing the polity can impose the order necessary in picking up the pieces of the shattered traditional society. Conversely, the

decentralizers declare that only if the government is responsive to public demands will the regime support necessary to political development be obtained.

These contradictions lead to a quandary: which prescription should be followed? Unfortunately, present studies of the public sector only account for the incidence of a given organizational form instead of detailing the consequences of the form. The two schools claim that the public sector's organization can enhance or hinder national progress; yet in almost every study, the organization of public activity is the dependent variable, not the independent variable as implied by the logic of each model. To correct this fault constitutes the present exercise.

Organizational Dimensions of Public Activity

Any attempt to choose between the two models must consider the separate dimensions of governmental action embedded in their propositions. The blurring of the distinction between the internal structure of government and the extent of public activity in both models hampers empirical evaluation. For example, Siffin's work leaves some uncertainty as to what the phrase "centralized polity" means. Is he speaking of a unitary government in which the "central authorities take a very large percentage of (public) decision"?[5] Or is he

referring to an increasing subsumption of societal activity under the aegis of the state? Searching other "bureaucratic" studies offers no relief.[6]

Though the advocates of decentralization often define terms in an unorthodox fashion, the individual theorists disagree among themselves as to the meaning of "centralized" and "decentralized". Despite the basic theoretical consensus flowing from their dependence on cybernetic concepts like informational autonomy, some scholars of this second persuasion emphasize the scope of public activity, while others continue to investigate the more traditional organizational dimension of internal government relations.[7]

Any rigorous test of these two prescriptions requires that this conceptual confusion be eliminated. The key is not centralization per se, but the realization that both models attempt to prescribe appropriate and effective strategies of control over the allocation of societal resources to developmental tasks. Since organization implies control,[8] adjustments made in the organizational arrangements defining the public sector will result in different patterns of control which, according to the models, have differing impacts on developmental progress. One can adjust public action along three principal lines of organization: 1) the internal structure of government, 2) the scope of public

activity in comparison to private action, and 3) the degree of resource commitment to a given substantive policy.

Structure and scope have been and continue to be the source of academic and practical controversies. Variations in the internal relations 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 activity - substantive commitment - must also be viewed as an important dimension of government organization.[9] Changes in resource amounts devoted to a given program also afford an organizational arrangement by which control can be exerted over national development.

But what becomes of centralization? In the previous discussion, the impact of centralization served as the principal difference between the two models. Yet, to advise public officials to either centralize or decentralize the government is misleading. In addition to the already mentioned conceptual ambiguity, this emphasis on gross centralization ignores the multiple organizational dimensions of public activity. To show that organizational changes do, in fact, have an effect on development, research must focus on the underlying

organizational aspects of government through which control over resource allocation is exercised.

It should be evident that changing the focus from centralization-decentralization to the organizational dimensions of public activity transforms centralization into a behavioral property of each dimension. That is, changes in centralization now express changes in the extent of governmental control over the allocation of societal resources achieved through organizational 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 given substantive policy.

Restating the above in a slightly different fashion, the manner in which the public sector is organized selectively effects developmental change. As public officials make adjustments in the internal structure of government, the scope of government, or the substantive commitment of government, they engage in the strategies of control - concentration or devolution - suggested by the models of government organization. And as the patterns of control vary, so also should the aspects of development.

This perspective about the consequences of different forms of public sector organization abandons the argument which directly links centralization or decentralization to development. Instead, the alternative formulated here stresses three organizational dimensions of public activity -- structure, scope, and substantive commitment -- through which control over resources devoted to development can be exercised. Public officials as they choose to concentrate or devolve control within each organizational dimension will differentially influence the course of economic growth, social modernization, and political development. Centralization becomes a measure of the extent of control achieved over resource allocation in any of the three organizational dimensions. Relegating centralization to the status of an indicator and insisting that organizational adjustments are the devices by which strategies of public control intended to influence developmental progress are pursued permits the testing of the original two models as well as making possible a start towards answering the opening question.

FOOTNOTES

1. An excellent example discussing mutually contradictory hypotheses can be found in Lyle N. McAlister, "The Military", Continuity and Change in Latin America, (ed.) John J. Johnson (Stanford, Calif.: Stanford University Press, 1964), Ch. 5.

2. William J. Siffin, "Relations Between Political and Administrative Development: Some Questions and Propositions" (paper delivered at the 1963 Annual Meeting of the American Political Science Association, New York City, Sept. 4-7, 1963).

3. David E. Apter, The Politics of Modernization (Chicago: The University of Chicago Press, 1965), pp. 458-59.

4. The hypotheses listed under the "bureaucratic" model were reconstructed from the Siffin paper mentioned in footnote 2 as well as the following: Emmette Redford, "Centralized and Decentralized Political Impacts on a Developing Economy: Interpretations of American Experience" (C.A.G. occasional paper, Bloomington, Ind., Feb. 1967); Alfred Diamant, "Bureaucracy in Developmental Movement Regimes: A Bureaucratic Model for Developing Societies" (C.A.G. occasional paper, Bloomington, Ind., 1964); Jerald Hage, "An Axiomatic Theory of Organization," Administrative Science Quarterly (Vol. 10, Dec. 1965). The "resolved" hypotheses were derived from: Robert T. Holt and John E. Turner, The Political Basis of Economic Development (Princeton, N.J.: D. Van Nostrand Co., 1966); Jan Tinbergen, Centralization and Decentralization in Economic Policy (Amsterdam: North-Holland Publishing Co., 1954); Thomas Marschak, "Centralization and Decentralization in Economic Organizations," Econometrics (Vol. 27, no. 3, July 1959); Emil J. Sady, "Improvement of Local Government and Administration for Developmental Purposes," Readings in Comparative Public Administration, (ed.) Nimrod Raphaeli (Boston: Allyn and Bacon, 1967), pp. 239-57; Gabriel A. Almond and G. Bingham Powell, Jr., Comparative Politics: A Developmental Approach (Boston: Little, Brown, 1966), as well as from Apter's book.

5. Jean Blondel, An Introduction to Comparative Government (New York: Praeger Publishers, 1969), p. 283.

6. If you review the statements of Diamant and Redford cited in footnote 4, you will see that Diamant defines centralization as expanding scope of public activity, while Redford discusses both meanings, expanding scope and the organization of multi-level government relations.

7. As an example of these definitions of "centralized" in the "resolved" approach, Holt and Turner (see footnote 4) concern themselves with the intervention of government into the economic order, while Sady (also see footnote 4) is preoccupied with the devolution of decision-making to local public units.

8. Arnold S. Tannenbaum, Control in Organizations (New York: McGraw-Hill Book Co., 1968), Ch. 1.

9. In Aaron Wildavsky, "The Political Economy of Efficiency," Public Administration Review (Vol. 26, Dec. 1966), pp. 304-05, see his distinctions between "policy politics" (which policy will be adopted) and "systems politics" (how will decision structures be set up).

CHAPTER II

ANALYTIC INDICES AND TECHNIQUES

Maddick, in discussing intragovernmental relations, states the major research obstacle to evaluating the two models of public sector organization as well as anyone when he says: "The relationship between central and local authorities is an untidy, awkward thing to write about".[1] The "untidiness" of the independent and dependent variables is further compounded by the necessity to engage simultaneously in comparative and longitudinal analysis. Not only are the concepts of centralization and development amorphous, but the possible operational indicators are tentative and often fragile. Despite the severity of these problems common to macro-comparative research, empirical indicators for centralization and development must be constructed through operations permitting measurement across nations and over time. Likewise, analytic routines capable of establishing the existence (or nonexistence) of the expected associations must be selected. As Mayer has forcibly argued, some of the most promising research efforts have been those that specified indicators for "untidy" concepts and pushed forward with statistical

analysis rather than remaining fixated on theoretical niceties which lack the potential for empirical import.[2]

Analytic Indices: Centralization

Studies of centralization reveal numerous alternative operational measures.[3] Most of these potential candidates break down in comparative and/or longitudinal research. They either fail to provide for cross-national equivalence or sufficient records of them have not survived from the past.

Discourses on public finance make common use of centralization measures which overcome many of the problems inherent in comparative politics research. With very little hesitation or apology, economists who study changes in the organization of public activity employ expenditure (or revenue) ratios as indicators of centralization. The immediate advantage of fiscally-based measures is their research utility. Because the records exist and extend over lengthy time periods for a number of nations, these ratios are seized upon to advance research.

In addition to their longitudinal availability, expenditure records from the various nations can be rearranged so as to yield indicators of reasonable comparability despite differences in national accounting practices. Likewise, because fiscal ratios are of

interval quality, they facilitate quantitative analysis.

Public expenditure measures also adequately estimate the concentration or dispersion of government control. Though the relationship between expenditures and the level of public activity will seldom be perfect due to factors such as corruption, public spending remains the single best estimator of public activity. Therefore, if the interest is, as it is here, in the concentration of control within the organizational dimensions of public activity, then using various expenditure ratios not only conforms to well-established practice, but also comes conceptually closest to operationalizing the independent variable.[4]

Though adopting public spending indices for estimating centralization appears straightforward, some mention must be made of the problems generally associated with efforts to quantify the organizational properties of the public sector. In any discussion of centralization, unit autonomy becomes the first issue raised. Formal and legal indicators possess limited empirical utility because they offer little insight into the fluid relationships present in each of the organizational dimensions. It will be assumed here that to the extent a given governmental unit can spend a portion of public resources, the unit gains a like

amount of control over the activities undertaken by the public sector.[5]

The choice between expenditures or revenues as the appropriate fiscal evidence poses the second general problem. To be frank, the choice always is somewhat arbitrary. The option for expenditures rests, first, on the position that expenditures more clearly delineate public activity than do revenues, especially if the impact of public action is under investigation.[6] Second, the public sector's capacity to meet the challenge of modernity depends more on its willingness to spend -- i.e., initiate and complete projects -- than on maintaining a balanced budget.[7]

Once expenditures have been chosen to gauge public action, the issue of defining government spending arises. It would be presumptuous to launch into a detailed statement on public expenditures. Instead of wrestling with such fine points as exhaustive versus nonexhaustive expenditure, functional or agency classification, I have borrowed a standard definition from public finance studies which approximates those found in the national accounts of various nations.[8]

Grants-in-aid generate the final problem associated with the definition of government expenditures and their use as indicators of the public sector's properties. Due to this study's extensive coverage, the available

sources have dictated the expenditure elements included for a given level of government. While this may lead to double-counting in some cases, the effect on the ratio values is minimal. An effort was made to verify the deviations caused by the failure of the records to account for intragovernmental transfers in some nations at certain periods. In most instances, relying on total values for each governmental level does not significantly change the value of the indices of centralization.

The following fractions serve to measure the degree of centralization in each of the organizational dimensions of public activity:

a) Structure

1. National government expenditure as a percentage of total government expenditure (N.G.E./T.G.E.).
2. National government expenditure minus defense expenditure as a percentage of total government expenditure minus defense expenditure (N.G.E.-Def.E./T.G.E.-Def.E.).

This first ratio is the most basic of all indices defining the distribution of policy control among levels of government.[9] The second index, by removing defense expenditure (including veterans benefits) corrects the basic structural ratio for those responsibilities peculiar to the national government. In one

sense, this second fraction measures the structural centralization of domestic or "civilian" public activity.[10]

b) Scope

1. National government expenditure as a percentage of gross national product (N.G.E./G.N.P.).
2. Total government expenditure as a percentage of gross national product (T.G.E./G.N.P.).

In study after study of public spending, this first ratio has remained the classic measure of the public domain in respect to community output. Because they are more widely available than subnational accounts, national figures have been utilized extensively in longitudinal research. However, as Woytinsky and Woytinsky point out, "a comparison of the expenditures of central governments in various countries is therefore inconclusive unless expenditures of provincial and local governments are also taken into account".[11] This provides the rationale for the second index which more closely expresses the relative size of government vis-a-vis the total economy.

c) Substantive Commitment

1. Defense expenditure (including veterans benefits) as a percentage of national government expenditure (Def.E./N.G.E.).

Substantive commitment is indicated by a rather simple functional classification of national spending into defense and civilian categories. Public spending could also be disaggregated by ministeries or collected into a small number of programmatic categories such as human resources, commercial resources, general government, and national security. The direct dichotomy between defense and other public spending was chosen over more elaborate possibilities because of the dominant role international conflict plays as a determinant of public finance and because of the importance of the "guns and butter" controversy continuous in many political systems.

Of course these are not the only fiscal indices appropriate for this type of study. They are, however, the indices which most directly quantify the independent variable, and more importantly, differentiate between the dimensions of public activity. The separateness of the three dimensions, especially of structure and scope, can be questioned. For example, if a nation maintains a very centralized public structure, then estimates of centralization of scope derived from the basic index (N.G.E./T.G.E.) will not be very wide of the true mark. However, as Table II-1 shows, the federal ratios correlate only weakly with scope. Correcting national spending for defense outlays weakens the relationship even further. Therefore, the different

sets of indicators are, in fact, measuring distinct dimensions of public activity.[12]

Table II-1: Pearson Product-Moment Correlation Matrix for Indices of Public Activity

	N.G.E. / T.G.E.	N.G.E.-Def.E. / T.G.E.-Def.E.	N.G.E. / G.N.P.	T.G.E. / G.N.P.
N.G.E. / T.G.E.	--	.703	.286	.246
N.G.E.-Def.E. / T.G.E.-Def.E.	.703	--	.139	.129
N.G.E. / G.N.P.	.286	.139	--	.960
T.G.E. / G.N.P.	.246	.129	.960	--

In one way or another, all of the above discussion rests on the foundation of the sources themselves (listed in Appendix A). Though the potential lode of public spending sources is rich, the vein deteriorates when local unit records for periods prior to World War II must be obtained. Serious collection difficulties confront the researcher: truncated series, series with only selected years, merging of short series into a single, longer one, and so forth. One of the principal reasons for initiating this project was to assemble and increase the stock of comparative public expenditure records, especially for subnational units.

It is highly unlikely that any data, especially time-series data, will be free from error. Though there is no ideal strategy to cope with these problems, some mention of the collection procedures is required. First, in respect to accuracy, the preference was for sources which might be termed "primary" on the basis that the original data was either collected or reconstructed with care.[13] This means using data developed by public finance "country specialists" who were engaged in efforts to reconstruct public activity over long time periods. If this type of monograph was unavailable, the second choice was for official national statistical series, especially efforts to present a longitudinal compendia for the given nation. The final preference was for documents from quasi-public institutes which made efforts to develop public finance records as a service to various citizen groups.

The choices made to insure accuracy were also taken in order to enhance the comprehensiveness of the data. Appendix B which lists the annual values for the various ratios of centralization gives some indication of the span of the data. The gaps apparent prior to 1917 result from: 1) the absence of subnational records, 2) the unavailability of annual G.N.P. calculations, and 3) the failure of governments to collect and maintain records of their actions. The use of

multiple sources for a given country to bridge these gaps in some cases poses the issue of merging different data sets. Fortunately, history in the form of international conflict or regime change often creates a natural break-point in a nation's records and the sources available.[14]

In addition to accuracy and comprehensiveness, reliability must also be achieved. Errors, though they can be reduced by judicious selection of sources, may still remain. To minimize them even further, a simple procedure suggested by Schuech was used.[15] This lead to calculating decade averages for the various centralization ratios. Not only do the decade averages stabilize the reliability of the centralization scores, they also aid in merging the data sets from different sources. And finally, calculating decade averages expedites the analysis, as will be described in the discussion of the sources for the dependent variables.

Inclusion of mixed sources for a given nation and different types of sources comparatively can be justified solely on the grounds of extending the available data base. Currently, in political science and economics, longitudinal studies of the public sector have been limited to single nation monographs or to a comparison of the most advanced nations such as Germany, the United Kingdom, and the United States. The

advantages of breaking out of this "large nation" bias and "developed nation" bias may compensate for some of the rough edges on the empirical evidence.

Analytic Indices: Development

Just as with centralization, alternative operational indicators characterize research on development. Unlike centralization, however, many measures of development function successfully in comparative and temporal analysis. Since the hypotheses derived from the two models dictate the general aspects of the dependent variable (economic growth, political development, and social modernization), the chief problem is the selection of conceptually appropriate indicators from the many useful ones.

Presently, different theories of development are converging to form an interdisciplinary synthesis capturing the commonality of the dependent variable into a general concept which aids in choosing correct indicators. This newly-emerging "development syndrome" holds that development is effected 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.[16] These are generally defined as: "the attainment of a mass participation polity, the promotion of economic development, and the

establishment of a welfare state".[17] Taken together, these outcomes associated with the "development syndrome" identify the crucial components of the dependent variable and considerably reduce the task of selecting appropriate measures. For each aspect of development, the following indices will be used:

a) Economic Growth

In addition to gross national product, the workhorse measure of economic performance, the percentage of the labor force employed in the primary sector and steel production will serve as indicators of "the promotion of economic development". By stretching the chain of inference, G.N.P. could singly measure growth; however, it is an improvement to employ the additional two variables because they expand the information about the economic performance of a given nation.[18]

Instead of combining the three economic variables into a single index, keeping them separate retains critical detail for evaluating the relationship between centralization and economic growth, as expected by the two models. Those propositions which hypothesize that centralized government facilitates economic growth should be bolstered by positive associations between centralization (structure and scope) and steel production, as well as G.N.P. Conversely, one would expect the opposite pattern for centralization and agricultural

employment. Comparing the patterns for each measure of economic development enhances the ability to assess the two models from different perspectives.

b) Political Development

Determining "the attainment of a mass participation polity" requires measuring legitimate and illegitimate political behavior, as well as obtaining some information about the constraints on participation. The status of the legislature and the conditions of suffrage will chart the nature of legitimate political action. The first index shows the existence of a legislature directly or indirectly elected by a relatively broad electorate. The second index assesses the legal framework of suffrage. In essence, these two variables examine the possibility of institutionalized political participation.

For illegitimate political behavior, non-legitimate participation indicates the most serious non-legitimate political and military acts in a decade. Domestic political violence, a second measure of illegitimate action, scores the most violent political acts committed in a country during each decade. It differs from the first variable by emphasizing serious violence in broad categories such as major rioting, coup d'etat, rebellion, and civil war. Non-legitimate participation covers a more detailed range of behavior from foreign intervention

and assassination to separatist rebellion and urban uprisings. Together, these two variables measure non-legitimate opposition to the prevailing government.

Often the only evidence of political activity originates out of reports concerning a government's response to citizen action. It can be argued that as development proceeds, government efforts to constrain participation are likely to increase.[19] Such constraints, therefore, may be the single best indicator of political participation. The measure of participation constraints is the degree of political suppression which indicates the most serious government acts of political and coercive suppression during a decade.

As with the economic growth measures, these differing facets of political development must be viewed through a comparison of their respective behavior with the independent variable. For example, the "resolved" model suggests a positive association between decentralization and legitimate participation and negative associations between the independent variable and the remaining two dimensions of mass participation. Again, the impact of changes in the organization of public activity on political development can best be studied with a number of different, yet conceptually related, indicators of mass participation.

c) Social Modernization

Literacy, infant mortality, and the number of elementary education pupils serve as measures for "the establishment of a welfare state". From among the many candidates, these three measures of modernization go to the heart of the social change process and are available in a number of nations over fairly long time spans. Of the two models, the "resolved" position produces a clear proposition to test. If one assumes that efforts to "establish a welfare state" equate with system response, then decentralization should associate with social modernization.

The data for development comes from the Minnesota Political Data Archive which is one of the more extensive collections of comparative quantitative data in historical depth.[20] Though the operational indicators for development follow the archive's definitions, the particular interpretation in this study are my own. It should be noted in regard to political measures, the M.P.D.A. codes and stores data by decades, that is, a summary score was used to give a single value for each decade. In order to maintain comparability from one data series to another, the author calculated decade average scores for each of the independent and dependent variables, even though in many cases annual values exist for lengthy periods.

Analytic Techniques: Alternative Designs

Though most comparative researchers pay lip service to the ritual slogan "theory determines method", very few must truly believe it, since "timeless" cross-sectional designs constitute the standard operating procedure for testing models of development. The litany of shortcomings attributed to cross-sectional analysis is now increasingly being chanted in technical discussions of comparative research. Among the familiar accusations are: 1) making longitudinal inferences from cross-section analysis, 2) waging "the battle of the N's" and the concomitant gross comparison of units such as the United States and Dahomey, and 3) failing to adjust or correct for "Galton's problem".[21] Explication of the shortcomings associated with single frame, cross-sectional designs need not be extended here, instead solutions to the problems will be addressed.

The obvious solutions are two: 1) increase the number of cross-sections; and 2) switch to serial analysis. Assuming one can collect the needed evidence for a number of time-frames (say the seven decades from 1900 to 1970), multiple cross-section analysis is a simple and direct strategy for overcoming many of the previous objections. Unfortunately, increasing the time-slices does not silence the complaints.

Nor should there be any expectation of resolution. Flanigan and Fogelman raise serious questions about cross-sectional research applied to the study of development, even when the design utilizes multiple sections. They demonstrate two telling objections to cross-sectional research: 1) the strength of successive correlations (i.e., over sections) will vary, and 2) the relationship between the different sets of variables can change through time.[22] These comments strike crippling blows to multiple cross-section analysis which cannot easily be recuperated, even with such devices as the portrayal of the correlations between the variables within each cross-section and of each variable with itself over time as in the work of Cutright and Wiley.[23] The only path left to follow is the second solution.

The many advantages of longitudinal analysis have recently begun to attract more and more researchers in politics. Because diachronic studies permit the study of sequences, the estimation of duration, and greater configuration specification, they are increasingly being used to reconstruct the past and add dynamics to what has been until now static political theory.

Just as with multiple cross-section analysis, serial designs are not an immediate panacea. Difficulties such as trends, cycles, and autocorrelations detract from their ready application. Since the

technical details of these problems have been reviewed in other places,[24] it is more important to stress the point that, while both designs have their own special advantages, neither of them is necessarily superior to the other. It should not be surprising that the results generated by each design will differ, for they aim at answering different questions.[25] At the same time, each design is an improvement over single section analysis and can make a unique contribution to evaluating models of the public sector.

Despite these various analytic problems, the general procedure employed is to correlate centralization with development across sixteen nations and over the period 1870-1970. Multiple cross-section and serial designs are executed in order to answer comparative and longitudinal questions. For each decade of the cross-section analysis, standard Pearson product-moment coefficients are calculated between each independent and dependent variable. The standard F test of significance for Pearson r is used.[26] Quite naturally, as one approaches the beginning of the century, the number of nations and quality of data declines. This deterioration does not nullify the exercise because: 1) a number of consistent relationships persist across decades, and 2) the cross-sectional results bear some correspondence to the serial findings.

In the same manner that product-moment coefficients can be computed for cross-sectional analysis, they also can be computed for time-series data. Chapter IV evaluates the models of public organization from such serial correlations. Instead of the usual significance test which takes sample size into account, the index of forecasting efficiency (E) was chosen. E, because it is analogous to P.R.E.-type statistics, allows for the comparison of product-moment coefficients without any reliance on sample size.[27] This feature overcomes the problem of trying to compare correlations drawn from samples averaging six to eight decades where the data intervals are of decade length.

The set of nations in this study can in no way be construed as a technical sample of the universe of nation-states.[28] Though sophisticated efforts continue to attempt random macro-samples of nations, they still stumble over large obstacles such as missing data. Dropping the pretense to scientific sampling and insisting on limited inference has the payoff of advancing the understanding of development in the same manner that slowly expanding collections of national data have aided economists who study business cycles.[29]

FOOTNOTES

1. R. Maddick, "Some Effects of Technical Innovations on the Relationship Between Central and Local Authorities," International Social Science Journal, Vol. 12, no. 3 (1960), pp. 385-93.

2. Lawrence C. Mayer, Comparative Political Inquiry: A Methodological Survey (Homewood, Illinois: The Dorsey Press, 1972), Ch. 13.

3. Any catalogue of indicators of centralization would include: 1) formal constitutional pattern, 2) form of decision-making, 3) geographical dispersion of activities, 4) information flows, 5) expenditure and personnel compensation patterns, and 6) political party control. See the following representative studies: 1) Arthur S. Banks and Robert B. Textor, A Cross-Polity Survey (Cambridge: The M.I.T. Press, 1963), 2) Marshall Meyer, "The Two Authority Structures of Bureaucratic Organizations", Administrative Science Quarterly, Vol. 13, No. 2 (Sept. 1968), pp. 211-28, 3) H. J. Kruisinga (ed.), The Balance Between Centralization and Decentralization in Managerial Control (Leiden: H. E. Stenfert Kroese, 1954), 4) Manfred Kochen and Karl Deutsch, "Toward a Rational Theory of Decentralization: Some Implications of a Mathematical Approach", American Political Science Review, Vol. LXII, no. 3 (Sept. 1969), pp. 734-49, 5) Thomas Whisler, "Measuring Centralization of Control in Business Organizations", New Perspectives in Organization Research, (eds.) William Cooper, Harold Leavitt, and Maynard Shelley II (New York: John Wiley, 1964), Ch. 18, 6) William Riker, Federalism (Boston: Little, Brown, 1964).

4. Concurring in this usage of public expenditures, Ilchman and Uphoff say "public bureaucracies can best be understood in infra-structural terms and analyzed in terms of the flow of resources". Warren Ilchman and Norman Uphoff, The Political Economy of Change (Berkeley: University of California Press, 1969), p. 247. This "flow of resources" (money) can best be measured by simple "concentration ratios" well-known in economics which are, mathematically, simple fractions. See Hayward Alker, Jr. and Bruce Russett, "Indices for Comparing Inequality", Comparing Nations, (eds.) Richard Merritt and Stein Rokkan (New Haven: Yale University Press, 1966), Ch. 16.

5. For a forceful discussion of the inter-governmental "partnership", see Jean Blondel, An Introduction to Comparative Government (New York: Praeger Publishers, 1969), p. 299. A similar assumption concerning the division of control among levels of government can be found in Paulo Reis Vieira, "Toward a Theory of Decentralization: A Comparative View of 45 Countries" (unpublished Ph.D. dissertation, University of Southern California, 1967).

6. Though it is often said that government expenditures are tied to revenues, the argument is overdrawn. The major determinants of expenditures are socio-political phenomena such as industrialization, urbanization, war, changes in political power and so forth. Certainly in the post-Keynesian era (and likely before as well) "public revenues serve in only a very limited fashion as a restraint on public expenditures". Frederic Pryor, "Elements of a Positive Theory of Public Expenditures", Finanzarchiv (Dec. 1967), p. 428.

7. Irma Adelman and Cynthia Morris, Society, Politics and Economic Development: A Quantitative Approach (Baltimore: John Hopkins Press, 1967).

8. "The definition of government expenditure includes not only the purchase of goods and services but also transfers and subsidies . . . following social accounting convention, the expenditure of the public corporations and other public enterprises, whose transactions are not included in government accounts, are excluded . . . also included are both current and capital budgets". Shibshankar Gupta, "Public Expenditures and Economic Growth: A Time-Series Analysis," Public Finance, Vol. XXII, no. 4 (1967), pp. 423-71.

9. Alan Peacock and Jack Wiseman, The Growth of Public Expenditure in the United Kingdom (Princeton, N.J.: Princeton University Press, 1961).

10. There are a variety of possible modifications of N.G.E./T.G.E. Some researchers correct for solely national responsibilities by subtracting, in addition to military outlays, the public debt, spending on diplomatic affairs, the postal service, etc. For an example of constructing such a "common functions" index, see Ira Sharkansky, The Politics of Taxing and Spending (Indianapolis: The Bobbs-Merrill Co., 1969), Ch. 5.

11. W. S. Woytinsky and E. S. Woytinsky, World Commerce and Government: Trends and Outlook (New York: The Twentieth Century Fund, 1955), p. 684.

12. Conceptually, substantive commitment should not correlate with structure. More likely, it might associate with scope. Actually, substantive commitment (Def.E./N.G.E.) has a weak negative relation ($r = -0.09$) with scope (T.G.E./G.N.P.). Table II-1 is the result of a cross-tabulation of all sixteen nations using the data as listed in tables found in the Appendices cited in Chapter III.

13. Wolfgang Zapf and Peter Flora, "Some problems of time-series analysis in research on modernization," Social Science Information, Vol. 10, no. 3, pp. 53-102.

14. Japan and Romania provide two excellent examples. Prior to World War II, the Japanese Department of Finance produced The Financial and Economic Annual of Japan beginning with 1901. After World War II, the Japan Statistical Yearbook, now the principal data source, attempts to connect present data with the previous series. Romania exemplifies an even sharper break because the "socialist regime" now in power begins its official series with 1950 and makes no effort to link with pre-World War II records.

15. Erwin K. Scheuch, "Cross-National Comparisons Using Aggregate Data: Some Substantive and Methodological Problems," Comparing Nations, (eds.) Richard Merritt and Stein Rokkan (New Haven: Yale University Press), Ch. 7.

16. This paragraph's thesis rests on the theoretical convergence on the main processes of development that is occurring in economic and political development literature. For example, see Albert Hirschman, The Strategy of Economic Development (New Haven: Yale University Press, 1958) and Fred Riggs, "The Theory of Political Development", Contemporary Political Analysis, (ed.) James Charlesworth (New York, Free Press, 1967), Ch. 16. Both suggest an inducement or epidemiological model for development which sees growth as process of increasing the capability to produce desired goals as the national system moves from disequilibrium to to disequilibrium. Also see Leonard Binder, et. al.,

Crises and Sequences in Political Development (Princeton, N.J.: Princeton University Press, 1971).

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

18. Edward Denison, Why Growth Rates Differ: Postwar Experiences in Nine Western Countries (Washington, D.C.: The Brookings Institution, 1967), Ch. 21.

19. Samuel P. Huntington, Political Order in Changing Societies (New Haven: Yale University Press, 1968), Ch. 1.

20. The brief descriptions of each development variable given here are taken from M.P.D.A.'s brochure on the various works emanating from the archive. A descriptive brochure is available by writing to the archive at 1414 Social Science, University of Minnesota. All requests for data should be addressed to Professors Flanigan and Fogelman.

21. See Robert Burrowes, "Multiple Time-Series Analysis of Nation-Level Data," Comparative Political Studies, Vol. 2, No. 4 (Jan. 1970), pp. 465-80 for a cogent review of the first two general complaints against cross-section research. Regarding "Galton's problem," see John Gillespie, "Galton's Problem and Parameter Error in Comparative Political Analysis" (paper presented at the 1970 meeting of the Midwest Political Science Association).

22. William Flanigan and Edwin Fogelman, "Patterns of Democratic Development: An Historical Comparative Analysis" (paper presented at the annual meeting of the American Political Science Association, 1968).

23. Phillips Cutright and James Wiley, "Modernization and Political Representation: 1927-1966," Studies in Comparative International Development, Vol. V, no. 2 (1969-1970).

24. See any number of statistics and econometrics texts, especially good beginning points are Taro Yamane, Statistics, An Introductory Analysis (New York: Harper and Row, 1964) and Daniel Suits, Statistics: An Introduction to Quantitative Economic Research (Chicago: Rand McNally, 1963).

25. Flanigan and Fogelman, "Patterns of Democratic Development. . .".

26. H. M. Blalock, Jr., Social Statistics (New York: McGraw-Hill, 1960).

27. N. M. Downie and R. W. Heath, Basic Statistical Methods, 2nd ed. (New York: Harper and Row, 1965), pp. 223-26. The computing formula for the index of forecasting efficiency (E) is:

$$E = (1-k)\ 100$$

where $K = 1-r^2$

r = Pearson product-moment coefficient

28. The following sixteen nations are analyzed here: Australia, Belgium, Brazil, Canada, France, Germany, India, Italy, Japan, Norway, Peru, Romania, Sweden, Switzerland, United Kingdom, United States.

29. Burrowes, "Multiple Time-Series Analysis... .", p. 476.

CHAPTER III

MULTIPLE CENTRALIZATION PATTERNS OF PUBLIC ORGANIZATION

A lack of longitudinal evidence beyond a small number of developed nations and the failure to collect existing data into a single, comparative study remain a barrier to evaluating alternative prescriptions of optimum public organization. Expanding the national units surveyed longitudinally opens the door to estimation of the consequences of a given public form. However, before the analysis of centralization's impact on development can proceed, its temporal and comparative patterns must be described. Chapter III pursues this task by classifying public expenditure evidence along the three organizational dimensions of public activity.

Part I: Organizational Dimensions of Public Activity in Comparative, Longitudinal Perspective

Prior to sketching the centralization patterns, I want to post a warning about the sensitivity of the analysis to differences in mode of display. Because the various indices of centralization yield proportions, a number of different display formats are possible, and obviously nations will exhibit different patterns

depending on the mode chosen. For example, the nation-by-nation ratios can be portrayed in fullest detail by graphing them using the annual scores listed in Appendix B. Since the last chapter presented reasons for collapsing the annual data into decade averages, the indices of centralization will be charted over decade intervals in this chapter's tables.

A. The Structure of Public Activity

Previous research on public sector centralization concerns itself chiefly with the determinants of centralization, as shown by variations in the secular trend of public spending. Much of this discussion revolves around the theoretical explanations of the erosion of power in subnational decision-making units. Let me emphasize that I am not directly interested in the determinants of centralization, but rather I simply want to first sketch the degree of centralization for each nation as a preliminary to analyzing its impact on development. After the national series have been surveyed, mention of their bearing on earlier efforts will be appropriate.

From Table III-1, it is immediately obvious that the centralization ratios between nations vary enormously. For instance, in the period between the two world wars, the spread on structural centralization runs from 0.125 (India) to 0.939 (Romania). More

Table III-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

Australia:	AU	France:	FR	Japan:	JA	Sweden:	SD
Belgium:	BE	Germany:	GE	Norway:	NO	Switzerland:	SZ
Brazil:	BR	India:	IN	Peru:	PE	United Kingdom:	UK
Canada:	CA	Italy:	IT	Romania:	RO	United States:	US

important, this variation between nations is greater than the variation within each nation over time.[1]

Equally noteworthy as the great diversity in centralization is the small amount of change exhibited by seven of the sixteen nations (Belgium, Brazil, France, Italy, Peru, Romania, and Sweden). The stability of their central-local relations has persisted through a considerable time-span marked by severe societal changes. Quite simply, Table III-1 demonstrates that many nations do not experience significant changes in their degree of structural centralization.[2] While most of these nations with stable levels of structural centralization have high index values (0.70 and over), Brazil and Sweden maintain their stability in a more moderate range (between 0.40 and 0.70). This means that the degree of centralization and the stability of structural arrangements are the result of differing forces.

Among those nations which do manifest varying degrees of centralization, two general groups emerge. First, a steady shift of public activity from sub-national to national levels characterizes a group of three countries -- Germany, India, and the United States. For these three countries, the central government was barely active before 1900, but with the disruptions of the World Wars, the Great Depression, and what has been called "the institutionalization of permanent crisis,"[3]

the national governments have steadily augmented their control within the public sector.[4]

Australia, Japan, Norway, Switzerland, and the United Kingdom exemplify a set of nations whose structural arrangements vacillate substantially over the last hundred years. Though together they display wide swings in centralization, only in 1940 do they move jointly as a group.[5]

Another point suggested by Table III-1 is the absence of common movements among the various units. Not only do they form distinct patterns (stable in contrast to fluctuating), but the overall national trends in centralization change in different directions on a comparative basis. That is, comparing countries from one decade to another, some nations increase in centralization, others decrease, and some remain unchanged.

Contrary to conventional expectations, these nations cannot be categorized by political-legal types. If one compares the centralization ratios listed in Table III-1 with the catalogue of political-economic characteristics presented in Chart III-1, some interesting points emerge. For example, federally-organized states can be found among all three trends. This fact implies that the difference in the organization of

Chart III-1. Selected Political-Economic Characteristics, by Nation

Nation	Constitutional-Legal Structure	Type of Economy	Level of Economic Development (a) Recent	(b) Historical
AU	Fed.	Mar.	1985	Early High
BE	Un.	Mar.	1672	Early High
BR	Fed.	Mar.	271	Cont. Low
CA	Fed.	Mar.	2308	Early High
FR	Un.	Mar.	1694	Early High
GE	Fed.	Mar.	1761	Early High
IN	Fed.	Cen./Mar.	89	Cont. Low
IT	Un.	Mar.	1026	20th Cen.
JA	Un.	Cen./Mar.	890	20th Cen.
NO	Un.	Cen./Mar.	1874	Early High
PE	Un.	Mar.	243	Cont. Low
RO	Un.	Cen.	399	Cont. Low
SD	Un.	Cen./Mar.	2370	Early High
SZ	Fed.	Mar.	2252	Early High
UK	Un.	Mar.	1642	Early High
US	Fed.	Mar.	3300	Early High

Constitutional-Legal Structure -- Federal: Fed.
Unitary: Un.

Type of Economy -- Market: Mar.
Centralized: Cen.
Mixed: Cen./Mar.

Level of Economic Development -- Recent: G.D.P. per capita in 1966 US $; Historical: Continuous Low: Cont. Low (% work force in Agric. always exceeds 60%). 20th Century: 20th Cen. (% work force in Agric. in 1900 < 60% and in 1960 < 35%). Early High (% work force in Agric. in 1860 < 60% and in 1960 < 25%).

public activity between federal and unitary states may not be as crystal clear as it appears to constitutionalists.[6]

Similarly, these sixteen nations cannot be arranged by either type of economy or levels of economic development. For example, of the seven nations which show no change in their degree of structural centralization, there are capitalist, socialist, and communist economic systems as well as highly developed, moderately developed, and underdeveloped economies.[7] With Australia, Japan, Norway, Switzerland, and the United Kingdom possessing changing degrees of national control, distinctions based on federal versus unitary government and market versus centrally-planned economy simply have no explanatory power. These results completely negate many prior discussions of centralization which relate the degree of national control to constitutional or economic system factors. Such a conclusion should give pause to hasty taxonomies of nation-states.

Table III-1 yields one additional and unusual conclusion. Over time, there appears to be a "convergence" of values in the middle range of the centralization index. In the 1960's, nine of thirteen nations fall in the 0.40 to 0.70 range; while in the 1900's four of ten nations were in the same span. Looking over the graphs of the centralization scores, "convergence" includes

nations with high and low levels of structural centralization before 1940. This evidence agrees with Mesmer's research, which on the basis of a cross-sectional analysis of fifty-three nations (1950-1955) concluded that as nations develop, their centralization ratios converge.[8]

Because international conflict produces serious disturbances in a nation's degree of centralization, it needs to be "removed" from the analysis. As a check on war's capacity to disrupt the normal structural form of a given public sector, I have corrected the basic structural ratio by subtracting defense spending from the numerator and denominator. Recall from the last chapter that this second structural index, while not being totally ideal, is an estimator of the degree of national control over non-defense or "civilian" expenditures.

The evidence for "domestic" centralization shown on Table III-2 confirms the expected: all nations have lower ratio values for non-defense public activity. For the nations over time, the average reduction is slightly over ten percent. Again, the variation between-nations is larger than the within-nation variations over time. Thus, removal of defense expenditures uncovers more inter-nation diversity.

Table III-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

While the organizational forms for domestic activity show more spread in contrast to total public activity, there now is less vacillation within each nation. This comes as no surprise because the intermittent centralizing pull of international conflict has been removed. With N.G.E./T.G.E., seven nations remained stable over time, whereas eight nations have stable structures for non-defense activity. Likewise, instead of three nations with linear-increasing trends, there are four. And instead of five nations having widely varying degrees of structural centralization, there are only three. These differences mean that central-local arrangements are quite stable during peacetime and that what shifts do occur are marginal.

Table III-2 also confirms the weakness of classifying nations by constitutional-legal or economic system types. Again, all three patterns of centralization consist of federal and unitary states as well as market and centrally-planned economies.[9] The "convergence" proposition also receives additional support. The over-time movements, as measured by the second ratio, show an increase of nations in the moderate range for the contemporary period.

While the ratio of domestic centralization confirms the findings of Table III-1, it extends the analysis through an ability to detail changes in the distribution

of political power in a nation.[10] That is, by filtering out the major exogenous influence on nation-states, the "civilian" ratio permits the researcher to chart endogenously-induced shifts with greater clarity. A few examples of endogenous changes will suffice for illustration. Adolf Hitler's accession to power in Germany stands out sharply as the ratio shifts from 0.467 in 1933 to 0.556 in 1934 and continues acutely upwards.[11] For those seeking ammunition against the "Tweedledum-Tweedledee" view of American political parties, the non-defense index shows the relative passivity of the Eisenhower presidency contrasted with the search for the New Frontier and the Great Society. The precipitous decline in Brazil's centralization trend during the 1920's corresponds well with the rapid decay of the federal government's ability to cope with forces contending for national power. This whole decade was rife with political turmoil and attempts to overthrow the "Old Republic." The decentralizing trend reverses itself during the 1930's when Getulio Vargas established the authoritarian Estado Novo.[12] Likewise, the decentralization found in the non-defense index values for Japan from 1880 to the late 1920's matches the changes from the Tokugawa to Meiji to the Liberal period.[13]

In summary, the two ratios of structural centralization underline the assorted national trends. These diverse trends nullify taxonomies of public sector organization on the basis of constitutional-legal structures, types of economy, or levels of economic development. By negating many of the usual determinants of public sector organization, this result is important because it reaffirms public organization as an independent variable in the study of the policy process.

B. The Scope of Public Activity

The last chapter noted that among the common meanings and measures of centralization was the ratio of public spending to total community output. The use of this index developed out of the economists' need to gauge the impact of the public sector on the total economy. This ratio also has proven valuable for political research. For example, Russett et. al. compiled this measure cross-sectionally to estimate the "potential influence of government in the economy."[14] Much of the research on the relative size of the public domain generally focuses on the growth and evolution of public spending. As with the structure of public activity, I am not concerned with the factors that account for changes in scope; rather, before its impact

on development can be evaluated, the national trends must be outlined.

Detailing the scope of government over time shows that nations fall into different classes along this organizational dimension. Contrasting with structure, there is less between-nation diversity as exemplified by the narrow band from 0.00 to 0.30 which contains most of the decade values. Scores exceeding 0.30 are associated with periods of international conflict, the exception is Romania. In fact, though more variation characterizes the national scope series, most of this change can be accounted for by the onset of the World Wars. Specifically, of the nations showing numerous shifts, only Sweden is an exception to the common movements of Belgium, Canada, France, Japan, and the United Kingdom.

However, one must not make too much of war's impact on scope. Of the most stable nations (Australia, Brazil, India, Italy, Peru, and Switzerland), the three combatants -- Australia, Brazil, Italy -- do show some increase in scope during the 1940's, but the change can hardly be termed significant. Rather than assuming massive shifts in the public-private division, this evidence strongly reminds the analyst that crisis has a differential effect from nation to nation.

Table II1-3: 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	.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

Again, constitutional-legal arrangements have no taxonomic utility. On the other hand, economic factors can categorize nations into different time patterns on scope. Though the short data from Romania hints at a possible exception, the organization of the marketplace does not distinguish between nations as to their centralization of scope. But economic development appears to do so. The best example comes from the set of countries which have not changed over the decades. The common denominator of this group is their relative underdevelopment. Brazil, India, and Peru all possess transitional economies. Of the three "European" nations, Italy has only recently achieved a modern economy.[15] Australia and Switzerland developed sooner. Caution must be exercised in generalizing this result. At best, the evidence confirms the widely-held view that less developed nations tend to have small public sectors.

As for the "convergence" proposition, it possesses little analytic value for scope. The contemporary spread of nations exceeds the range found prior to World War I. In contrast to centralization within the public sector, constraints on scope exert greater resistance to change. In other words, a decision to manipulate the structure of public action is easier to implement than a decision to expand or contract the public sector.

Table III-4: Average Decade Ratio of 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

When the total public sector as a proportion of the national product can be calculated, the results do not differ radically from those using central government data. Inclusion of subnational activity into the measure of scope increases inter-nation diversity. Only four of sixteen countries have an unchanging public-private division. Of the majority which exhibit change, the rapid expansion of the public sector demanded by international conflict is operative. However, Sweden and the U.S.A. are deviating cases. Both nations show a steady, incremental growth in the size of their public sectors over the last 60-80 years.

Attempts to categorize nations by constitutional or economic frameworks lead nowhere. Only a typology ranking nations by levels of economic development has any meaningful value. For example, three of the four nations stable on total scope (Brazil, India, Peru) are comparatively "underdeveloped"; whereas the group that shows a linear increasing trend consists of four highly developed economies (Germany, Norway, Sweden, the United States). The nations characterized by fluctuating patterns of total scope have all achieved a relatively developed status. The data on total scope also agrees with the national scope evidence as to the general disutility of the "convergence" proposal for thinking about changes in the relative scope of the public

domain. Yet, in comparison to national scope, the values for total public sector fall within a tighter range in the current period. The conclusion is simple: examining only N.G.E./G.N.P. masks the contributions of sub-national units; once these units are included, all contemporary governments despite constitutional and ideological differences, strive to provide similar baskets of public goods and services.[16]

C. The Substantive Commitment of Public Activity

The degree to which public resources are devoted to one policy or another is the final organizational dimension of public activity to be described. The simple dichotomy illustrated on Table III-5 measures changes in the concentration of public resources committed to national defense. Aside from the obvious causal factor of international conflict, some important points obtain.

Instead of three distinct trends, only two appear: curvilinear or stable. The first pattern encompasses ten of the sixteen nations, nine of which have been combatants in major wars. The second and smaller set (Belgium, Brazil, Norway, Peru, Sweden) can be classed as minor combatants. Notice that no other factors -- constitutional, economic, or ideological -- serve to categorize these nations consistently on their defense expenditure records.

Table III-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	.110	.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

India offers an unusual case, one marked by a steady decline in the Def.E./N.G.E. ratio over the past fifty years. Australia, Canada, Germany, Italy, Japan, and Romania also exhibit this seeming demilitarization in the post-World War II era. Though this decline to below levels prevailing before World War II is important to note, actually the expansion of civilian activities by the center produces this reallocation of public resources.[17]

Contrary to the impressions put forward in the two models, the nations examined do not manifest a slowly increasing degree of centralization. Quite the opposite, either an unchanging or fluctuating time-series more commonly typifies a given nation's history of changes in public organization. Equally significant, the typical trend differs for each organizational dimension.

Second, the data undermines most proposed determinants of centralization. Constitutional-legal and economic market relationships again lack classificatory power. Only economic development levels serve to discriminate weakly between nations as to their degree of centralization and then only for the dimension of scope. This suggestion must be taken cautiously for the influence of international conflict clouds the issue. That is, if defense spending is removed from the

calculations of scope, many nations with sharp swings in scope revert to either a stable or slowly increasing trend in such fashion as to confound the analytic usefulness of economic levels. Even the common movements attributed to conflict must be dealt with carefully because war differentially affects the sixteen nations. The correct conclusion from the longitudinal evidence can be simply put: centralization is an independent property of public sector organization.

Part II: Empirical Patterns of Centralization

The longitudinal outlines of centralization taken from the above tables can be lost among the extensive combinations of units, indices, and time periods. While great detail informs, it can also obscure the main themes. Prior studies, because they concentrated on a single nation or a few nations, have only developed propositions limited to the small number of countries reviewed. With the larger set of units surveyed longitudinally on different indices, classification of the separate units into behaviorally-similar groups becomes necessary.[18] In analyzing the national series, it became evident that only a small number of empirically-identifiable patterns kept recurring: 1) stable over time, 2) linear increasing over time, and 3) curvilinear over time. To consistently assign

individual national series to these logical patterns, only operational definitions are missing. The following criteria are used to designate "behavioral categories" which chart the patterns of centralization along the three organizational dimensions of public activity:

Pattern I: Stable over time

a) range does not exceed 0.15

b) no decade-to-decade fluctuations to exceed ± 0.15

Pattern II: Linear increasing over time

a) range exceeds 0,15

b) no decline in decade-to-decade values to exceed - 0.10

c) contemporary value must exceed by + 0.20 or more the earliest decade value.

Pattern III: Curvilinear over time

a) range exceeds 0.15

b) series must exhibit at least one decade-to-decade increase exceeding + 0.15

c) series must also exhibit at least one decade-to-decade decrease exceeding - 0.15

Table III-6 gives the assignment of nations to patterns by index of centralization.

In order to distinguish "those units that have undergone a rapid change in X" from "those that have

Table III-6: Assignment of Nations to Centralization Patterns, by Index of Centralization

Indices of Centralization	Pattern I: Stable	Pattern II: Linear Increasing	Pattern III: Curvilinear
N.G.E. T.G.E.	BE PE BR RO FR SD IT	GE IN US	AU SZ JA UK NO
N.G.E.-Def.E. T.G.E.-Def.E.	BE PE BR RO FR SD IT SZ	GE IN NO	AU JA US
N.G.E. G.N.P.	AU IT BR PE IN SZ	GE NO US	BE JA CA SD FR UK
T.G.E. G.N.P.	AU IN BR PE	GE SD NO US	BE IT SZ FR JA UK
Def.E. N.G.E.	BE PE BR SD NO	(IN)*	AU JA CA RO FR SZ GE UK IT US

Australia:	AU	Germany:	GE	Peru:	PE
Belgium:	BE	India:	IN	Romania:	RO
Brazil:	BR	Italy:	IT	Sweden:	SD
Canada:	CA	Japan:	JA	Switzerland:	SZ
France:	FR	Norway:	NO	United Kingdom:	UK
				United States:	US

*Though classified here for convenience, India has a linear decreasing pattern for substantive commitment to defense. See footnote 42 text.

undergone no change or that have changed the most in the opposite direction,"[19] two qualities of each unit's time-series must be specified: 1) the span of variation, and 2) inter-decade change. Inspecting the national trends for each of the centralization indices, a significant break appears between those nations with a range less than 0.15 and those with a range of 0.20 and over.[20] While a range of 0.15 can seemingly disguise what some might consider significant shifts in centralization on a comparative basis, the narrow band of variation in many national patterns approaches a stationary time-series.

Though the range suffices to distinguish between stable and changing patterns, the degree and direction of inter-decade change is required to separate the various moving series into different categories. The crucial distinction comes between series exhibiting relatively steady increases over time and periodicity, and is expressed in the requirement that pattern II series not show any inter-decade decline exceeding - 0.10. This allows for an occasional small retrogression, but restricts this pattern to those nations featuring strong upward movement in their centralization scores.[21] By insisting that the contemporary centralization value be significantly larger than the earlier values adds a

further check to the separation of the linear increasing pattern from the curvilinear one.

The charge of brute empiricism could possibly be leveled against the operational definitions for the centralization patterns. However, to do so would be to ignore the current "incremental" explanations of public expenditure. Analysts such as Wildavsky, Crecine, and Anton have shown that public budgeting is incremental and stable over time, with any variations being considered stochastic error.[22] Their findings, while valid for the United States, may not apply to the budgeting practices of other nations, expecially those often classified as economically or politically "transitional." Applying the "incremental" theory to political centralization, one would expect small changes in the year-to-year scores, and even in the decade averages. National series with incremental changes would then be considered "stable," as called for by this explanation of public expenditure practices. Likewise, national series characterized by rapid growth or wide variations, whether caused by changing economic or political fortunes, would have to be termed "non-incremental." From this logic, the operational definitions for the centralization patterns can be derived. As Table III-6 demonstrates, the "incremental" thesis is a culture-bound explanation.[23]

The principal benefit of Table III-6 comes from its convenient summarization of the separate centralization ratio tables. It puts in bold relief all of the descriptive points made earlier. No longer can it be assumed that nations follow the same evolutionary path in the development of their public sectors. Quite the contrary, as a comparison of the centralization patterns (from Table III-6) with the national political-economic characteristics (from Chart III-1) shows, nations with similar constitutional or economic arrangements will often display marked differences in their time patterns of centralization along each organizational dimension. This discovery runs counter to the pervasive idea that individual public sectors evolve in a similar manner. While much of the support for this mistaken view derives from cross-sectional analyses,[24] it is uncritically accepted even by theorists who work with a longitudinal frame of reference, as exemplified by many developmentalists in both approaches to public organization.[25] Because the unilinear path so dominates developmental theorizing, it contributes directly to the polarized views as to the impact of centralization. The following section presents a review counterposing the evidence of this thesis with former research in order to further affirm the multilinear position and

to identify some basic shortcomings in unilinear formulations.

Part III: Some Conventional Wisdom Reconsidered

Perhaps the best review of current wisdom on public expenditure behavior can be found in Richard Musgrave's Fiscal Systems.[26] In his book, Musgrave marshalls numerous studies into a single coherent statement of theory based on a unified body of empirical evidence. The theory and evidence yield three variations of the basic pattern known as Wagner's "law."[27] Reproducing it in a somewhat simplified form, Wagner held that "in a number of industrial countries, the level of public spending had over an extended period, tended to increase . . . but more importantly public spending had increased at a faster rate than community input.[28]

Wagner argued that a number of forces fundamental to industrial society led to the growing dominance of government over a society's resources. Briefly, these forces are: 1) social mobilization, 2) the concentration of economic activity into a small number of firms, and 3) economies of scale achieved by government provision of social goods.[29] Wagner's belief in the universal effect of these forces can be seen in his

argument that "government will grow relative to economy regardless of the political character of the society . . . whether the political system is liberal or conservative, democratic or authoritarian, capitalistic or noncapitalistic, makes no difference.[30] A stronger statement of the unilinear development path would be unimaginable!

To date, the major studies of the public sector assume the presence of this linear and increasing secular trend for expenditures. The only difference between them can be found in their theoretical explanations for the shape of the trend. Not one makes a determined effort to challenge or disprove Wagner's original position. Clearly then, most theories of expenditure behavior remain within the paradigm established by Wagner's ideas.[31]

The linear trend implicit within the Wagnerian paradigm dominating public finance neatly dovetails with the current "incremental" explanation of public sector activity so favored by political scientists. Given the slow, but steady growth of public expenditures (at least in the nations usually studied), what better answer could be devised than that this fiscal pattern results from a balance of political forces (shades of classic pluralism!) and they in turn reflect the relative stability of the larger environment. While

having validity for some political-economic systems, the cross-national extension of incrementalism has limits. As I pointed out above, the principal research defect is very small sample size. A grand theoretical structure has been built on an exceedingly thin foundation. Rectifying this data shortage has been one reason for the present effort. How then does the additional evidence differ from the conventional wisdom of the unilinear pattern?

A. The Structure of Public Activity

Any study of public structure using public expenditure indices must consider Alan Peacock and Jack Wiseman's classic study, The Growth of Public Expenditures in the United Kingdom.[32] With the aid of long time-series data on the public expenditures and national growth of the United Kingdom, they attempt to supplement Wagner's "law" by examining the fluctuations in the secular trend of public activity. Basically, they propose two "effects" which account for the "alterations in the supply of public goods that occur within the secular trend of increasing public activity."[33]

The two "effects" are: 1) displacement, and 2) concentration. Displacement refers to the rapid, but temporary, increases that occur in public expenditures when a social crisis threatens a nation. Concentration "refers to the presumed erosion of power in subnational

decision-making units."[34] For a variety of reasons such as war (hot and cold), changing technology, increasing urbanization, and growth in transport and communication networks, Peacock and Wiseman see the central government assuming greater responsibility for public activity over time.

Criticisms of Peacock and Wiseman take two different forms. The first challenges their theoretical explanation for the workings of the displacement and concentration effects. Essentially, Peacock and Wiseman argue that a nation's urgent needs during a crisis permit the government to exceed normal levels of taxation and place a heavier fiscal burden on the population. As the crisis passes, the tax rate does not return to former levels because the populace has adjusted to a new higher "tolerable burden of public expenditure."[35] Critics contend that to assume a population adjusts to a higher "tolerable burden" puts the emphasis on the wrong side of the question. Rather the social upheavals which produce the marked shifts in public spending result in "radical changes about the proper role of government."[36] Consequently, new types of expenditures -- for example, welfare services -- become "desirable." Because pursuing the attitudinal aspects of public expenditure variations would take me far afield into questions of social psychology, I prefer

to turn to the second type of response to Peacock and Wiseman.

More relevant for this study are the issues raised by generalizing public activity patterns from a single case (i.e., the United Kingdom). Questions about the concentration effect appear in a number of studies. For example, Martin and Lewis contend that local government has little importance in underdeveloped states, thus restricting the operation of concentration and displacement to developed states.[37] As seen previously, Mesmer theorizes that as nations develop, their centralization ratios converge.[38] Davies notes that in federal systems the concentration effect does not hold.[39] And Gupta argues that displacement occurs during any general social crisis like economic depression as well as war.[40] The crucial question to be asked of this literature on public expenditure behavior is: do centralization patterns other than linear increasing exist?

Returning to Table III-6, the answer is emphatically yes. When applied to previous research on changes in the structural arrangements of public activity, the empirical evidence contradicts most of it. First, the structural stability of many nations on both indices demonstrates that the concentration effect does not operate to produce significant shifts in power from

local to national government in many nations. This means that Peacock and Wiseman's explanation cannot be generalized freely beyond the United Kingdom. At best, it may apply to nations of patterns II and III. Second, the concentration effect, when operative, influences nations differentially. As before, distinctions of federal versus unitary government and market versus centrally-planned economy have no explanatory power, with Australia, Japan, Norway, Switzerland, and the United Kingdom manifesting a curvilinear pattern on N.G.E./T.G.E. Likewise, pattern I, with the diversity of Belgium, Brazil, France, Italy, Peru, Romania, and Sweden, restrains any ready explanation.[41]

Just as the patterns have raised doubts about the Peacock and Wiseman findings, it also casts a shadow on some of the counter-arguments. While Peru and Romania confirm Martin and Lewis' proposition, the cases of Brazil and India call it into question. Brazil deviates because it shows a slow decentralization from its earlier moderate level and India deviates because of its low level of centralization prior to independence.[42] The evidence here suggests that Martin and Lewis' contention that local government is unimportant in underdeveloped nations might better be qualified to holding for unitary states only.

Davies' argument seems shaky on at least two grounds. First, if the temporal perspective is restricted to the post-World War II period which Davies uses, the patterns of India and more recently, Brazil, run counter to his thesis that local governments are growing in importance in federal states. Second, if the time-frame is expanded, of those nations for which he offers data -- Australia, Canada, Germany, the United States, and Switzerland -- the first four show higher centralization ratios in the post-World War II period than in the decades between the World Wars. On the other hand, Switzerland evidences a slightly more centralized structure prior to World War II than after, thus supporting Davies' hypothesis.[43]

The agreement between Mesmer's "convergence" proposal and the data here has already been discussed. However, the displacement hypothesis which sees war as the major external shock to the political system requires modification. Looking at both structural indices, Belgium, Peru, and Romania reach their highest centralization values during peaceful times.[44] This occurrence could be ascribed to Gupta's extension of the displacement effect to economic crisis on the grounds that these countries were experiencing the crisis of underdevelopment. But his view of displacement receives rough treatment from the empirical

evidence. France, Japan, and Switzerland among others reach low points in their centralization values precisely when, according to Gupta, they should be peaking, during the Great Depression.

The classification of nations on the indices of structural centralization shown on Table III-6 confirms the presence of differing patterns of centralization, and hence calls into doubt previous studies of public activity which assume a linear trend over time. Likewise, the detail concerning peacetime expenditures gained by removing defense spending, allows for the study of different types of structural "displacement." By rejecting the generality of economic crisis displacement and demonstrating the potential of "political" displacement, the national patterns on the modified structural ratio also permit an evaluation of the "incremental" thesis. Quite simply, incremental explanations only fit pattern II nations.

B. The Scope of Public Activity

Of the three organizational dimensions of public activity, what I have termed scope most directly equates with the ideas embodied in Wagner's "law." Thus, the requirement to demonstrate multiple patterns for scope exceeds that for structure. Basically, if Wagner's "law" holds in all cases, then only a linear increasing ratio of scope will be found, which will inhibit any

comparative test of centralized versus decentralized public sectors.

Table III-6 shows that nations do, in fact, fall into different patterns along the dimension of scope. However, some important distinctions between structure and scope appear. On the one hand, the relative homogeneity in the degree of underdevelopment characterizing the nations in pattern I confirms Wagner's view that nations experiencing growing public sectors will be those undergoing industrialization. On the other hand, the nations with curvilinear trends (pattern III) contradict Wagner's unilinear assumption. The evidence on the scope of public activity, while tending to confirm that the forces identified by Wagner and stressed by Musgrave do have some effect on the growth of the public sector, should caution uncritical acceptance of the unilinear secular trend for all nations, given the presence of stable and curvilinear cases.

C. The Substance of Public Activity

Again, as with structure and scope, failure to demonstrate different patterns of substantive centralization will hinder evaluation of the models of public organization. Unlike the previous indices, Def.E./N.G.E. splits the sixteen nations into two groups: curvilinear or stable.[45] Membership in these two patterns corresponds directly with involvement or

non-involvement in international conflict. Unsurprisingly, sharp increases in the degree of public resources committed to national security varies with the degree of military involvement. In terms of the impact of changes in this commitment on development, the more relevant factor will be level of defense spending maintained between wars.

The empirical evidence summarized in Table III-6 suggests that public activity development follows a number of different patterns. Whether the concern focuses on the structure, the scope, or the substance of public activity, at least three, not one, empirically-identifiable patterns appear when the set of nations contains types other than highly developed. To be sure, the forces causing shifts in centralization have been outlined with some success by earlier studies. Though Musgrave and others have identified economic, political, and social forces bearing on national expenditure patterns, he candidly admits "the evidence (about Wagner's law) remains puzzling and in need of further explanation, including greater emphasis on what we have called noneconomic factors."[46]

But Musgrave refers to the determinants of the centralization ratios, not their impacts. Why then is this public finance research important? The critical point is the fixation of economists on a single pattern of

centralization and the identification here of more than one basic pattern. As Richard Bird has succinctly summarized:

> In essence, the approach of Wagner's "law" to the problem of expenditure growth is teleological, that is, the process of development is presented as being from lower to higher shares of government in the national income, as though some unintended purposiveness is being inevitably fulfilled. The increase in expenditure is seen not as the result of individual and organizational choices which could conceivably have been made differently, but rather as a "function" of certain situations (changes in income, urbanization, etc.) or as fulfilling certain needs or requirements (technological change, monopolization).[47]

To the extent that models of public activity assume a teleological pattern of centralization, propositions linking changes in public organization to the development process will be faulty. Thus, the discovery of multiple patterns of centralization must be paramount and prior to any effort assessing the impact or contribution of centralization to development.

FOOTNOTES

1. Standard deviations for individual nations are markedly smaller than the standard deviation for all sixteen nations taken together.

2. This stability of the structural centralization index raises a serious analytic problem. From a statistical point of view, since these seven nations vary within a tight range over time, correlations between them and indices of development are precluded. While this can be a formidable research obstacle, there are two solutions:
   1) in a highly centralized structure, even a slight change (e.g., from 0.75 to 0.67) may, in fact, effect progress, and thus needs to be tested;
   2) these nations can be treated as a group and compared to the other patterns which exhibit change in order to evaluate the effect of the pattern per se.
   In either case, correlation analysis is appropriate and useful. For further discussion of these points, see Hubert M. Blalock, Jr., Causal Inferences in Nonexperimental Research (Chapel Hill, N.C.: The University of North Carolina Press, 1961), Ch. IV.

3. L. L. Wade and R. L. Curry, Jr., A Logic of Public Policy: Aspects of Political Economy (Belmont, Calif.: Wadsworth Publishing Co., 1970), p. 85.

4. For India, the initiation of greater activity at the center is less a result of the shock of war and more the response to the shocks of independence and "driving to modernity."

5. Despite the global sweep of World War II, some nations largely escaped its effect on their internal government structure, as seen by the Latin American countries of Brazil (a combatant) and Peru (a non-combatant).

6. Determination of the constitutional-legal structure of the nations listed on Chart III-1 comes from Jean Blondel, An Introduction to Comparative Government (New York: Praeger Publishers, 1969), Appendix. Also see Carl J. Friedrich, Trends of Federalism in Theory and Practice (New York: Praeger Publishers, 1968).

7. Assigning nations by types of economy is an especially difficult task, given the multitude of possible definitions. No one source can be considered

definitive. The basis of classification to market, centralized, or mixed economies follows "the method of resource allocation, rather than ownership of productive means" as used by Frederic L. Pryor, Public Expenditures in Communist and Capitalist Nations (London: George Allen and Unwin, Ltd., 1968), Ch. 1. The source for the gross domestic product/capita data is Arthur S. Banks, Cross-Polity Time Series Data (Cambridge, Mass.: The M.I.T. Press, 1971). And the source for the historical evidence on economic development is William H. Flanigan and Edwin Fogelman, "Patterns of Political Violence in Comparative Historical Perspective" (paper delivered at the 1969 annual meeting of the American Political Science Association in New York City, September, 1969).

8. Theodore Charles Mesmer, "Government Expenditures and Economic Growth: An International Comparative Study" (unpublished Ph.D. dissertation, University of Wisconsin, 1962).

9. For each index and each pattern, one always finds at least one federal and one unitary state. If one considers India, Japan, Norway, Romania, and Sweden as centrally-planned economies (or approximately so), then both types of economies are also present in each pattern along each index.

10. The non-defense centralization ratio amplifies the ability to detail what has been held to be one of the primary factors responsible for the growth of government spending and the cause of shifts in centralization -- changes in th distribution of political power in a nation. See W. S. Woytinsky and E. S. Woytinsky, World Commerce and Government: Trends and Outlook (New York: The Twentieth Century Fund, 1955), p. 686.

11. Non-defense centralization values for Germany during the 1930's are: 1932 (0.469), 1933 (0.467), 1934 (0.556), 1935 (0.557), 1936 (0.573), 1937 (0.608), 1938 (0.632). The ratios of central to total government expenditure for the same period are: 1932 (0.490), 1933 (0.513), 1934 (0.595), 1935 (0.636), 1936 (0.669), 1937 (0.718), 1938 (0.789).

12. Thomas E. Skidmore, Politics in Brazil, 1930-1964: An Experiment in Democracy (New York: Oxford University Press, 1967), Ch. 1.

13. Paul Langer, Japan: Yesterday and Today (New York: Holt, Rinehart, and Winston, 1966), pp. 79-96.

14. Bruce M. Russett, et. al., World Handbook of Political and Social Indicators (New Haven: Yale University Press, 1964), p. 57.

15. Prior to World War II, one would have to label the Italian economy as transitional. For example, not until the 1960's did Italy drop below 30% in agricultural employment.

16. For another study arriving at the same conclusion, see Phillips Cutright, "Political Structure, Economic Development, and National Social Security Programs," The American Journal of Sociology, Vol. 70, pp. 537-48.

17. James M. Buchanan, The Public Finance (Homewood, Ill.: Richard D. Irwin, Inc., 1960), pp. 53-54.

18. Usually any comparative study supplies a broad cross-section of national values such as current expenditures as a percentage of gross national product or offers a longitudinal graph with a small number of national units. Some of these studies merely describe their data set, others proceed to regression analysis; but few make any effort to distinguish different patterns for expenditure properties. These weaknesses -- reliance on cross-section evidence or failure to outline national expenditure patterns -- produce the differences in interpretation between previous research and this study.

19. Blalock, p. 125. Also, refer back to footnote 2 above.

20. A few nations fall into the zone between 0.15 and 0.20. These units present difficulty in pattern assignment because of their marginality between patterns.

21. This requirement helps distinguish between linear increasing and linear decreasing trends. See footnote 42 below.

22. For examples of the "incrementalist" school, one can consult: Aaron Wildavsky, The Politics of the Budgetary Process (Boston: Little, Brown, 1964);

John P. Crecine, Governmental Problem-Solving (Chicago: Rand McNally, 1969); and Thomas Anton, The Politics of State Expenditure in Illinois Urbana, Ill.: The University of Illinois Press, 1966).

23. This conclusion holds even after discounting the effect of war-time "displacement," which is discussed in the next section. Also, research on United States municipalities has discovered that different functional categories of public spending may be characterized by different forms of expenditure patterns, thus weakening the application of incrementalism. See Stuart H. Rakoff, "Longitudinal Analysis of Municipal Expenditures" (unpublished Ph.D. dissertation, University of Minnesota, 1969).

24. For example, see Bruce M. Russett, Trends in World Politics (New York: The Macmillan Co., 1965), pp. 132-33.

25. This blind acceptance of a unilinear path to development undergirds the work of the "stage" theorists such as Rostow and Organski as well as that of the "typologists" such as Shils and Kautsky.

26. Richard Musgrave, Fiscal Systems (New Haven: Yale University Press, 1969).

27. In the first pattern Musgrave presents, civilian public expenditures drop slightly and defense spending rises sharply, thus causing a bulge in the trend of total public share of G.N.P. With the termination of conflict, a return to the antebellum trend manifests itself. A slightly different pattern in response to war occurs when a nation in the post-war period spends for civilian public goods in order to catch up with the needs postponed during the war. Again, after war bulges the public share of G.N.P., it returns to normal as these foregone needs are met. Musgrave admits a final possibility. Here, war balloons the public share of G.N.P., but with the end of war, this higher level of public spending continues as increased civilian public spending replaces declining defense budgets. Though these three are variations on the same theme, Musgrave sees the ultimate trend of scope as linear increasing. This conclusion flows from his small sample (Germany, United Kingdom, and United States). By adding Japan (total scope), Musgrave would have to consider other patterns than unilinear.

28. Wade and Curry, p. 77.

29. Alan Peacock and Jack Wiseman, The Growth of Public Expenditures in the United Kingdom (Princeton, N.J.: Princeton University Press, 1961), pp. 16-20.

30. Wade and Curry, p. 77.

31. Richard M. Bird, "Wagner's 'Law' of Expanding State Activity," Public Finance, Vol. XXVI, no. 1 (1971), pp. 1-26.

32. Princeton University Press, 1961.

33. Shibahsankar P. Gupta, "Public Expenditures and Economic Growth: A Time-Series Analysis," Public Finance, XXII, no. 4 (1967), pp. 423-71.

34. Wade and Curry, p. 81.

35. Peacock and Wiseman, Ch. 2.

36. Gupta, p. 244.

37. Martin and Lewis.

38. Mesmer.

39. David G. Davies, "The Concentration Process and the Growing Importance of Noncentral Governments in Federal States," Public Policy, Vol. XVII, no. 5 (Fall, 1970), pp. 649-57.

40. Gupta.

41. In regard to the highly centralized pattern I nations, a possible hypothesis might be that the "concentration effects" occurred some time earlier than this study's span and was institutionalized sufficiently to withstand further exogenous forces. For example, following the 1830 revolution against the Netherlands, the Belgian constitution of 1831 established a distinctly unitary state.

42. Though not explicitly used in this study, Pattern II (linear increasing) logically has a mirror-image twin -- linear decreasing. The operational definition for what would likely be labelled Pattern IIb is the reverse of the linear increasing definition: a) range exceeds 0.15, b) no inter-decade increase exceeding + 0.10, and c)

contemporary score must be - 0.20 or more in comparison to the earliest data points. On some dimensions of centralization, a few nations exhibit a linear decreasing pattern. For example, on both structural indices, Brazil (1900-1968) has a slowly decreasing trend, but has been classified as pattern I because it fails on criterion c. On substance, India is a clear case of a decreasing trend, and is so classified.

43. Davies' research uses national government revenue as a percent of total government revenue. My remarks are likewise based on revenue ratios from data collected and analyzed as part of this total project, but reported in a forthcoming study.

44. See Appendix B.

45. This general proposition should not preclude the eventual possibility of discovering other patterns for substantive commitment, as demonstrated by India's linear decreasing trend.

46. Musgrave, p. 124.

47. Bird, p. 20.

CHAPTER IV

CENTRALIZATION AND DEVELOPMENT

Establishing the existence of multiple patterns of centralization opens the door to analyzing the competing approaches to organizing public activity. Cross-sectional and serial designs are used to confirm or reject the propositions derived from these two models. Following this quantitative evaluation, the differential effect of centralization's dimensions on the aspects of development will be estimated and, finally, related back to the models of public organization.

Part I: The Indeterminacy of Cross-Sectional Analysis

The first approach to evaluating the propositions from Chapter I is the use of multiple decade cross-section correlation. Going beyond the static character of the more frequent single time-section comparative study, multiple decade sections become equivalent to panel designs which permit repeated tests of the same hypothesis at different time-points. For each decade, standard Pearson product-moment coefficients have been calculated between each index of centralization and the various indicators. Tables listing the results by decade can be found in Appendix C.

Chart IV-1 summarizes in a convenient form the tables found in Appendix C. It reveals an absence of relationships between centralization and the various aspects of development. Not only does a scarcity of associations exist, but some striking blanks materialize such as with economic growth in 1930 and 1940, social modernization in 1950 and 1960, and political development in 1910, 1920, and 1930. Despite these deficiencies, a small number of relationships do appear on a recurrent decade basis.

For each aspect of development, each organizational dimension of the public sector has a differential effect. In order words, in two of the three components of development, a single organizational dimension tends to correlate consistently over a number of cross-sections. For example, substance (Def.E./N.G.E.) correlates with steel production in 1900, 1950, and 1960. Though structure (N.G.E./T.G.E. and N.G.E.-Def.E./T.G.E. -Def.E.) relates to steel production in 1900 and 1910, the association disappears in later decades. The 1920 positive correlation between a commitment to national security outlays and percent employed in agriculture indicates that the effect of the substantive dimension is not necessarily supportive of all types of economic programs. From the multiple cross-section analysis of the three organizational dimensions, the substantive

Chart IV-1: Summary of the Principal Results from the Multiple Cross-Section Analysis of Centralization and Development

Decades	Aspects of Development		
	Economic Growth	Social Modernization	Political Development
1900	St(+)Steel Prod. Sc(+)Steel Prod. Su(+)Steel Prod.	St(-)Educ. Sc(-)Educ. Su(+)Educ.	St(+)Suffrage St(+)Dom.Viol. Su(-)Suffrage Su(-)Dom.Viol.
1910	St(+)Steel Prod.	St(-)Educ.	
1920	Su(+)%Agric.	Su(-)%Literate Su(+)Inf.Mort.	
1930		Su(+)Educ.	
1940		St(+)Inf.Mort. St(-)%Literate	Su(-)Status of Legis. Su(+)Pol. Suppr.
1950	Su(+)Steel Prod.		Sc(+)Suffrage St(+)Status of Legis. St(+)Pol. Suppr. Sc(+)Pol. Suppr.
1960	Su(+)Steel Prod.		Sc(+)Suffrage

St = Structure
Sc = Scope
Su = Substance

(+) = Positive Pearson r
(-) = Negative Pearson r

All relationships are significant at least to the .05 level, some as high as .001. Consult Appendix C for specific level and legend.

commitment of government activity has a significant conditioning effect on the economy. This simply means that economic growth is more sensitive to the mix of public goods provided rather than to the internal structure of government or the sheer size of the public sector.

Whereas the substantive commitment of government reigned in the area of economic growth, structure enters the scene for social modernization. Centralized structure associates negatively with elementary education in 1900 and 1910, and negatively with percent literate in 1940. These findings cautiously suggest that the more local the delivery of social services, the more likely will social improvements be generated. The 1940 positive correlation between structure and infant mortality probably can be credited to the wartime situation.

The correlations between increased military spending and social modernization yield another explanation. The 1920 correlations of substance with percent literate and infant mortality appear to reflect the standard proposition that resources devoted to national security depresses social progress. While the single decade (1920) supports this conventional wisdom, the positive correlations of substance with education in 1900 and 1930 confuse the issue.

Changing degrees of centralization do not produce a consistent connection with political development in contrast to the previous two aspects of development. All three organizational dimensions influence politics, but at different time periods and in different combinations. Structure and substance dominate the earliest decade, substance alone in the middle decades, and structure with scope in the most recent era. This diversity of associations admits to all manner of tenuous explanations, none of which can be accepted uncritically. For example, the positive correlations of centralized structure with domestic violence and political suppression fits expectedly with the "bureaucratic" model. Likewise, the negative correlations between increased military outlays and suffrage, domestic political violence, and status of the legislature can easily be accommodated by this model as well. The correlation of scope with political suppression in 1950 also confirms this view, but the relation of scope and suffrage in 1950 and 1960 is puzzling. The positive association of structure with suffrage (1900), status of legislature (1950), and political suppression (1950) muddles any neat summarization. Given this variation in the connection between centralization and political development, one can only suggest that changes

in the organization of public activity will have highly unpredictable effects on a nation's political life.

Applying this multiple cross-section analysis to the two models outlined in Chapter I brings disappointing results. No constant relationship between the centralization of any organizational dimension and development emerges, thus prohibiting any choice between the models. The scattered associations, while occasionally providing an interpretation in conformity with the "bureaucratic" model, yield an indeterminate set of results. While this indeterminacy can be chalked up to the limited number of nations in each cross-section, the reasonable amount of diversity displayed by the nations should stay that judgment. Instead the findings verify the general inadequacy of cross-sectional analysis (even with many time-frames) to cope with the dynamics of development.

Part II: Longitudinal Analysis of Centralization and Development

As noted previously, longitudinal research, though it permits a high degree of configurative specification as to the causal sequence and strength of variables for a given unit, often reduces the possibility of comparative analysis. This objection can be overcome by the elementary expedient of increasing the units of analysis.

In the same manner that product-moment coefficients can be computed for cross-sectional analysis, they also can be calculated for time-series data. The following sections present serial correlations between the degree of centralization in a given organizational dimension of public activity, and the aspects of national development.[1]

A. Economic Growth

Inspecting the correlations between structural centralization and economic growth, one finds that both structural indices produce parallel results. In each case, pattern II (linear increasing) manifests the strongest association with the three measures of economic growth. As expected, the pattern I (stable) correlations with economic growth are weaker than those of pattern II. Yet they do give a rather consistent picture. The pattern I nations feature very centralized government structures (average N.G.E./T.G.E. scores ranging between 0.75 and 0.89), except for Brazil and Sweden which are moderately centralized (0.51 and 0.61, respectively). All of these nations should, according to the "bureaucratic" model, have strong positive correlations with G.N.P. and steel production. The negative correlations stand in direct contradiction to this proposition. With either measure of structural centralization, the pattern I nations

Table IV-1: Serial Correlations Between Structural Centralization and Economic Change

N.G.E. / T.G.E. Pattern	Economic Development		
	G.N.P.	% Agric.	Steel Prod.
I (stable)			
France	.522*	-.043	-.197
Italy	-.337	-.140	-.053
Sweden	.199	-.177	.340
Belgium	-.658**	.568*	-.729***
Brazil	-.491*	.896!	-.751***
Romania		.915!	-.904!
Peru	.859!		
II (linear increasing)			
U.S.A.	.626**	-.802!	.824!
Germany	.947!	-.905!	.575*
India	.929!	.953!	.881!
III (curvi-linear)			
Japan	.035	-.341	.293
U.K.	.073	-.332	.363
Norway	.308	-.288	
Australia	.244	-.401	.456*
Switzerland	-.351	.161	

index of forecasting efficiency (E) =
* 10% - 20%
** 21% - 30%
*** 31% - 40%
! above 40%

Table IV-1 -- Continued

N.G.E.-Def.E / T.G.E.-Def.E. Pattern	Economic Development G.N.P.	% Agric.	Steel Prod.
I (stable)			
France	.480*	.142	-.332
Italy	.061	-.297	.139
Sweden	.749***	-.745	.843!
Switzerland	-.471*	.393	
Belgium	-.702**	.338	-.749***
Peru	.887!		
Brazil	-.341	.751***	-.434*
Romania		.889!	-.876!
II (linear increasing)			
India	.941!	.941!	.899!
Germany	.935!	-.936!	.634!
U.K.	.404	-.632**	.628**
Norway	.469*	-.709**	
III (curvilinear)			
U.S.A.	.566*	-.694**	.751***
Japan	.213	-.538*	.407
Australia	.379	-.588*	.452*

advance on the economic front during attempts to decentralize their government structure.

The major difference between the two indices of structural centralization occurs with pattern III (curvilinear). Using N.G.E./T.G.E., no association exists between the degree of centralization and economic development. However, on the centralization index corrected for military spending, the nations of pattern III show moderate correlations with economic growth, especially in the area of agriculture. The Pattern III group behaves then in a manner similar to pattern II; however, since their level of centralization fluctuates, this does not permit the uniform association shown by pattern II nations.

From the above, it seems an impasse has been reached. Pattern I nations lend support to the "resolved" model, while patterns II and III confirm the "bureaucratic" model. Can this contradiction be reconciled? First, following the logic of the "resolved" model, very stable, highly centralized structures will be dysfunctional for economic growth. This type of government structure demands a crippling amount of national resources and returns few benefits. In contrast, those nations which originally were most decentralized have had to construct some minimal national government structure in order to service the Industrial

Revolution. Reconciliation of the two positions on the structure of government begins with an examination of the current levels of centralization (especially corrected for defense spending) distinctive to the nations of pattern I in contrast to those of patterns II and III. Of the latter group, Australia, Germany, India, the United Kingdom, and the United States presently exhibit an almost equal distribution of government spending between national and local governments.[2] Japan and Norway show approximately a two-third national to one-third local distribution. I would suggest that there exist 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 national government (say 0.75 plus) overburdens the nation with a costly, rigid structure. At the other level, a nation which fails to develop a national structure (say less than 0.30) will not be able to meet the shocks of economic growth like urbanization nor provide the social overhead capital necessary to development.

Shifting the focus to the size of the public sector (N.G.E./G.N.P. and T.G.E./G.N.P.), the relation between changes in the public sector's scope and economic growth fall under the arguments surrounding Wagner's "law." Chapter III argued that this "law" must be

Table IV-2: Serial Correlations Between Centralization of Government Scope and Economic Change.

N.G.E. / G.N.P. Pattern	Economic Development		
	G.N.P.	% Agric.	Steel Prod.
I (stable)			
Italy	.362	-.665**	.537*
Stitzerland	-.124	-.136	
Australia	.421	-.487*	.668**
Brazil	.692**	-.838!	.776***
Peru	.697**		
India	.987!	.707**	.991!
II (linear increasing)			
U.S.A.	.666**	-.851!	.854!
Germany	.957!	-.909!	.558*
Norway	.644**	-.869	
III (curvi-linear)			
Japan	.065	-.646**	.061
U.K.	.342	-.590*	.599*
France	.512*	-.763***	.706**
Canada	-.702**	.665**	-.642**
Sweden	.935!	-.913!	.951!
Belgium	-.237	.201	-.431

Table IV-2 -- Continued

T.G.E. / G.N.P. Pattern	Economic Development		
	G.N.P.	% Agric.	Steel Prod.
I (stable)			
Australia	.532*	-.473*	.733***
Brazil	.581*	-.911!	.959!
Peru	.686**		
India	-.234	-.608	
II (linear increasing)			
U.S.A.	.746***	-.929!	.910!
Germany	.969!	-.947!	.622**
Norway	.663**	.906!	
Sweden	.942!	-.961	.944!
III (curvi-linear)			
Japan	.143	-.717***	.107
France	.431	-.704**	.724***
U.K.	.513*	-.746***	.739***
Italy	.427	-.720!	.588*
Switzerland	.108	-.376	
Belgium	-.126	.075	-.319

modified to include the differing patterns of scope. In addition, the previous chapter illustrated that changes in scope range within a narrow band of approximately twenty percentage points over the decades under study.[3] Also, total scope spreads the nations more than national scope. Adding the effort of local governments to the measure of scope boosts the national value by about ten to fifteen percent.

With this reminder about the nature of the scope of government patterns, the serial correlations can be examined. At first, it appears that increasing scope supplements increasing structural centralization. This would be expected since they are both facets of the same process -- the concentration of control at the national level. However, this is a superficial view of the differences between centralization of structure and of scope. Remember that these two dimensions, while being part of the same process, are nevertheless distinct organizational dimensions of public activity, as demonstrated in Table II-1. This separation appears when the various patterns of scope are analyzed.

As for the differences between the patterns of scope, pattern II nations show the strongest association with measures of economic growth, followed in turn by pattern III and then pattern I. Indeed, pattern I's

moderate correlations with economic growth differentiate the impact of scope from that of structural centralization. In the latter case, pattern I nations did not correlate with growth, while with scope they do. This outcome admits of two interpretations. First, the thresholds discussed in relation to structure do not operate for scope, as demonstrated by the similar correlations between scope and economic growth shown for all of the countries. Second, given this similarity across the patterns, different time-patterns for scope have little to do with economic growth. Because there are similar scores from nation to nation (especially with percent agriculture and steel production), a change in scope does not necessarily produce a change in economic development. In other words, because nations in all three patterns generate strong correlations with economic growth, the effect of a given pattern cannot be determined and in comparison to structure, changes in scope do not contribute directly to changes in economic progress.

The final organizational dimension of public activity -- substantive commitment -- presents the clearest connection with economic growth. Briefly, substance (Def.E/N.G.E.) demonstrates the expected relationship with economic growth -- inverse. In the majority of cases, regardless of pattern, increasing

Table IV-3: Serial Correlations Between Substantive Centralization and Economic Change

Def.E. / N.G.E.	Economic Development		
Pattern	G.N.P.	% Agric.	Steel Prod.
I (stable)			
Brazil	-.379	.140	-.823!
Peru	.853!		
Belgium	.239	.707**	.181
Norway	-.009	.182	
Sweden	-.442*	.219	-.268
II (linear decreasing)			
India	-.939!	-.872!	-.959!
III (curvi-linear)			
U.S.A.	.371	-.452*	.443*
Japan	-.615**	.882!	-.712**
Canada	-.977!	.987!	-.991!
Australia	-.165	.141	.257
U.K.	-.515*	.634**	-.558*
Germany	-.827!	.901!	-.675**
France	.131	-.077	.002
Italy	-.878!	.767***	-.817!
Romania		.947!	-.939!
Switzerland	.043	-.352	

defense outlays depress all forms of economic growth. This striking confirmation of the classic "guns versus butter" choice appears most sharply for the pattern III nations which exhibit strong negative correlations with steel production and G.N.P. Also note that the single occupant of pattern II (India) with its linear decreasing expenditure trend displays two strong scores in the proper direction, while only agricultural employment deviates. More important, the ambiguous results for pattern I underlines the importance of changes in substantive commitment from domestic to defense programs.[4]

To recap quickly, substance has the most extensive (and negative) impact on economic growth on the three dimensions of public organization. Structural change contributes to economic development by serving as a midwife through the creation of a public structure capable of providing needed services to the industrializing process. Finally, changes in the size of the public sector relative to the private sector appear to make little difference for economic progress.

B. Social Modernization

Increasing non-defense spending correlates strongly with social improvements -- this distills the interrelation of structural centralization with social modernization into a single statement. Verification of this proposition follows directly from the similar

Table IV-4: Serial Correlations Between Structural Centralization and Social Modernization

N.G.E. / T.G.E. Pattern	Social Modernization		
	% Literate	Inf. Mort.	Elem. Educ.
I (stable)			
France	.469*	-.009	-.083
Italy	.322	-.174	.591*
Sweden		-.195	-.016
Belgium	-.669**	.689**	-.025
Brazil			-.959!
Romania	.534*	.607*	
Peru			.981!
II (linear increasing)			
U.S.A.	.716***	-.777***	.639**
Germany	.454*	-.982!	-.482*
India	.943!	-.941!	.862!
III (curvi-linear)			
Japan		-.273	.421
U.K.	.593*	-.406	.110
Norway		-.107	-.461*
Australia	.392	-.589*	-.106
Switzerland		.029	-.560*

Table IV-4 -- Continued

N.G.E.-Def.E. / T.G.E.-Def.E. Pattern	Social Modernization		
	% Literate	Inf. Mort.	Elem. Educ.
I (stable)			
France	.201	.159	.085
Italy	.555*	-.425	.648**
Sweden		-.759***	.052
Switzerland		.307	-.392
Belgium	-.620**	.670**	.098
Peru			.990!
Brazil			-.924!
Romania	.619**	.558*	
II (linear increasing)			
India	.956!	-.955	.882!
Germany	.509*	-.966!	-.361*
U.K.	.674**	-.763***	-.148
Norway		-.704**	-.439*
III (curvilinear)			
U.S.A.	.626**	-.779***	.582*
Japan		.479*	.600*
Australia	.643**	-.767***	-.058

results on both indices. Examining the patterns of centralization, they relate to social modernization in much the same fashion as they did to economic growth. Pattern II correlates most strongly with modernization, followed by pattern III and then pattern I. Though not as definitive, the thresholds along the structural dimension described above also operate with social modernization. Again, the highly centralized pattern I nations display no consistent association with the measures of social modernization.

In contrast to economic growth, the scope of the public sector directly contributes to social modernization. Where changes in scope did not contribute directly to economic progress, increased public scope boosts modernization. This is especially true for total public scope. Increased total scope -- meaning active subnational governments -- generates substantial correlations with all three indices. If social modernization is seen as a substitute for system response, then these findings confirm the propositions put forward by the "resolved" model.

The substance of public activity behaves as before with economic growth -- it acts as a depressant on social modernization.[5] Though increases in defense spending draw resources away from social modernization, the effect is not as marked as with economic growth,

Table IV-5: Serial Correlations Between Centralization of Government Scope and Social Modernization

N.G.E. / G.N.P. Pattern	Social Modernization		
	% Literate	Inf. Mort.	Elem. Educ.
I (stable)			
Italy	.721***	-.679**	.804!
Switzerland		-.277	-.534*
Australia	.514*	-.504*	.149
Brazil			.883!
Peru			.887!
India	.990!	-.983!	.998!
II (linear increasing)			
U.S.A.	.776***	-.823!	.717**
Germany	.407	-.991!	-.532*
Norway		-.812!	.357
III (curvi-linear)			
Japan		-.547*	.748***
U.K.	.645**	-.619**	-.022
France	.402	-.778***	-.309
Canada	-.941!	.804!	-.512*
Sweden		-.907!	.223
Belgium	.122	.070	.462*

Table IV-5 -- Continued

T.G.E. / G.N.P.	Social Modernization		
Pattern	% Literate	Inf. Mort.	Elem. Educ.
I (stable)			
Australia	.672**	-.226	.383
Brazil			.952!
Peru			.880!
India	.990	-.983	.998
II (linear increasing)			
U.S.A.	.865!	-.899!	.815!
Germany	.475*	-.994!	.441*
Norway		-.874!	.485*
Sweden	-.001	-.952!	.153
III (curvi-linear)			
Japan		-.547**	.748!
France	.287	-.732***	-.337
U.K.	.716***	-.764***	-.084
Italy	.757***	-.731***	.826!
Switzerland		-.504*	-.424
Belgium	.269	-.060	.377

Table IV-6: Serial Correlations Between Substantive Centralization and Social Modernization

Def.E. / N.G.E.	Social Modernization		
Pattern	% Literate	Inf. Mort.	Elem. Educ.
I (stable)			
Brazil			.432
Peru			.983!
Belgium	.497*	-.271	-.491*
Norway		.267	.209
Sweden	.001	.186	-.628
II (linear decreasing)			
India	-.972!	.987!	-.931!
III (curvi-linear)			
U.S.A.	.380	-.089	.199
Japan		.899!	-.866!
Canada	-.785***	.932!	-.999!
Australia	-.047	-.010	-.306
U.K.	-.385	.738***	.315
Germany	-.593*	.846!	.104
France	.458*	-.070	-.213
Italy	-.591*	.658**	-.409
Romania	-.354	.676**	
Switzerland		-.521*	-.572*

and can be seen in the smaller number of moderate to strong correlations in the pattern III group on Table IV-6. In summary, the scope of public activity most immediately conditions the pace of social modernization. Structural centralization again plays a supportive role, but it is only a minor one and limited to "domestic" efforts. Substantive commitment expectedly appears to create a drag on modernization, but given the ambiguity in the correlations by nations, it is best to assert that the substantive dimension of public activity has an undertain effect on social progress, if any.

C. Political Development

Propositions linking centralization and political development concentrate on the issues of participation and suppression. Centralized polities are hypothesized to be non-participatory and more repressive.

National behavior along the structural dimension of public activity presents a mixed set of associations between centralization and political development.[6] Most striking is the sharp dichotomy in the relation of centralization with legitimate versus illegitimate and suppressive politics, as evidenced by the reduced number of correlations under status of the legislature and conditions of suffrage. The nations which fail to produce any association for either structural index are

Table IV-7: Serial Correlations Between Structural Centralization and Political Change

N.G.E. T.G.E. Pattern	Status of Legislature	Suffrage	Non-Legit. Partic.	Domestic Political Violence	Political Suppression
I (stable)					
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!
II (linear increasing)					
U.S.A.			.313	.381	-.305
Germany	.564*	.564*	.339	.493*	.593*
India	-.999!	-.999!	-.667**	-.559*	-.999!
III (curvilinear)					
Japan	.811!	-.217	-.435	-.443*	.369
U.K.			.556*	.429	
Norway	.542*		.542*		.542*
Australia			.647**	.448*	.749***
Switzerland			-.639**	-.376	-.376

Table IV-8: Serial Correlations Between "Domestic" Structural Centralization and Political Change

N.G.E.-Def.E. / T.G.E.-Def.E. Pattern	Status of Legislature	Suffrage	Non-Legit. Partic.	Domestic Political Violence	Political Suppression
I (stable)					
France			.167	.022	.221
Italy			-.227	-.171	.791***
Sweden		-.058			.279
Switzerland			-.866!	-.502*	-.502*
Belgium	.021	.493*	-.738***	-.639**	.023
Brazil	-.102	.802***	.810!	.276	-.154
Romania		-.469*	.178	-.732***	.387
Peru	-.222		.445	.429	-.906!
II (linear increasing)					
Germany	.498*	.498*	.472*	.603*	.527*
U.K.			.233	.112	
Norway	.712*		.712*		.712**
India	-.998!	-.998!	-.638**	-.529*	-.998!
III (curvilinear)					
U.S.A.			.334	.388	-.128
Japan	.751***	-.394	-.294	-.304	.302
Australia			.431	.325	.438*

Australia, France, Switzerland, the United Kingdom, and the United States. The characteristic mark of these nations is the longevity of their formal institutions of legitimate political participation in comparison to the experience of the other nine. This second group contains two basic types: nations which have recently achieved functioning legislatures and/or full and unrestricted suffrage, and nations which have had difficulty maintaining operating 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 recent or unsuccessful experience -- implies that the effect of structural centralization on legitimate political action is DISCONTINUOUS. That is, for nations still in the process of establishing lawful mechanisms of participation centralization acts as the predicted restraint. The classic example here is Japan -- as the structural dimension was decentralized, legislative status improved; conversely when the public structure was centralized, legislative status declined.

Besides the discontinuity by nation, structural centralization displays a division of association with the two indices of legitimate political participation Though correlations appear with both indices, the ones

between centralization of structure and conditions of suffrage are largely statistical artifacts. In almost every case (the exceptions being Germany and Romania), formal suffrage improves over time regardless of changes in the structure of public activity. Given the extensive use of elections as supportive plebiscites by authoritarian regimes, this finding simply confirms the disutility of using constitutional-legal variables for distinguishing between political systems in models of public organization.

Having discounted any connection between structural centralization and suffrage, do the associations with status of the legislature have any bearing on the question under study? The case of Japan cited previously and complemented by that of Germany and Norway give some support to the "resolved" position. Likewise, the generally poor status of legislative assemblies in the pattern I nations lends credence to the conventional hypothesis which holds an inverse function between dominance of the bureaucracy and status of the legislature.

The indices of illegitimate and suppressive political behavior offer substantial proof ratifying the proposition that decentralized polities suffer less nonlegitimate and violent politics and that they resort less frequently to participation-suppressive measures.

This assessment of the prescriptions for public organization starts from the divergent behavior of pattern I nations from nations of patterns II and III. Not only is the presence of associations greater, but so is their strength, especially for the structure of "domestic action." Except for Switzerland,[7] the pattern I nations possess moderate to highly centralized public structures. Coupling these stable, highly centralized features with their political attributes bolsters the decentralization prescription which argues that highly centralized nations will be plagued by non-legitimate and violent politics, and thereby engage in suppressive actions.[8]

Changing the organizational dimensions of public activity to scope essentially reproduces the outcomes with structure. Again, legitimate political participation shows less association with centralizing trends than does non-legitimate participation or suppression. Again, the discontinuity of centralization's impact on the development of formal participatory institutions occurs. Contrasting with structure, changes in scope produce consistent, instead of artificial, results with suffrage. With the exception of Germany, increasing scope runs parallel with improving suffrage. One cannot infer a causal effect here, but rather a contingent one. That is, as the public sector expands in its activities,

Table IV-9: Serial Correlations Between Centralization of National Scope and Political Change

N.G.E. G.N.P. Pattern	Status of Legislature	Suffrage	Non-Legit. Partic.	Domestic Political Violence	Political Suppression
I (stable)					
Italy			-.279	-.024	.309
Switzerland			-.326	-.211	.211
Australia			.852!	.712**	.712**
Brazil	.151	-.949!	-.796***	.019	.162
Peru	-.864!		-.717**	-.651**	-.983!
India	-.879!	-.879!	-.251	-.119	-.879!
II (linear increasing)					
U.S.A.			.289	.412	-.352
Germany	.515*	.515*	.309	.462*	.549*
Norway	.585*		.585*		.585*
III (curvilinear)					
Japan	.708**	-.673**	-.064	-.069	.535*
U.K.			.403	.308	
France			-.138	-.057	-.385
Canada			-.382	-.382	-.382
Sweden		-.310			-.094
Belgium	.600*	-.152	-.416	-.325	-.109

TABLE IV-10: Serial Correlations Between Centralization of Total Scope and Political Change

T.G.E. / G.N.P. Pattern	Status of Legislature	Suffrage	Non-Legit. Partic.	Domestic Political Violence	Political Suppression
I (stable)					
Australia			.769***	.774***	.348
Brazil	.362	-.830!	-.743***	-.024	.362
Peru	-.856!		-.707**	-.640**	-.985!
India	.446*	.446*	.776***	.739***	.446*
II (linear increasing)					
U.S.A.			.317	.483*	-.405
Germany	.481*	.481*	.398	.483*	.513*
Norway	.510*		.509*		.509*
Sweden		-.481**			-.106
III (curvilinear)					
Japan	.642**	-.737***	-.016	.009	.479*
France			-.234	-.129	-.463*
U.K.			.334	.264	
Italy			-.279	-.029	.205
Switzerland			-.112	-.206	-.206
Belgium	.654**	-.295	-.301	-.223	-.132

the more likely this penetration facilitates the establishment of electoral competition. Certainly, as scope expands, electoral competition inflates in value.

The outstanding difference between structure and scope comes from the absence of any connection between centralization and illegitimate political action in patterns II and III. With structure, pattern II nations show the expected positive association between increasing centralization and illegitimate behavior. For scope, these same variables result in weak correlations. One can guess that expansion of public activity will not be opposed so long as the delivery systems remain reasonably decentralized. More curious is the similarity of "domestic" structure with scope for the pattern III nations in contrast to the basic structural index. Most of the non-legitimate, violent, and/or suppressive incidents contributing to these associations occur during periods of international conflict. But this does not explain the discovery that nations manifesting curvilinear trends for "domestic" structure and scope produce no relationship (positive or negative) with opposition to the regime. It may well be that these nations possess a rather fluid political lifestyle and lack any ideological or customary commitment to a particular organization of government.

Table IV-11: Serial Correlations Between Substantive Centralization and Political Change

Def.E. N.G.E. Pattern	Status of Legislature	Suffrage	Non-Legit. Partic.	Domestic Political Violence	Political Suppression
I (stable)					
Brazil	-.326	-.476*	-.524*	-.798***	.153
Peru	-.207		.457*	.442*	-.919!
Belgium	-.111	.306	-.102	-.171	-.268
Norway	-.578*		-.578*		-.578*
Sweden		.277			.859!
II (linear decreasing)					
India	.965!	.964!	.522*	.415	.964!
III (curvilinear)					
U.S.A.			.038	.127	-.515*
Japan	-.345	.731***	-.126	-.115	-.013
Canada			-.985!	-.985!	-.985!
Australia			.486*	.237	.787***
U.K.			.325	.398	
Germany	-.344	-.344	-.649**	-.730***	-.368
France			.112	.184	-.014
Italy			-.079	-.539*	.319
Romania		-.929!	-.102	.188	-.549*
Switzerland			-.056	-.256	-.256

The substance of government action gives incoherent scores for each type of political participation. Only India offers the expected relationships between decentralization and all forms of participation. Pattern III, the most populous category, shows all manner of association leading to the conclusion that variation in defense spending makes it an intermittent influence on national political life which is partially tied to the outbreak of international conflict. Pattern I, on the other hand, poses an interpretative problem. The correlations obtained with these relatively non-combatant countries derive from two possible causes. First, for Belgium, Norway, and Sweden, the moderate values between defense expenditure and indices of political participation can be linked to their histories during the World Wars. For Brazil and Peru, no easy answer is available. One could say the associations with illegitimate action merely reflect the general underdevelopment of these two countries. On the other hand, the comparatively high level of their military spending which draws away from accomplishing developmental tasks contributes to non-legitimate and violent political behavior, thus agreeing with the "resolved" model. Choice between these two explanations requires additional records from other third world countries.

Instead of substance'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 behavior of the centralization patterns. Pattern I nations, unlike those of patterns II and III, display moderate to strong associations with political participation, especially the illegitimate forms. These pattern-by-pattern differences when viewed over the three organizational dimensions again suggest the operation of the thresholds. For structure, the pattern I group each possess stable, centralized structures.[9] This contrasts with the experience of India which has an increasingly centralized structure and increasing legitimate political parties plus decreasing non-legitimate and violent political action. For scope, the pattern I nations are characterized by comparatively small public sectors, but continual conflictual politics. This contrasts with pattern II nations which have, over time, enlarged the scope of the public sector and have damped down expressions of opposition. While the correlational analysis of structural centralization and political development supports the "resolved" model, the results with the

scope of public activity tend to confirm the "bureaucratic" model. Unraveling this quandary necessitates stepping back a bit from the tabular details of this chapter to discern the broader patterns and their pertinence to the original question.

FOOTNOTES

1. Nations are classified into appropriate centralization patterns following criteria from Chapter III. Significance is shown by the index of forecasting efficiency described in Chapter II.

2. The respective scores on N.G.E.-Def.E./T.G.E.-Def.E. are: Australia (1962) 0.36, Germany (1958) 0.59, India (1962) 0.50, Japan (1964) 0.68, Norway (1967) 0.67, United Kingdom (1964) 0.55, and United States (1963) 0.41.

3. Of the sixteen nations, only Japan and Romania possess a national scope exceeding thirty percent of G.N.P. in the middle 1960's.

4. Some might argue that Def.E./N.G.E. is merely a proxy for international conflict and the depressant effect shown on Table IV-3 can be explained by war time situations. While this is a plausible counter-proposition, it doesn't account for the correlations with Brazil, India, Sweden, and Switzerland. Of course, the proper test here would be to factor out the war years and only rely on peacetime expenditure data for generating the correlations. Appendix B shows that for both World Wars approximately one-half of the nations have missing data during the war years. This fact alone makes the correlations on Table IV-3 even stronger as a test of substance's effect.

5. The correlations with elementary education must be interpreted with care because they do not completely follow the format of literacy and infant mortality. Since the education data are absolute values, they are more sensitive to population shifts, whether caused naturally or politically such as the dissection of Germany.

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

7. The strong correlation for Switzerland is the product of a single sharp change in 1930.

8. Pattern III nations offer extra evidence for this position. Generally, increases in centralization

are accompanied by increases in non-legitimate or violent political behavior.

9. Switzerland with its decentralized "domestic" structure is the deviant case. Its strong correlations under non-legitimate participation, domestic violence, and political supporession are connected to events during the decade of the 1940's.

CHAPTER V

RESEARCHING WHAT AN OPTIMUM CONFIGURATION OF THE PUBLIC SECTOR WOULD BE

The initial premise in this study holds that changes in the organizational configuration of the public sector will have systemwide consequences for national development. Efforts here to describe this linkage have led to a quandary over the most appropriate advice to offer statesmen who confront the problems of change. This concluding chapter makes some conjectures for resolving the dilemma created by the analysis. In order to place these speculations in proper perspective, a brief review of the original problem and the substantive findings is helpful.

The Original Problem Revisited

The concept of centralization has run consistently throughout this study. Previous discussions of centralization have usually advocated one or the other contradictory views. That is, some theorists have advised public officials that centralization of the public sector will advance national progress, while others have asserted that development really follows from a decentralized polity.

In my treatment of alternative forms of public organization and their impact on development, I have proposed that the public sector should be analyzed in terms of its organizational dimensions of structure, scope, and substantive commitment. Each of these dimensions enables public officials to exert control over the allocation of societal resources to developmental tasks. As public officials vary the pattern of control within each dimension, national development, in its economic, social, and political aspects, will be selectively modified.

Instead of the usual superficial approach to centralization, it becomes, in this study, an indicator of the pattern of control achieved in any of the dimensions of public sector organization. Such a conception avoids, not only the misleading emphasis on gross centralization or decentralization in previous works, but also the debilitating effect on research caused by the simplistic dichotomy. Transforming centralization into a behavioral property of each organizational dimension permits a more accurate charting of the public sector's configuration and greatly facilitates empirical analysis.

With this perspective, a macro-comparative research design became possible. Sixteen nations provided the longitudinal data base for a multiple cross-section and

serial correlation test of the relation between centralization and development. The major problems encountered were selecting the proper operational measures for these two concepts and generating useable data.

Both centralization and development can be studied through numerous potential measures. Indicators were chosen principally for their ability to foster quantitative and historical analysis. In other words, the choice was for interval quality data available for lengthy time periods. For centralization, this meant the use of public expenditures and their conversion into ratios measuring the degree of centralization in each organizational dimension. For development, this meant the use of a number of different quantitative indicators for each aspect of development.

Like many studies attempting diachronic analysis, this enterprise ultimately depends on the quality of the data. Developing suitable data required searching many sources and comparing many data sets. A collection strategy emphasizing accuracy, comprehensiveness, and reliability was followed. While these goals were not completely achieved, the breadth and depth of the final data base, as well as its quality, should counterbalance any shortcomings.

A Substantive Compendium

Evaluating the competing models of public organization required a three-phased procedure. First, in order to compare the differences in the degree of centralization for each of the sixteen nations, a description of their public expenditure evolution became necessary. This led to the discovery of three empirically-identifiable historical patterns to which the individual countries could be assigned for each index of centralization. Examination of the national patterns of centralization produced the following propositions which run counter to ideas pervasive in economic and political development literature:

1. No longer can it be assumed that nations follow the same evolutionary path in their public sector development.
2. Constitutional-legel structures do little to predict a nation's pattern of centralization.
3. Economic arrangements also fail to distinguish a nation's pattern of centralization.

The descriptive evidence suggests that public activity developments can follow a number of different patterns. This immediately contradicts most studies of public spending which are bound within the paradigm of "Wagner's law" which posits a linear evolutionary path. Instead, the multiple patterns of centralization

demonstrate that public activity changes, not as a function of certain needs or requirements, but as a result of individual and organizational choices which could have been made differently. Thus, to the extent that models of public organization assume a single developmental path, prescriptions advising particular organizational configurations will be deficient.

Second, to compensate for the shortcomings of single cross-section research common to development studies, a multiple cross-section correlation analysis was attempted. Though a small number of associations appeared on a recurrent basis, overall the multiple cross-section design brought disappointing results which can be attributed principally to the limited cases available for the earliest decades and the general inadequacy of cross-sectional design to depict the dynamics characteristic of developmental processes.

The third phase consisted of an extensive nation-by-nation serial correlation analysis. For each nation, the association between the degree of centralization in each organizational dimension and the various aspects of development was examined. In addition, the nations were grouped by pattern of centralization to test the consequence of a given pattern as well as the level of centralization for development. The following propositions summarize the statistical results.

A. Economic Growth:

1. Substantive commitment to defense has the most extensive and negative impact on economic growth.
2. Structural change contributes to economic development by serving as a midwife through the creation of a public structure capable of providing needed services to the industrializing process.
3. Changes in scope have no association with either economic progress or decline.

B. Social Modernization:

1. Increasing scope of public activity (especially total scope) most directly boosts social modernization.
2. Structural centralization plays a minor supportive role in domestic efforts.
3. Substantive commitment to defense seems to be a drag on modernization, but the results are too ambiguous to interpret.

C. Political Development:

1. Structural centralization significantly contributes to the character of national political life; that is, nations with stable, highly centralized structures display significant degrees of illegitimate political participation.
2. The scope of public organization also has some effect on political participation; that is,

nations which have enlarged their public sector's scope have experienced declining degrees of illegitimate participation.

3. Substantive commitment to defense has no association with political participation.

In terms of the models of public organization, the longitudinal procedure yields some support for both models. For example, the relationship between the public sector's structure and political participation matches the propositions reconstructed from the "resolved" model. On the other hand, the relationship between the public sector's scope and political participation agrees with the hypotheses from the "bureaucratic" model. This puzzle and the others raised in the statistical analysis are part of a larger set of issues which must be addressed in any effort to eventually answer the opening question.

Notes on the Optimum Configuration of Public Activity:

The models which attempt to answer the opening question concerning the consequences of alternative forms of public organization on national development assume a linear increasing path to development. It is this elemental postulate that creates the mutually contradictory prescriptions to centralize or

decentralize public activity. Such an axiom locks these models into two basic errors.

First, arguments for centralization or decentralization speak of the public sector as if it were monolithic. Failure to discern multiple dimensions of organization within the public sector causes the conceptual confusion between administrative structure, extent of action, and substantive focus of action found in the propositions derived from these models. Not only is this a myopic view of the organizational characteristics of public activity, but it also prevents any meaningful empirical analysis.

The solution offered stresses the prescriptive theme of both models. Whether the emphasis is on the creation of a rational and efficient bureaucracy or the interaction of dispersed decision-makers tied into a national network, each model attempts to prescribe appropriate and effective strategies of control over the allocation of resources to development. Instead of the mutually exclusive nature of these strategies of control (concentration or devolution), the correct perspective sees public officials choosing various degrees of control along each organizational dimension of public activity as they pursue developmental goals. Centralization-decentralization becomes an indicator of the extent of control being exercised and opens the

door to estimating the developmental consequences of a given strategy of control.

The second error built into the two models by the assumption of a single evolutionary path is the "teleological" orientation to development identified in Chapter III. Put simply, both the "bureaucratic" and "resolved" models conceive of development as following a definitive course which will lead to the "modern" stage, if and only if, prerequisites are observed and breakdowns avoided. One of the major conditions required of nations by these models is their distinctive prescription for organizing public activity. Without going into the philosophical details, the teleological weakness of both models is well put in this statement by Karl Mannheim:

> Whoever believes that he knows in advance. . . exactly what structure society will tend to adopt, weakens from the very beginning his capacity for empirical observation of newly emergent changes, and treats a structure in the process of becoming as though it had already taken its final shape.[1]

In other words, the process of development will unfold through a series of adjustments made within the various sectors of society. Applied to the public sector, this means that nations will exhibit changes in the organizational dimensions of public activity.

Rejection of the unilinear development path on theoretical grounds has been amply supported empirically

in Chapter III which outlines multiple patterns of centralization. As shown by the serial correlations, the national behavior by patterns seriously undermines the basic advice of either model. Instead of gross centralization or decentralization leading invariably to progress, a given dimension of public organization has a dominant impact on each aspect of development -- economic, social, or political. That is, changes in the degree of centralization in some areas of public activity will often have little or no effect on a given aspect of development. Chart IV-2 lists for each organizational dimension that aspect of development most directly affected by shifts in centralization.

Chart IV-2

Organizational Dimensions of Public Activity	Aspects of Development
Substantive Commitment	Economic Growth
Scope	Social Modernization
Structure	Political Change

In a single statement, Chart IV-2 states: the substantive commitment of public activity in contrast to the structural arrangement and the penetration of the public sector determines the public sector's effect on

economic growth, whereas the scope of the public sector significantly affects the course of social modernization, and finally public structure critically conditions the nature of a nation's political system.

The implication from this restatement of the longitudinal analysis of centralization and development is the immediate frustration of any effort to choose between the models of public activity. From the results with all three aspects of development, the "resolved" prescription receives some measure of support. Recall that for economic growth, nations which maintained high levels of spending on national security severely constrained their economy's growth. Social modernization advanced when total public scope -- meaning active subnational units -- advanced. And likewise for political development, nations characterized by highly centralized public structures most often experienced non-legitimate and violent political participation. While these findings lend credence to the devolution argument, others were discovered which preclude an uncritical acceptance of the "resolved" position. For example, with economic growth, nations which started from very low degrees of structural centralization and proceeded to moderate levels appear to have made comparatively the most economic progress. Though the growth of activity by local political units

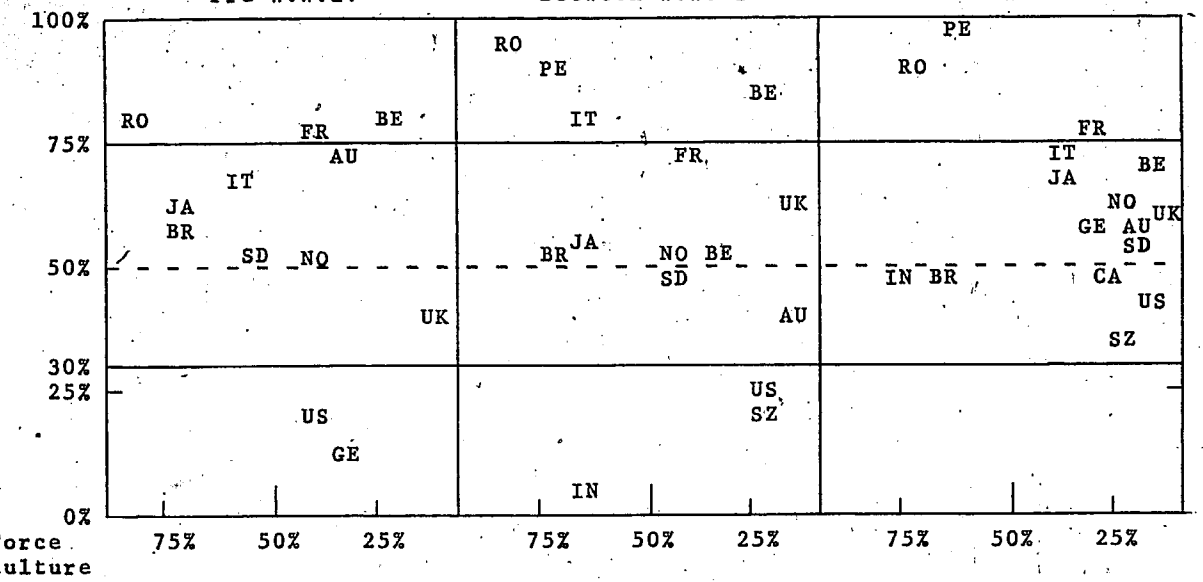
boosted social improvement, nevertheless, it is the sheer expansion of the public sector which also contributes to these changes, And for political change, the serial correlations point to those nations with small and unchanging scopes as being the least developed politically. While using the multiple dimensions of public organization has avoided the teleological pitfall inherent in the two approaches to public organization, it has not resolved the original question, but has led back to the quandary identified in the empirical analysis.

Further study of the polity's organization and its impact on development will have to come to grips with this dilemma. On the one hand, the sluggish economic performance of nations with high structural centralization negates the "bureaucratic" model's hypotheses. However, the superior developmental performance of the nations which moved from very decentralized structures and scopes to moderate levels certainly offers powerful evidence for the "bureaucratic" model. These opposite findings also exist for the other two aspects of development. From these seeming contradictions then comes the importance of the centralization thresholds described earlier.

The operation of the thresholds becomes apparent on Chart IV-3 which ranks the sixteen nations by average

Chart IV-3: Operation of the Centralization Thresholds, for Structural Centralization

N.G.E.-Def.E.
T.G.E.-Def.E.



See Tables III-1 and III-2 for legend and specific ratio values.

degree of "domestic" structural centralization and average level of economic growth for each of three historical periods. The poor economic performance of those nations above the upper threshold (0.75) prior to World War II contrasts sharply with the growth of those nations which were below the lower threshold (0.30) prior to World War II. The absence of nations in the lower right-hand cell amply confirms the existence of the lower threshold. While Peru and Romania's continued underdevelopment supports the action of the upper parameter, one might argue that the Belgian, French, and Italian cases negate its operation. However, such a position ignores the fact of their relatively poorer economic performance in comparison with the other European nations.[2] The strongest evidence for the existence and operation of the centralization thresholds derives from the clustering of nations -- both federal and unitary -- near the equal division line. Not only does this add credence to Mesmer's convergence hypothesis, but also reaffirms the arguments made in Chapter III concerning the multiple patterns of centralization. Though the degrees of centralization chosen as thresholds are more of a expository nature at this moment, Chart IV-3 strongly suggests that some organizational configurations are more beneficial for development than others. Designing

a research strategy to identify and analyze these thresholds should produce considerable gain in terms of the opening question.

Embedded in the threshold notion is the tacit proposition that nations with highly centralized structures or minimally centralized structures or scopes will be caught in developmental traps. This is a fairly powerful, yet reasonably simple proposition to pursue. Comparative and longitudinal expansion of the units under investigation is the obvious first step towards determining to what extent this proposition remains valid. A more complicated but rewarding task would be to disaggregate the independent variable within each organizational dimension. For example, one may ask whether centralization within various public activities such as education or public health provision contributes or constrains different aspects of development. Likewise, one may examine the effect of public innovation which really is a change in scope through the commencement of literally brand-new activities. In either case, sheer expansion of national units or the disaggregation of macro-data, the emphasis must remain on the consequence of a given centralization pattern.

The discovery that different national structures are converging into the moderate range of centralization provides a unique avenue for further study. As

more national units are included in comparative archives, will their centralization patterns also give evidence of this convergence? Will disaggregation by organizational dimension show convergence? That is, do nations use essentially the same structural arrangements and commitment to a common set of public programs? A few studies have reached a tentative affirmation of this question.[3] Solid confirmation of the convergence hypothesis would mean that just as there are only a finite set of arrangements amenable to the operation of an industrial economy, so also are there a finite set of public arrangements appropriate to a modern polity.

Whatever the course of future research, the thrust must avoid the single path to development myopia and continue to explore the alternatives open to each country and the consequences of the choices made. The concern cannot be with solutions to "bad" centralization, but must be with alternative strategies of control by organizational dimension. As Marion Levy recently pointed out:

> Arguments on this score are usually conducted in child-like fashion. Someone is sure to say, "Wouldn't you agree that too much centralization is a bad thing?" I agree, and I add that <u>too much</u> lettuce will kill you. That is, what we mean by "too much." We are not given a priori any clear criteria for what constitutes too much centralization . . .[4]

To Levy, I would add that just as too much lettuce or centralization can harm, so also can too little. This returns the logic directly back to the thresholds of centralization. If a nation's leadership fails to properly manipulate their control over public activity in each organizational dimension, the nation because of the consequences of public organization for development can enter or will remain in a developmental trap. Conversely, sensitivity in these adjustments can help in avoiding crises. What still remains unknown scientifically and part of the art of leadership is the right strategy of control for a given situation.[5]

FOOTNOTES

1. Karl Mannheim, Man and Society in an Age of Reconstruction (New York: Harcourt, Brace and World, 1967), p. 189 quoted in Alberto Guerreiro-Ramos, "Modernization: Towards a Possibility Model," Developing Nations: Quest for a Model, eds. Willard A. Beling and George O. Totten (New York: Van Nostrant Reinhold Co., 1970), Chapter 2.

2. The 1966 per capita gross domestic product values (in U.S. $) for the European nations are: Sweden ($2370), Switzerland ($2252), Norway ($1874), Germany ($1761), France ($1694), Belgium ($1672), United Kingdom ($1642), Italy ($1026), and Romania ($399). The values for the remaining nations are: United States ($3300), Canada ($2308), Australia ($1985), Japan ($890), Brazil ($271), Peru ($243), and India ($89). Belgium, France, and Italy rank respectively 9th, 8th, and 11th among the sixteen nations. See Arthur S. Banks, Cross-Polity Time-Series Data (Cambridge, Mass.: The M.I.T. Press, 1971).

3. For example, see Phillips Cutright, "Political Structure, Economic Development, and National Social Security Programs," The American Journal of Sociology, 70, pp. 537-48; or Frederic Pryor, Public Expenditures in Communist and Capitalist Nations (London: George Allen and Unwin Ltd., 1968).

4. Marion Levy, Modernization: Latecomers and Survivors (New York: Basic Books, Inc., 1972), p. 68.

5. For a similar conclusion, see Warren F. Ilchman and Norman Thomas Uphoff, The Political Economy of Change (Berkeley, Calif.: University of California Press, 1969), p. 222.

APPENDIX

SOURCES FOR LONGITUDINAL PUBLIC EXPENDITURE DATA, BY COUNTRY

Australia

B. U. Ratchford, Public Expenditures in Australia (Durham, N.C.: Duke University Press, 1959).

Yearbook of the Commonwealth of Australia, Vols. 1962-1968.

Belgium

Annuaire Statistique de La Belgique, Vols. 1910-1969.

Brazil

Anuario Estatistico Do Brasil, Vols. 1939-1968.

Canada

M. C. Urquhart and K. A. H. Buckley (eds.), Historical Statistics of Canada (Toronto: Cambridge University Press, 1965).

Municipal Tax Levies and Receipts by Provinces (Canada: Department of Trade and Commerce, 1939).

National Accounts, Income and Expenditure, Vols. 1926-1964.

France

Annuaire Statistique de France, Vols. 1815-1957.

Germany

Suphan Andic and Jindrich Veverka, "The Growth of Government Expenditure in Germany since the Unification," Finanzarchiv (Jan. 1964).

India

P. J. Thomas, The Growth of Federal Finance in India (London: Oxford University Press, 1939).

S. N. Agarwala, Indian Public Finance (Bombay: Vora and Co., Publishers, 1967).

V. G. Kulkarni and D. D. Deshpande, Statistical Outline of Indian Economy (Bombay: Vora and Co., Publishers, 1968).

K. K. Sharma, Public Finance (Bangalore: Bangalore Printing and Publishing Co., 1969).

Italy

Annuario Statistico Italiano, Vols. 1887-1960.

Japan

The Financial and Economic Annual of Japan, Vols. 1901-1937.

Japan Statistical Yearbook, Vols. 1955-1967.

Norway

Statistiske Oversikter, Vols. 1948 and 1958.
Statistical Abstract of Norway, Vols. 1964-1969.

Peru

Anuario Estadistico del Peru, Vol. 1954.

Romania

Anuarul Statistic al Romaniei, Vols. 1904-1938.
Anuarul Statistic al Republicii Socialiste Romania, Vols. 1960-1969.

Sweden

Historisk Statistik for Sverige, Vol. III, 1960.
Statistisk Arsbok for Sverige, Vols. 1960-1969.

Switzerland

Statistisches Jahrbuch Der Schweiz, Vols. 1920-1969.

United Kingdom

Alan Peacock and Jack Wiseman, The Growth of Public Expenditures in the United Kingdom (Princeton, N.J.: Princeton University Press, 1961).
Annual Abstract of Statistics, Vols. 1956-1967.

United States

Facts and Figures on Government Finance, 13th ed., 1964-65 (Tax Foundation Inc., 1965).

APPENDIX B

RATIOS OF CENTRALIZATION: OVER TIME AND AMONG NATIONS

Australia:	AU	Japan:	JA
Belgium:	BE	Norway:	NO
Brazil:	BR	Peru:	PE
Canada:	CA	Romania:	RO
France:	FR	Sweden	SD
Germany:	GE	Switzerland:	SZ
India:	IN	United Kingdom:	UK
Italy:	IT	United States:	US

Table 1. Ratio of National to Total Government Expenditures

Year	AU	BE	BR	CA	FR	GE	IN	IT
1870		.809						
1871	.804				.866			
1872								
1873								
1874								
1875								
1876								
1877					.797			
1878					.812			
1879					.835			
1880					.808			
1881	.817				.814	.293		
1882					.818			.738
1883					.819			.740
1884					.811			.741
1885					.776			.740
1886					.745			.739
1887					.764			.741
1888					.765			.751
1889					.766			.738
1890		.806			.768			
1891	.702				.784	.339		.735
1892					.786			
1893					.786			
1894					.784			
1895					.780			.760
1896					.777			
1897					.778			
1898					.714			
1899					.779			.743
1900		.824			.777			
1901					.774	.344		
1902					.770			
1903					.760			
1904					.760			
1905					.759			
1906					.755			
1907			.636		.743	.349		.735
1908		.800	.609		.743			
1909			.596		.741			
1910			.620		.742			
1911			.647		.760			
1912		.790	.655		.763			.737
1913	.274		.635		.754	.353		
1915			.631					
1916			.626					

Table 1 -- Continued

Year	AU	BE	BR	CA	FR	GE	IN	IT
1917			.648					
1918	.661		.648					
1919			.627					
1920		.901	.655		.824			
1921			.632				.152	
1922		.876	.644				.149	
1923	.420		.606		.815		.144	
1924		.868	.593				.143	
1925			.558			.454	.131	.793
1926		.902	.542			.460	.127	
1927		.821	.527			.467	.121	
1928	.320		.549			.504	.122	.733
1929	.346	.801	.519		.753	.515	.123	
1930		.758	.541			.538	.126	
1931		.773	.492			.529	.133	
1932	.374	.785	.590			.490	.126	
1933		.788	.555			.513	.121	
1934		.799	.575		.683	.595	.124	
1935		.825	.539			.636	.119	.855
1936	.364	.825	.540			.669		
1937		.806	.579			.718		
1938		.722	.595		.757	.789		.753
1939	.383	.752	.567					
1940	.475	.806	.567					
1941	.661	.714	.560					
1942	.779	.677	.568	.898				
1943	.899	.655	.543	.892				
1944	.902	.688	.554	.881	.864			
1945	.885	.790	.558	.871	.901			
1946	.852	.818	.578	.728	.840			.878
1947	.754	.793	.512	.638	.812			.857
1948	.690	.850	.507	.588	.789			
1949	.689	.798	.523	.584	.757			
1950	.678	.756	.499	.618	.839	.621		
1951	.668	.729	.449	.651	.838	.635	.520	
1952	.633	.774	.428	.658	.836	.635	.466	
1953	.673	.736	.472	.644	.828	.621	.505	
1954	.656	.740	.470	.617	.806	.619	.528	
1955	.498	.717	.488	.621		.613	.482	.740
1956		.701	.561	.623		.606	.512	.738
1957		.736	.518	.607		.620	.557	.726
1958	.603	.731	.517	.606		.634	.545	.746
1959	.608	.742	.501	.584			.538	.764
1960	.621	.757	.503	.564			.517	.739
1961	.603	.729		.566			.521	.741
1962	.425	.731	.537	.548			.548	.749
1963		.744		.548				.719

Table 1 -- Continued

Year	AU	BE	BR	CA	FR	GE	IN	IT
1964		.724						.701
1965		.737	.496					.731
1966		.729	.490					.721
1967								
1968								

Year	JA	NO	PE	RO	SD	SZ	UK	US
1870								
1871								
1872								
1873								
1874								
1875								
1876								
1877								
1878								
1879								
1880								
1881								
1882								
1883								
1884								
1885		.639						
1886								
1887								
1888								
1889	.788							
1890	.797	.685					.616	.331
1891	.651							
1892	.610							
1893	.622							
1894	.583							
1895	.596	.663					.570	
1896	.708							
1897	.716							
1898	.695							
1899	.690							
1900	.691	.612					.648	
1901	.651			.786				
1902	.652							.333
1903	.613							
1904	.684							
1905	.763	.651					.489	
1906	.737							
1907	.752							
1908	.737							

Year	JA	NO	PE	RO	SD	SZ	UK	US
1909	.672							
1910	.675	.642					.521	
1911	.607	.603						
1912	.649	.638			.590			
1913	.649	.565					.552	.292
1914	.676	.579						
1915	.660	.567					.863	
1916	.650	.548			.721			
1917	.667	.614					.920	
1918	.638	.589	.931			.385	.943	
1919	.650	.572	.935			.351		
1920	.598	.551	.942			.442	.801	
1921	.590	.515			.526	.402	.720	
1922	.540	.493				.342	.691	.387
1923	.548	.485	.925			.355	.686	
1924	.554	.548	.912	.976		.328	.672	
1925	.520	.543	.912	.979		.317	.654	
1926	.498	.522	.915	.945	.493	.309	.635	
1927	.473	.551	.922			.294	.626	.296
1928	.489	.557	.917	.939		.288	.635	
1929	.503	.544	.922	.940		.285	.634	
1930	.471	.539	.931	.950		.304	.633	
1931	.476	.531	.933		.520	.261	.635	
1932	.509	.547	.924	.942		.269	.647	.317
1933	.718	.521	.917	.936		.273	.580	
1934	.769	.505	.927			.290	.624	.393
1935	.775	.524	.937	.932	.499	.289	.617	
1936	.783	.537	.930	.936	.468	.303	.612	.480
1937	.842	.524	.933		.500	.302	.618	
1938	.873	.539	.931		.525	.327	.665	.423
1939	.886	.578	.933		.671	.423	.719	
1940	.889	.617	.931		.733	.561	.852	.438
1941	.919	.700	.931		.687	.598	.895	
1942	.926	.769	.934		.704	.572	.908	.737
1943	.935	.742	.945		.702	.595	.919	
1944	.956	.771	.942		.698	.584	.920	.891
1945	.952	.745	.947		.644	.544	.906	
1946	.914	.772	.954		.576	.510	.847	.805
1947	.861	.707	.961		.592		.780	
1948	.850	.705	.954		.594		.766	.592
1949	.863	.681	.952		.596		.772	
1950	.829	.658	.957	.902	.599		.766	.582
1951	.752	.673	.959	.903	.594		.772	
1952	.713	.676	.965	.913	.606	.389	.767	.666
1953	.687	.674	.957	.900	.595		.757	
1954	.687	.655	.954	.890	.589	.349	.748	.648

Table 1 -- Continued

Year	JA	NO	PE	RO	SD	SZ	UK	US
1955	.700	.647	.952	.875	.590		.750	
1956	.713			.862	.598	.318	.679	.603
1957	.707			.854	.596		.671	.598
1958	.733			.845	.630	.354	.672	.582
1959	.732	.663		.841	.630		.664	.582
1960	.727			.842	.633	.318	.666	.580
1961	.709	.691		.846	.624	.336	.658	.576
1962	.696	.685		.848	.628	.324	.648	.582
1963	.695	.674		.851	.610	.321	.633	.575
1964	.691	.674		.852	.614	.329	.621	
1965	.691	.682		.846	.619	.311		
1966		.661		.854	.619	.318		
1967		.658		.872	.602			
1968				.870				

Table 2. Ratio of National to Total Governmental Expenditures, Both Corrected for Defense Expenditures

Year	AU	BE	BR	CA	FR	GE	IN	IT
1870		,756						
1871					.838			
1872								
1873								
1874								
1875								
1876								
1877					.749			
1878					.772			
1879					.798			
1880					.767			
1881	.815				.771	.066		
1882					.775			.688
1883					.776			.684
1884					.762			.688
1885					.718			.686
1886					.682			.682
1887					.714			.677
1888					.715			.673
1889					.714			.677
1890		.785			.716			
1891	.700				.721	.135		.681
1892					.727			
1893					.731			
1894					.728			
1895					.724			.699
1896					.720			
1897					.719			.695
1898					.639			
1899					.719			.695
1900		.807			.716			
1901					.710	.173		
1902					.707			
1903					.695			
1904					.697			
1905					.694			
1906					.683			
1907			.576		.672	.194		.691
1908		.785	.538		.671			
1909			.524		.670			
1910			.564		.669			
1911			.587		.677			
1912		.772	.599		.682			.656
1913	.205		.587		.663	.203		
1914			.606		.671			

Table 2 -- Continued

Year	AU	BE	BR	CA	FR	GE	IN	IT
1915			.585					
1916			.585					
1917			.613					
1918	.530		.606					
1919			.585					
1920		.889	.613		.794			
1921			.586				.084	
1922		.863	.572				.084	
1923	.406		.558		.791		.087	
1924		.857	.536				.088	
1925			.511			.431	.079	.756
1926		.899	.484			.438	.077	
1927		.810	.484			.447	.073	
1928	.312		.502			.487	.074	
1929	.330	.789	.468		.704	.499	.076	
1930		.739	.487			.523	.080	
1931		.754	.438			.513	.086	
1932	.361	.769	.497			.469	.082	
1933		.773	.482			.467	.080	
1934		.780	.500		.631	.556	.083	
1935		.812	.468			.567	.079	.827
1936	.339	.811	.470			.573		
1937		.788	.488			.608		
1938		.698	.506			.632		.677
1939	.343	.707	.505					
1940	.345	.741	.499					
1941	.366		.492					
1942	.441		.468	.857				
1943	.628		.463	.681				
1944	.680	.661	.470	.744				
1945	.690	.765	.482	.753				
1946	.705	.807	.471	.614	.789			
1947	.718	.783	.407	.571	.753			
1948	.669	.849	.417	.514	.728			
1949	.663	.786	.440	.506	.697			
1950	.649	.736	.422	.507	.812	.561		
1951	.627	.696	.360	.497	.789	.560	.445	
1952	.570	.733		.508	.770	.562	.369	
1953	.605	.693	.391	.502	.760	.567	.426	
1954	.597	.702	.395	.464	.737	.572	.467	
1955	.438	.683	.406	.495		.569	.427	
1956		.667	.491	.515		.560	.460	
1957		.695	.432	.503		.579	.508	
1958	.566	.700	.437	.507		.593	.496	
1959	.567	.714	.434	.497			.497	
1960	.581	.733	.446	.480			.478	

Table 2 -- Continued

Year	AU	BE	BR	CA	FR	GE	IN	IT
1961	.565	.705		.484			.483	
1962	.357	.711	.494	.469			.501	
1963		.726		.466				.709
1964		.706						.692
1965		.715	.438					.725
1966		.709	.438					.715
1967								
1968								

Year	JA	NO	PE	RO	SD	SZ	UK	US
1870								
1871								
1872								
1873								
1874								
1875								
1876								
1877								
1878								
1879								
1880								
1881								
1882								
1883								
1884								
1885								
1886								
1887								
1888								
1889	.723							
1890	.730						.476	.273
1891	.573							
1892	.520							
1893	.545							
1894	.507							
1895	.516						.407	
1896	.578							
1897	.560							
1898	.527							
1899	.457							
1900	.550						.322	
1901	.535			.761				
1902	.568							.173
1903	.514							
1904	.656							

Table 2 -- Continued

Year	JA	NO	PE	RO	SD	SZ	UK	US
1905	.747						.308	
1906	.668							
1907	.670							
1908	.651							
1909	.577							
1910	.584						.341	
1911	.500							
1912	.551				.511			
1913	.551	.502					.362	.183
1914	.604	.463						
1915	.571	.434					.455	
1916	.544	.421						
1917	.551	.538					.689	
1918	.529	.544	.917				.704	
1919	.502	.545	.920					
1920	.437	.529	.926			.416	.704	
1921	.423	.487			.471	.366	.655	
1922	.404	.467					.639	.337
1923	.449	.457	.910			.309	.638	
1924	.472	.521	.895	.971		.277	.624	
1925	.434	.514	.895	.975		.264	.605	
1926	.418	.493	.898	.934	.445	.257	.585	
1927	.393	.521	.904			.242	.576	
1928	.407	.530	.897	.923		.236	.588	
1929	.420	.516	.904	.924		.233	.588	
1930	.389	.512	.918	.932		.258	.591	
1931	.386	.503	.922		.489	.213	.595	
1932	.401	.520	.906			.223	.609	.228
1933	.689	.489	.891			.231	.535	
1934	.744	.472	.908			.241	.576	
1935	.747	.493	.918	.914	.465	.244	.562	
1936	.763	.506	.907	.920	.430	.250	.541	
1937	.825	.491	.915		.462	.229	.525	
1938	.864	.501	.913		.477	.234	.523	
1939	.876	.474	.915		.498	.253		
1940	.881	.600	.912		.530	.284		.383
1941	.921	.697	.911		.516			
1942		.768	.912		.538			.465
1943		.740	.927		.545	.370		
1944		.769	.922		.568	.325		.652
1945		.701	.929		.576	.291		
1946		.747	.940		.511	.461	.773	.540
1947		.689	.951		.540		.724	
1948		.683	.941		.544		.720	.412
1949		.656	.931		.544		.724	
1950		.617	.940	.884	.539		.714	.439

Table 2 -- Continued

Year	JA	NO	PE	RO	SD	SZ	UK	US
1951		.625	.943	.882	.530		.697	
1952	.702	.625	.954	.896	.541	.281	.675	.388
1953	.672	.624	.940	.885	.530		.661	
1954	.673	.606	.937	.880	.521	.266	.648	.384
1955	.689	.605		.863	.528		.661	
1956	.703			.850	.541	.241	.595	.379
1957	.697			.842	.539		.595	.379
1958	.726			.833	.576	.261	.597	.372
1959	.725	.621		.831	.577		.591	.383
1960	.720			.834	.584	.239	.595	.397
1961	.703	.653		.838	.573	.259	.588	.402
1962	.689	.643		.841	.579	.245	.578	.411
1963	.688	.633		.844	.560	.245	.564	.410
1964	.684	.633		.845	.569	.259	.552	
1965		.638		.839	.575	.240		
1966		.616		.848	.580	.250		
1967		.614		.867	.564			
1968				.865				

Table 3. Ratio of National Government Expenditures to Gross National Product

Year	AU	BE	BR	CA	FR	GE	IN	IT
1878					.129			
1879								
1880								
1881					.145	.029		
1882								.070
1883					.100			
1884								.135
1885								
1886								
1887					.130			
1888								
1889								
1890					.146			
1891						.045		.141
1892								
1893								
1894								
1895								.149
1896					.157			
1897								
1898								
1899								.122
1900					.143			
1901						.051		
1902								
1903								
1904								
1905					.137			
1906								
1907						.057		.133
1908								
1909								
1910			.069		.114			
1911								
1912		.138						.157
1913	.068				.140	.062		
1914			.076					
1915								
1916								
1917								
1918	.250							
1919								
1920		.449	.064	.142	.360			
1921							.032	
1922			.064					
1923	.183							

Table 3 -- Continued

Year	AU	BE	BR	CA	FR	GE	IN	IT
1924								
1925			.097			.113	.033	.156
1926				.069		.125		
1927			.091			.128		
1928						.148		
1929	.071				.244	.157		
1930		.185	.095	.071		.181	.038	.192
1931						.188		
1932	.093	.232				.179		
1933			.086			.191		
1934		.229			.271	.229		
1935			.082	.111		.220	.043	
1936	.078	.232				.224		
1937		.217				.245		
1938		.222			.218	.335		.323
1939	.087	.242	.137					
1940	.116			.101				
1941	.221							
1942	.310							
1943	.451							
1944	.424							
1945	.378			.405				
1946	.317	.404			.199			
1947	.215	.355	.100					
1948	.153	.578						
1949	.165						.066	
1950	.167	.293	.094	.146	.319	.253	.058	.185
1951	.169		.107	.161		.256	.070	
1952	.185			.168		.261	.057	
1953	.190	.227	.093	.162	.250	.251	.069	
1954	.168	.223		.162		.252	.093	
1955	.165	.207		.172		.239	.095	.185
1956		.197		.169		.244	.101	.184
1957		.215		.171		.262	.135	.173
1958	.212	.227	.113	.179		.279	.124	.191
1959		.252	.093	.177			.138	.207
1960		.254	.096	.177			.136	.190
1961	.228	.235		.188			.148	.183
1962		.234	.120	.177			.179	.196
1963		.244		.174			.197	.278
1964		.229						.190
1965		.247	.120					.221
1966		.248	.114					.233
1967								
1968								

Table 3 -- Continued

Year	JA	NO	PE	RO	SD	SZ	UK	US
1878								
1879								
1880								
1881								
1882								
1883								
1884								
1885		.027						
1886								
1887								
1888								
1889	.114							
1890	.082	.029					.055	
1891								
1892								
1893								
1894								
1895	.052						.059	
1896								
1897								
1898								
1899								
1900	.128	.101					.094	
1901								
1902								.026
1903								
1904								
1905	.136	.092					.060	
1906								
1907								
1908								
1909								
1910	.137	.084					.066	
1911		.087						
1912		.092			.083			
1913		.067					.068	.025
1914	.071	.086						
1915		.061					.302	
1916		.060			.154			
1917		.112					.359	
1918		.123					.488	
1919		.105						
1920	.105	.099				.069	.210	
1921		.107			.099		.212	
1922		.110					.192	.051
1923		.096					.166	
1924		.087				.046	.159	

Table 3 -- Continued

Year	JA	NO	PE	RO	SD	SZ	UK	US
1925	.103	.079					.158	
1926		.085			.095		.163	
1927		.094					.151	.037
1928		.092					.154	
1929		.087				.038	.152	
1930	.133	.086	.007			.048	.165	
1931		.093	.011		.121		.183	
1932		.095	.006				.185	.073
1933		.080	.004				.163	
1934		.074	.005			.061	.153	.091
1935	.517	.078			.099		.150	
1936	.641	.079			.102		.151	.111
1937	.597	.075			.105		.159	
1938	.751	.081			.111		.199	.099
1939	.743	.090			.190	.107	.254	
1940	.751		.063				.518	.100
1941							.649	
1942			.085				.661	.223
1943			.098				.679	
1944			.099			.200	.668	.475
1945			.100				.598	
1946	.813	.274	.120				.437	.316
1947	.597	.202	.139		.143		.343	
1948	.750	.215	.130				.311	.137
1949		.204	.103			.090	.309	
1950	.749	.178	.090	.571	.182	.082	.299	.157
1951		.174	.113	.459	.176	.081	.314	
1952	.333	.190	.125	.592	.190	.094	.318	.206
1953	.333	.203	.119	.569	.196	.078	.308	.219
1954	.326	.186	.117	.605	.196	.077	.281	.214
1955	.318	.184	.118	.595	.205	.071	.274	.185
1956	.316				.213	.067	.273	.181
1957	.300			.541	.219	.072	.260	.185
1958	.359			.571	.219	.084	.260	.194
1959	.355	.183		.555	.221	.073	.258	.194
1960	.342			.578	.220	.070	.265	.194
1961	.315	.198		.577	.217	.079	.268	.202
1962	.323	.199		.640	.235	.080	.269	.204
1963	.320	.202		.635	.230	.081	.265	.203
1964	.308	.201			.244	.087	.264	
1965	.319	.202			.253	.082		
1966		.189			.265	.088		
1967		.194			.264			
1968								

Table 4. Ratio of Total Government Expenditures to Gross National Product

Year	AU	BE	BR	CA	FR*	GE	IN	IT
1878					.159			
1879								
1880								
1881					.178	.100		.095
1882								
1883					.122			
1884								
1885								.182
1886								
1887					.171			
1888								
1889								
1890					.190			
1891						.132		.191
1892								
1893								
1894								
1895								.196
1896					.201			
1897								
1898								
1899								.164
1900					.184			
1901						.149		
1902								
1903								
1904								
1905					.181			
1906								
1907						.165		.181
1908								
1909								
1910			.111		.154			
1911								
1912		.175						.213
1913	.249				.186	.177		
1914			.115					
1915								
1916								
1917								
1918	.378							
1919								
1920		.500	.098		.437			
1921							.209	
1922			.100					

Table 4 -- Continued

Year	AU	BE	BR	CA	FR	GE	IN	IT
1923	.435							
1924								
1925			.174			.250	.251	.197
1926						.272		
1927			.174			.274		
1928						.294		
1929	.204				.324	.306		
1930		.244	.175			.336	.301	.263
1931						.355		
1932	.249	.295				.366		
1933			.155			.372		
1934		.286			.397	.384		
1935			.152			.347	.363	
1936	.214	.281				.335		
1937		.269				.341		
1938		.308			.289	.424		.429
1939	.227	.322	.242					
1940	.244							
1941	.333							
1942	.397							
1943	.502							
1944	.470							
1945	.427			.465				
1946	.373	.495			.237			
1947	.285	.447	.195					
1948	.222	.680						
1949	.240							
1950	.246	.388	.189	.236	.380	.408		.216
1951	.252		.238	.248		.404	.135	
1952	.292			.255		.410	.123	
1953	.282	.309	.198	.251	.302	.405	.137	
1954	.256	.301		.262		.408	.177	
1955	.332	.289		.277		.390	.198	.250
1956		.281		.271		.402	.197	.249
1957		.292		.282		.422	.243	.239
1958	.351	.310	.219	.295		.441	.228	.257
1959		.339	.185	.303			.256	.271
1960		.335	.191	.315			.263	.258
1961	.378	.322		.331			.285	.247
1962		.321	.223	.323			.327	.262
1963		.328		.319				.387
1964		.316						.271
1965		.336	.242					.302
1966		.341	.233					.323
1967								
1968								

Table 4 -- Continued

Year	JA	NO	PE	RO	SD	SZ	UK	US
1878								
1879								
1880								
1881								
1882								
1883								
1884								
1885		.042						
1886								
1887								
1888								
1889	.145							
1890	.102	.043					.089	
1891								
1892								
1893								
1894								
1895	.087						.104	
1896								
1897								
1898								
1899								
1900	.185	.164					.144	
1901								
1902								.080
1903								
1904								
1905	.178	.141					.123	
1906								
1907								
1908								
1909								
1910	.203	.132					.127	
1911		.144						
1912		.143			.141			
1913		.118					.124	.085
1914		.148						
1915	.107	.108					.350	
1916		.110			.213			
1917		.182					.391	
1918		.208					.517	
1919		.183						
1920	.175	.180				.155	.262	
1921		.209			.189		.294	
1922		.224					.278	.131
1923		.197					.242	

Table 4 -- Continued

Year	JA	NO	PE	RO	SD	SZ	UK	US
1924		.159				.141	.237	
1925	.198	.145					.242	
1926		.163			.193		.257	
1927		.171					.241	.124
1928		.165					.242	
1929		.159				.132	.239	
1930	.283	.157	.007			.159	.261	
1931		.175	.012		.233		.288	
1932		.173	.006				.286	.230
1933		.153	.004				.282	
1934		.146	.005			.211	.245	.232
1935	.667	.148			.198		.244	
1936	.819	.147			.217		.247	.231
1937	.710	.144			.209		.257	
1938	.860	.149			.212		.300	.234
1939	.839	.156			.283	.252	.353	
1940	.842		.068				.608	.228
1941							.725	
1942			.091				.728	.303
1943			.104				.739	
1944			.105			.343	.726	.534
1945			.106				.660	
1946	.890	.355	.125				.515	.392
1947	.694	.286	.144		.242		.440	
1948	.882	.305	.136				.406	.232
1949		.300	.108				.400	
1950	.904	.271	.094	.633	.304		.390	.270
1951		.259	.118	.508	.296		.407	
1952	.468	.281	.130	.648	.313	.242	.415	.310
1953	.485	.301	.124	.632	.330		.407	
1954	.475	.284	.122	.680	.332	.220	.376	.330
1955	.455	.285	.124	.680	.347		.366	
1956	.444				.357	.211	.401	.300
1957	.427			.633	.367		.388	.309
1958	.489			.677	.347	.237	.387	.333
1959	.485	.277		.660	.351		.389	.333
1960	.470			.686	.348	.221	.398	.334
1961	.444	.287		.681	.348	.234	.407	.351
1962	.464	.291		.754	.374	.247	.415	.351
1963	.461	.300		.747	.377	.252	.419	.353
1964	.445	.298			.397	.265	.425	
1965	.461	.296			.408	.264		
1966		.287			.428	.276		
1967		.295			.438			
1968								

Table 5. Defense Expenditures as a Ratio of National Government Expenditures

Year	AU	BE	BR	CA	FR	GE	IN	IT
1870		.272						
1871					.201			
1872								
1873								
1874								
1875								
1876								
1877					.242			
1878					.219			
1879					.221			
1880					.218			
1881	.019				.230	.832		
1882					.234			.216
1883					.235			.237
1884					.251			.230
1885					.262			.230
1886					.267			.242
1887					.232			.269
1888					.226			.319
1889					.236			.258
1890		.122			.238			
1891	.015				.288	.695		.229
1892					.275			
1893					.262			
1894					.265			
1895					.264			.266
1896					.264			
1897					.268			.229
1898					.291			
1899					.275			.210
1900		.103			.279			
1901					.285	.603		
1902					.279			
1903					.281			
1904					.274			
1905					.278			
1906					.303			
1907			.223		.293	.549		.194
1908		.087	.253		.295			
1909			.256		.291			
1910			.208		.296			
1911			.227		.337			
1912		.101	.215		.334			.318
1913	.317		.184		.358	.532		
1914			.186		.666			
1915			.178	.288				

Table 5 -- Continued

Year	AU	BE	BR	CA	FR	GE	IN	IT
1916			.157	.504				
1917			.137	.625				
1918	.422		.165	.604				
1919			.164	.646				
1920		.120	.166	.447	.146			
1921			.175	.059			.489	
1922		.103	.260	.039			.479	
1923	.055		.180	.041	.115		.431	
1924		.087	.207	.038			.422	
1925			.174	.039		.089	.431	.195
1926		.040	.208	.040		.083	.425	
1927		.071	.217	.042		.080	.431	
1928	.038		.171	.051		.069	.426	
1929	.072	.072	.184	.049	.164	.062	.416	
1930		.098	.193	.054		.057	.399	
1931		.100	.194	.054		.063	.388	
1932	.051	.089	.313	.041		.082	.377	
1933		.084	.254	.026		.170	.370	
1934		.112	.260	.029	.140	.148	.364	
1935		.084	.248	.030		.249	.372	.191
1936	.102	.091	.244	.032		.388		
1937		.107	.308	.043		.393		
1938		.109	.304	.061		.541		.314
1939	.160	.203	.223	.062				
1940	.417	.312	.240	.193				
1941	.705		.238	.602				
1942	.777		.331	.818				
1943	.810		.276	.742				
1944	.769	.113	.286	.610				
1945	.709	.135	.263	.548				
1946	.584	.068	.348	.406	.243			
1947	.168	.060	.347	.245	.239			
1948	.093	.010	.304	.258	.225			
1949	.112	.074	.283	.272	.196			
1950	.120	.098	.268	.363	.148	.217	.305	
1951	.165	.150	.310	.468	.232	.268	.259	
1952	.231	.200		.463	.287	.262	.329	
1953	.255	.192	.282	.443	.281	.199	.272	
1954	.222	.173	.265	.465	.261	.175	.217	
1955	.213	.152	.282	.404		.169	.200	
1956		.146	.245	.357		.173	.186	
1957		.185	.292	.343		.157	.182	
1958	.144	.137	.275	.333		.157	.178	
1959	.156	.131	.239	.297			.150	
1960	.152	.121	.207	.284			.146	
1961	.145	.115		.283			.142	

Table 5 -- Continued

Year	AU	BE	BR	CA	FR	GE	IN	IT
1962	.250	.093	.157	.270			.172	
1963		.087		.272			.240	.046
1964		.086						.041
1965		.106	.209					.032
1966		.092	.188					.028
1967								
1968								

Year	JA	NO	PE	RO	SD	SZ	UK	US
1870								
1871								
1872								
1873								
1874								
1875								
1876								
1877								
1878								
1879								
1880								
1881								
1882								
1883								
1884								
1885								
1886								
1887								
1888								
1889	.295							
1890	.313						.434	.239
1891	.283							
1892	.309							
1893	.269							
1894	.269							
1895	.275						.482	
1896	.434							
1897	.494							
1898	.512							
1899	.622							
1900	.455						.742	
1901	.383			.132				
1902	.297							.580
1903	.333							
1904	.118							
1905	.082						.534	

Table 5 -- Continued

Year	JA	NO	PE	RO	SD	SZ	UK	US
1906	.279							
1907	.329							
1908	.335							
1909	.333							
1910	.325						.524	
1911	.351							
1912	.336				.275			
1913	.335	.223					.541	.459
1914	.271	.372						
1915	.312	.414					.867	
1916	.358	.401						
1917	.389	.268					.806	
1918	.362	.168	.178				.855	
1919	.458	.101	.201					
1920	.478	.085	.236			.098	.408	
1921	.490	.105	.226		.198	.139	.262	
1922	.423	.098	.233				.207	.196
1923	.328	.104	.185			.186	.192	
1924	.280	.100	.180	.167		.213	.190	
1925	.291	.109	.185	.147		.227	.190	
1926	.275	.109	.179	.176	.174	.226	.190	
1927	.278	.114	.204			.236	.188	
1928	.285	.102	.206	.222		.238	.180	
1929	.285	.104	.197	.229		.237	.176	
1930	.284	.104	.164	.288		.205	.164	
1931	.308	.107	.150		.118	.230	.155	
1932	.352	.101	.205			.218	.150	.364
1933	.132	.119	.260			.201	.166	
1934	.127	.124	.230			.222	.180	
1935	.139	.117	.236	.230	.128	.208	.204	
1936	.108	.119	.266	.213	.145	.233	.252	
1937	.111	.124	.231		.142	.314	.316	
1938	.078	.142	.219		.173	.363	.448	
1939	.086	.343	.224		.513	.539		
1940	.096	.068	.237		.589	.689		.204
1941	.084	.016	.241		.512			
1942		.007	.261		.512			.689
1942		.010	.264		.493	.600		
1944		.011	.272		.432	.657		.770
1945		.198	.266		.247	.655		
1946		.130	.248		.231	.177	.383	.715
1947		.082	.218		.190	.196	.262	
1948		.099	.226		.184	.215	.215	.518
1949		.110	.326		.191	.302	.223	
1950		.161	.303	.170	.219	.293	.240	.439
1951		.190	.300	.201	.229	.353	.321	

Table 5 -- Continued

Year	JA	NO	PE	RO	SD	SZ	UK	US
1952	.317	.202	.245	.177	.234	.386	.370	.682
1953	.311	.196	.295	.148	.231	.385	.377	.685
1954	.307	.190	.275	.097	.239	.324	.381	.661
1955	.302	.167		.098	.223	.357	.349	.616
1956	.303			.095	.208	.318	.304	.599
1957	.286			.087	.207	.391	.281	.590
1958	.346			.080	.204	.356	.277	.574
1959	.343	.168		.071	.200	.363	.267	.554
1960	.331			.061	.185	.327	.264	.524
1961	.305	.159		.057	.193	.312	.258	.505
1962	.312	.171		.054	.184	.320	.257	.498
1963	.310	.167		.053	.186	.315	.249	.488
1964	.298	.164		.050	.171	.288	.248	
1965		.180		.051	.166	.299		
1966		.179		.047	.151	.284		
1967		.173		.041	.145			
1968				.044				

APPENDIX C

CROSS-SECTION CORRELATIONS BETWEEN CENTRALIZATION AND DEVELOPMENT, FOR EACH DECADE 1900-1960

Table 1. Cross-Section (1900) Correlations Between Centralization and Development

Indices of Development	Indices of Centralization				
	N.G.E. / T.G.E.	N.G.E.-Def.E. / T.G.E.-Def.E.	N.G.E. / G.N.P.	T.G.E. / G.N.P.	Def.E. / N.G.E.
ECONOMIC:					
G.N.P.	-.438	-.283	-.287	-.083	.111
% Agriculture	.150	.255	.579	.534	-.328
Steel Production	-.939**	-.929**	-.972***	-.919	.847*
POLITICAL:					
Status of Legislature	.324	.361	--	--	-.404
Suffrage	.650**	.738***	.553*	.493*	-.801***
Non-Legitimate Partic.	.255	.354	.418	.149	-.383
Domestic Pol. Violence	.581	.697*	.676	.457	-.723*
Pol. Suppression	.521	.574	.663	.539	-.569
SOCIAL:					
% Literate	-.551	-.608	-.514	-.353	.672
Infant Mortality	-.316	-.351	-.168	.057	.132
Elementary Education	-.819*	-.843**	-.772*	-.797*	.759*

Significance of product-moment correlations is indicated by:
* Significant at the .05 level
** Significant at the .01 level
*** Significant at the .001 level

Table 2. Cross-Section (1910) Correlations Between Centralization and Development

Indices of Development	Indices of Centralization				
	N.G.E. / T.G.E.	N.G.E.-Def.E. / T.G.E.-Def.E.	N.G.E. / G.N.P.	T.G.E. / G.N.P.	Def.E. / N.G.E.
ECONOMIC:					
G.N.P.	-.462	-.435	-.494	-.384	.319
% Agriculture	.052	.137	-.409	-.464	-.319
Steel Production	-.878**	-.847**	-.633	-.570	.413
POLITICAL:					
Status of Legislature	.056	.162	-.251	-.336	-.354
Suffrage	.262	.367	-.206	-.378	-.529*
Non-Legitimate Partic.	-.123	-.271	-.001	-.047	.525
Domestic Pol. Violence	.011	-.114	.105	.023	.511
Pol. Suppression	.367	.547	-.073	-.233	-.576
SOCIAL:					
% Literate	-.266	-.404	-.098	-.028	.400
Infant Mortality	.083	.084	-.026	-.097	.212
Elementary Education	-.643*	-.693*	-.387	-.323	.570

Table 3. Cross-Section (1920) Correlations Between Centralization and Development

Indices of Development	Indices of Centralization				
	N.G.E. / T.G.E.	N.G.E.-Def.E. / T.G.E.-Def.E.	N.G.E. / G.N.P.	T.G.E. / G.N.P.	Def.E. / N.G.E.
ECONOMIC:					
G.N.P.	.287	.331	.209	.122	.089
% Agriculture	-.165	-.209	-.379	-.418	.568*
Steel Production	-.254	-.202	-.304	-.422	-.067
POLITICAL:					
Status of Legislature	.031	-.044	-.329	-.235	.466*
Suffrage	-.062	-.072	-.034	.031	.405
Non-Legitimate Partic.	-.417	-.433	-.415	-.309	.392
Domestic Pol. Violence	-.348	-.366	-.359	-.276	.410
Pol. Suppression	.143	.124	-.193	-.224	.519
SOCIAL:					
% Literate	.483	.485	.276	.062	-.841**
Infant Mortality	-.155	-.174	.017	.163	.621*
Elementary Education	-.326	-.307	-.258	-.267	.222

Table 4. Cross-Section (1930) Correlations Between Centralization and Development

Indices of Development	Indices of Centralization				
	N.G.E. / T.G.E.	N.G.E.-Def.E. / T.G.E.-Def.E.	N.G.E. / G.N.P.	T.G.E. / G.N.P.	Def.E. / N.G.E.
ECONOMIC:					
G.N.P.	.273	.207	.246	.217	.069
% Agriculture	.157	.190	.062	.240	.337
Steel Production	-.201	-.349	-.134	-.148	.462
POLITICAL:					
Status of Legislature	.232	.243	-.214	-.263	.148
Suffrage	-.206	-.167	-.318	-.158	.300
Non-Legitimate Partic.	-.316	-.316	-.060	.138	.446
Domestic Pol. Violence	-.113	-.109	.075	.214	.379
Pol. Suppression	.275	.292	.277	.319	.207
SOCIAL:					
% Literate	.288	.226	.361	-.399	-.545
Infant Mortality	.179	.226	.186	.477	.403
Elementary Education	-.246	-.370	.135	.283	.610*

Table 5. Cross-Section (1940) Correlations Between Centralization and Development

Indices of Development	Indices of Centralization				
	N.G.E. / T.G.E.	N.G.E.-Def.E. / T.G.E.-Def.E.	N.G.E. / G.N.P.	T.G.E. / G.N.P.	Def.E. / N.G.E.
ECONOMIC:					
G.N.P.	.187	.106	.087	-.221	-.005
% Agriculture	.106	.217	-.319	-.404	-.260
Steel Production	-.072	-.317	.032	.011	.527
POLITICAL:					
Status of Legislature	.199	.487*	.045	-.038	-.722**
Suffrage	-.045	.104	-.443*	-.523	-.094
Non-Legitimate Partic.	.276	.081	-.382	-.589	.197
Domestic Pol. Violence	.283	.155	-.403	-.590*	.057
Pol. Suppression	.065	.233	.197	.099	-.646*
SOCIAL:					
% Literate	-.656*	-.639	.407	.571	.267
Infant Mortality	.788**	.798**	.244	.076	-.492
Elementary Education	.059	-.092	.277	.234	.335

Table 6. Cross-Section (1950) Correlations Between Centralization and Development

Indices of Development	Indices of Centralization				
	N.G.E. / T.G.E.	N.G.E.-Def.E. / T.G.E.-Def.E.	N.G.E. / G.N.P.	T.G.E. / G.N.P.	Def.E. / N.G.E.
ECONOMIC:					
G.N.P.	.300	.289	.071	-.014	-.103
% Agriculture	.232	.282	.148	.022	-.343
Steel Production	-.123	-.273	-.016	.015	.743
POLITICAL:					
Status of Legislature	.647*	.667**	.389	.190	-.167
Suffrage	.414	.449*	.563*	.435	-.241
Non-Legitimate Partic.	.321	.302	.374	.293	-.237
Domestic Pol. Violence	.124	.079	-.129	-.187	.044
Pol. Suppression	.473	.513*	.788***	.702**	-.383
SOCIAL:					
% Literate	.009	-.036	.308	.417	.054
Infant Mortality	.342	.380	.411	.275	-.329
Elementary Education	-.194	-.338	-.046	.014	.378

Table 7. Cross-Section (1960) Correlations Between Centralization and Development

Indices of Development	Indices of Centralization				
	N.G.E. / T.G.E.	N.G.E.-Def.E. / T.G.E.-Def.E.	N.G.E. / G.N.P.	T.G.E. / G.N.P.	Def.E. / N.G.E.
ECONOMIC:					
G.N.P.	.319	.374	.048	-.035	-.518
% Agriculture	.165	.255	.305	.219	-.429
Steel Production	-.005	-.222	-.033	.023	.680*
POLITICAL:					
Status of Legislature	-.111	-.072	-.068	-.117	-.075
Suffrage	.446*	.456*	.757***	.721**	-.309
Non-Legitimate Partic.	-.293	-.267	-.448	-.463	.102
Domestic Pol. Violence	-.038	-.084	-.356	-.446	.105
Pol. Suppression	.198	.221	.417	.373	-.204
SOCIAL:					
% Literate	.225	.156	.215	.284	.092
Infant Mortality	.211	.277	.331	.239	-.384
Elementary Education	-.140	-.237	-.123	-.115	.377

BIBLIOGRAPHY

Public Documents

Australia. Yearbook of the Commonwealth of Australia. Vols. 1962-1968.

Belgium. Annuaire Statistique de La Belgique. Vols. 1910-1969.

Brazil. Anuario Estatistico Do Brasil. Vols. 1939-1968.

Canada. Municipal Tax Levies and Receipts by Provinces. Department of Trade and Commerce, 1939.

France. Annuaire Statistique de France. Vols. 1815-1957.

Italy. Annuario Statistico Italiano. Vols. 1887-1960.

Japan. The Financial and Economic Annual of Japan. Vols. 1901-1937.

Japan. Japan Statistical Yearbook. Vols. 1955-1967.

Norway. Statistiske Oversikter. Vols. 1948 and 1958.

Norway. Statistical Abstract of Norway. Vols. 1964-1969.

Peru. Anuario Estadistico del Peru. Vol. 1954.

Romania. Anuarul Statistic al Romaniei. Vols. 1904-1938.

Romania. Anuarul Statistic al Republicii Socialiste Romania. Vols. 1960-1969.

Sweden. Historisk Statistik for Sverige. Vol. III, 1960.

Sweden. Statistisk Arsbok for Sverige. Vols. 1960-1969.

Switzerland. Statistisches Jahrbuch Der Schweiz. Vols. 1920-1969.

United Kingdom. Annual Abstract of Statistics. Vols. 1956-1967.

Books

Adelman, Irma, and Morris, Cynthia Taft. Society, Politics and Economic Development: A Quantitative Approach. Baltimore: John Hopkins Press, 1967.

Agarwala, S. N. Indian Public Finance. Bombay: Vora & Co. Publishers, 1967.

Alderfer, Harold. Local Government in Developing Countries. New York: McGraw-Hill, 1964.

Anderson, Charles W. Politics and Economic Change in Latin America. New York: Van Nostrand Reinhold Co., 1967.

Anton, Thomas. The Politics of State Expenditure in Illinois. Urbana, Ill.: University of Illinois Press, 1966.

Apter, David E. The Politics of Modernization. Chicago: The University of Chicago Press, 1965.

Bator, Francis M. The Question of Government Spending. New York: Collier Books, 1960.

Black, Cyril E. The Dynamics of Modernization. New York: Harper and Row, 1966.

Blalock, Jr., Hubert M. Causal Inferences in Non-experimental Research. Chapel Hill, N.C.: The University of North Carolina Press, 1961.

Blondel, Jean. An Introduction to Comparative Government. New York: Praeger Publishers, 1969.

Buchanan, James M. The Public Finances. Homewood, Ill.: Richard D. Irwin, Inc., 1960.

Crecine, John P. Governmental Problem-Solving. Chicago: Rand McNally, 1969.

Cyert, Richard, and March, James. A Behavioral Theory of the Firm. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1963.

Denison, Edward F. Why Growth Rates Differ: Postwar Experiences in Nine Western Countries. Washington: D.C.: The Brookings Institution, 1967.

Fesler, James W. Area and Administration. University of Alabama Press, 1949.

Friedrich, Carl J. Trends of Federalism in Theory and Practice. New York: Praeger Publishers, 1968.

Gurr, Ted. New Error-Compensated Measures for Comparing Nations: Some Correlates of Civil Violence. Princeton, N.J.: Princeton University, Center of International Studies, Research Monograph No. 25.

Hirschman, Albert O. The Strategy of Economic Development. New Haven: Yale University Press, 1958.

Holt, Robert T., and Turner, John E. The Political Basis of Economic Development. Princeton, N.J.: D. Van Nostrand Co., 1966.

Holt, Robert, and Turner, John E. The Methodology of Comparative Research. New York: The Free Press, 1970.

Huntington, Samuel P. Political Order in Changing Societies. New Haven: Yale University Press, 1968.

Ilchman, Warren F., and Uphoff, Norman Thomas. The Political Economy of Change. Berkeley: University of California Press, 1969.

Kruisinga, H. J. The Balance Between Centralization and Deeentralization in Managerial Control. Leiden: H. E. Stenfert Kroese, 1954.

Kulkarni, V. G., and Deshpande, D. D. Statistical Outline of Indian Economy. Bombay: Vora and Co. Publishers, 1968.

Kuznets, Simon. Toward A Theory of Economic Growth. New York: W. W. Norton, 1965.

Langer, Paul. Japan: Yesterday and Today. New York: Holt, Rinehart & Winston, 1966.

Levy, Marion. Modernization: Latecomers and Survivors. New York: Basic Books, 1972.

Lewis, W. Arthur. Development Planning. New York: Harper and Row, 1966.

Mayer, Lawrence C. Comparative Political Inquiry: A Methodological Survey. Homewood, Ill.: The Dorsey Press, 1972.

Musgrave, Richard A. Fiscal Systems. New Haven: Yale University Press, 1969.

Needler, Martin C. Political Development in Latin America: Instability, Violence and Evolutionary Change. New York: Random House, 1968.

Olson, Marvin E. Power in Societies. New York: The Macmillan Co., 1970.

Peacock, Alan T., and Wiseman, Jack. The Growth of Public Expenditures in the United Kingdom. Princeton, N.J.: Princeton University Press, 1961.

Pryor, Frederic L. Public Expenditures in Communist and Capitalist Nations. London: George Allen and Unwin Ltd., 1968.

Przeworski, Adam, and Teune, Henry. The Logic of Comparative Social Inquiry. New York: Wiley-Interscience, 1970.

Pye, Lucian W. Aspects of Political Development. Boston: Little, Brown, 1966.

Ratchford, B. U. Public Expenditures in Australia. Durham, N.C.: Duke University Press, 1959.

Riker, William H. Federalism. Boston: Little, Brown, 1964.

Rokkan, Stein. Citizens, Elections, Parties. New York: David McKay Company Inc., 1970.

Rostow, Walt W. Politics and the Stages of Growth. Cambridge: Cambridge University Press, 1971.

Russett, Bruce M., et. al. World Handbook of Political and Social Indicators. New Haven: Yale University Press, 1964.

Russett, Bruce. Trends in World Politics. New York: The Macmillan Co., 1965.

Selltiz, Claire, et. al. Research Methods in Social Relations. New York: Holt, Rinehart, and Winston, 1959.

Sharkansky, Ira. The Politics of Taxing and Spending. Indianapolis: The Bobbs-Merrill Co., 1969.

Sharma, K. K. Public Finance. Bangalore: Bangalore Printing and Publishing Co., 1969.

Skidmore, Thomas E. Politics in Brazil, 1930-1964: An Experiment in Democracy. New York: Oxford University Press, 1967.

Tannenbaum, Arnold S. Control in Organizations. New York: McGraw-Hill Book Co., 1968.

Tax Foundation, Inc. Facts and Figures on Government Finance, 13th ed., 1964-65. Englewood Cliffs, N.J.: Prentice-Hall, 1965.

Thomas, P. J. The Growth of Federal Finance in India. London: Oxford University Press, 1939.

Tinbergen, Jan. Centralization and Decentralization in Economic Policy. Amsterdam: North-Holland Publishing Co., 1954.

Tinbergen, Jan. Central Planning. New Haven: Yale University Press, 1964.

Urquhart, M. C., and Buckley, K. A. H. (eds.). Historical Statistics of Canada. Toronto: Cambridge University Press, 1965.

Wade, L. L., and Curry, Jr., R. L. A Logic of Public Policy: Aspects of Political Economy. Belmont, California: Wadsworth Publishing Co., 1970.

Wildavsky, Aaron. The Politics of the Budgetary Process. Boston: Little, Brown, 1964.

Woytinsky, W. S., and Woytinsky, E. S. World Commerce and Government: Trends and Outlook. New York: The Twentieth Century Fund, 1955.

Articles and Periodicals

Alker, Jr., Hayward R., and Russett, Bruce M. "Indices for Comparing Inequality," Comparing Nations, (eds.) Richard L. Merritt and Stein Rokkan, New Haven: Yale University Press, 1966, Ch. 16.

Andic, Suphan and Veverka, Jinrich. "The Growth of Government Expenditures in Germany since the Unification," Finanzarchiv (Jan. 1964.

Bird, Richard M. "Wagner's 'Law' of Expanding State Activity," Public Finance, XXVI, No. 1 (1971), 1-26.

Burrowes, Robert. "Multiple Time-Series Analysis of Nation-Level Data," Comparative Political Studies, 2, No. 4 (Jan. 1970), 465-80.

Chenery, Hollis B., and Taylor, Lance. "Development Patterns: Among Countries and Over Time," The Review of Economics and Statistics, L. No. 4 (Nov. 1968), 391-416.

Cutright, Phillips. "Political Structure, Economic Development and National Social Security Programs," The American Journal of Sociology, 70, 537-48.

Cutright, Phillips, and Wiley, James A. "Modernization and Political Representation: 1927-1966," Studies in Comparative International Development, V, No. 2 (1969-1970).

Davies, David G. "The Concentration Process and the Growing Importance of Noncentral Governments in Federal States," Public Policy, XVIII, No. 5 (Fall, 1970).

Deutsch, Karl W. "Social Mobilization and Political Development," American Political Science Review, LV, No. 3 (Sept. 1961).

Diamant, Alfred. "Bureaucracy in Developmental Movement Regimes: A Bureaucratic Model for Developing Societies," (C.A.G. occasional paper, Bloomington, Ind., 1964).

Flanigan, William, and Fogelman, Edwin. "Patterns of Political Development and Democratization: A Quantitative Analysis" (paper delivered at the 1967 annual meeting of the American Political Science Association in Chicago, Sept. 1967).

Flanigan, William, and Fogelman, Edwin. "Patterns of Democratic Development: An Historical Comparative Analysis" (paper delivered at the 1968 meeting of the American Political Science Association in Washington, D.C., Sept. 1968).

Flanigan, William, and Fogelman, Edwin. "The Introduction of Democracy in Underdeveloped Countries," Political Development in Changing Societies, (eds) Monte Palmer and Larry Stern, Lexington, Mass.: D. C. Heath, 1971, Ch. 6.

Gillespie, John V. "Galton's Problem and Parameter Error in Comparative Political Analysis" (paper presented at the 1970 meeting of the Midwest Political Science Association).

Guerreiro-Ramos, Alberto. "Modernization: Towards a Possibility Model," Developing Nations: Quest for a Model, (eds.) Willard B. Beling and George O. Totten, New York: Van Nostrand Reinhold Co., 1970, Ch. II.

Gupta, Shibahsankar P. "Public Expenditure and Economic Growth: A Time-Series Analysis," Public Finance, XXII, No. 4 (1967), 423-71.

Hage, Jerald. "An Axiomatic Theory of Organization," Administrative Science Quarterly, 101 (Dec. 1965).

Hurwicz, Leonid. "Conditions for Economic Efficiency of Centralized and Decentralized Structures," Value and Plan: Economic Calculations and Organizations in Eastern Europe, (ed.) Gregory Grossman, Berkeley, California: University of California Press, 1960, pp. 162-75.

Kochen, Manfred, and Deutsch, Karl W. "Toward a Rational Theory of Decentralization: Some Implications of a Mathematical Approach," American Political Science Review, LXII, No. 3 (Sept. 1969), 734-49.

LaPolombara, Joseph. "Bureaucracy and Political Development: Notes, Queries, and Dilemmas," Bureaucracy and Political Development, (ed.) Joseph LaPolombara, Princeton, N.J.: Princeton University Press, 1963, Ch. 2.

Levy, Frank, and Truman, Edwin M. "Toward a Rational Theory of Decentralization: Another View," American Political Science Review, LXV, No. 1 (March, 1971), 172-79.

Linz, Juan. "Ecological Analysis and Survey Research," Quantitative Ecological Analysis in the Social Sciences, (eds.) Mattei Dogan and Stein Rokkan, Cambridge: The M.I.T. Press, 1969, Ch. 5.

Maddick, R. "Some Effects of Technical Innovations on the Relationship Between Central and Local Authorities," International Social Science Journal, 12, No. 3 (1960), 385-93.

Marschak, Thomas. "Centralization and Decentralization in Economic Organizations," Economietrics, 27, No. 3 (July, 1959), 399-430.

Martin, Alison, and Lewis, W. Arthur. "Patterns of Public Revenue and Expenditure," Manchester School of Economic and Social Studies, XXIV, No. 3 (Sept. 1965), 203-44.

McAlister, Lyle N. "The Military," Continuity and Change in Latin America, (ed.) John J. Johnson, Stanford, California: Stanford University Press, 1964, Ch. 5.

Meyer, Marshall W. "The Two Authority Structures of Bureaucratic Organizations," Administrative Science Quarterly, 13, No. 2 (Sept. 1968), 221-28.

Peters, B. Guy. "Economic and Political Effects on the Development of Social Expenditures in France, Sweden, and the United Kingdom," Midwest Journal of Political Science, XVI, No. 2 (May, 1972).

Pryor, Frederic L. "Elements of a Positive Theory of Public Expenditure," Finanzarchiv (Dec. 1967).

Redford, Emmette. "Centralized and Decentralized Political Impacts on a Developing Economy: Interpretations of American Experience," (C.A.G. occasional paper, Bloomington, Ind., 1967).

Riggs, Fred W. "The Theory of Political Development," Contemporary Political Analysis, (ed.) James C. Charlesworth, New York: Free Press, 1967, Ch. 16.

Sady, Emil J. "Improvement of Local Government and Administration for Developmental Purposes," Readings in Comparative Public Administration, (ed.) Nimrod Raphaeli, Boston: Little, Brown, 1967, pp. 236-57.

Scheuch, Erwin K. "Cross-National Comparison Using Aggregate Data: Some Substantive and Methodological Problems," Comparing Nations, (eds.) Richard Merritt and Stein Rokkan, New Haven: Yale University Press, 1966, Ch. 7.

Sharkansky, Ira. "Government Expenditures and Public Services in the American States," American Political Science Review, LXI, No. 4 (Dec. 1967), 1066-1077.

Siffin, William J. "Relations Between Political and Administrative Development: Some Questions and Propositions." (Paper delivered at the 1963 Annual Meeting of the American Political Science Association, New York City, Sept. 4-7, 1963).

Thorn, Richard S. "The Evolution of Public Finances During Economic Development," Manchester School of Economic and Social Studies, 35, No. 1 (Jan. 1967).

Tufte, Edward R. "Improving Data Analysis in Political Science," World Politics, 21 (July 1969), 641-54.

Whisler, Thomas L. "Measuring Centralization of Control in Business Organizations," New Perspectives in Organizational Research, (eds.) Cooper, William W., Leavitt, Harold J., and Shelly II, Maynard. New York: John Wiley, 1964, Ch. 18.

Whisler, Thomas L., et. al. "Centralization of Organizational Control: An Empirical Study of Its Meaning and Measurement," Control in Organization, (ed.) Arnold S. Tannenbaum, New York: McGraw-Hill Co., 1968, Ch. 20.

Wildavsky, Aaron. "The Political Economy of Efficiency," Public Administration Review, 26 (Dec. 1966).

Zapf, Wolfgang, and Flora, Peter. "Some problems of time-series analysis in research on modernization," Social Science Information, X, No. 3 (June, 1971).

Unpublished Material

Mesmer, Theodore Charles. "Government Expenditures and Economic Growth: An International Comparative Study." Unpublished Ph.D. dissertation, University of Wisconsin, 1962.

Rakoff, Stuart H. "Longitudinal Analysis of Municipal Expenditures." Unpublished Ph.D. dissertation, University of Minnesota, 1969.

Vieira, Paulo Reis. "Toward A Theory of Decentralization: A Comparative View of 45 Countries." Unpublished Ph.D. dissertation, University of Southern California, 1967.