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# THE EFFECTS ON PUBLIC POLICY OF CENTER-LOCAL RELOCATIONS

## A Cross-National Study

DALE KRANE

This article attempts a comparative exploration of center-local relationships as part of an effort to test the effect on public policy of concentration and devolution. To pursue these objectives, the research proceeds in two steps: (1) the identification of longitudinal patterns of public sector concentration/devolution among 17 nations and (2) time series analysis of industrial growth and social welfare progress associated with the temporal variation in public infrastructure. The results suggest that a nation's pattern of public sector evolution may be more of a determinant of policy performance than a nation's constitutional framework.

Linking center and periphery has been among the great political issues dominating the governance and development of the modern state (Lipson, 1970: 284-339; Teune, 1982: 1). Tarrow (1978: 1) explains that critical policy issues invariably involve conflicts fought out across territories. Because intergovernmental conflicts allocate societal resources differentially, they profoundly affect the course of national development (Ashford, 1984: 369-384). The policy networks that emerge from center-local conflicts result in structural arrangements that exhibit a variety of centralization/decentralization mixes. Unfortunately, the analysis of government organization seldom examines its impact on the course of public policy.

This article reports an analysis of the relationship between structural shifts in public-sector organization—that is, more or less central control—and economic growth and social modernization. This article

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**AUTHOR'S NOTE:** This article is a condensed version of a paper by the same name that was presented at IPSA's XIIIth World Congress, July 1985, Paris, France. Fuller elaboration of the data and the issues raised in this article can be found in the Proceedings of the World Congress.

employs the center-local relationship as an independent variable. As variation occurs over time, it has system-wide consequences for national policy outcome.

I will proceed in two steps. First, the existence of temporal variation in center-local organization is established and categorized into distinctive evolutionary patterns. The second phase is an exploratory statistical analysis of the policy consequences of changes in the national-subnational interaction. The data base includes Australia, Belgium, Brazil, Canada, France, India, Italy, Japan, Mexico, Norway, Peru, Romania, Sweden, Switzerland, the United Kingdom, the United States and West Germany. The time frame is the mid-1870s to 1979.<sup>1</sup>

## **OBSTACLES TO MACROCOMPARATIVE ANALYSIS OF CENTER-LOCAL RELATIONS**

Comparative studies of national-subnational organization often run aground on a number of conceptual shoals. First, a bewildering variety of unrelated frameworks has been developed to examine the division of policy control among central and local governments. Second, whatever the analytic focus, there has been a strong tendency in the literature on intergovernmental relations to search for one "ideal" decision-making level or structure (Scharpf et al., 1978). A third conceptual shoal for the comparative analysis of center-local relations is the increasingly blurred distinction between federal and unitary states. Douglas Ashford (1976: 13) has mapped out this reef in his work on British subnational politics:

Autonomy is a limited concept precisely because adjustments among the subunits of government in modern times almost never occur in the realm of policy without central control of some sort. Every modern nation is, then, "centralized." The important questions include: how much, how such a degree of centralization is diminished or enhanced over time, and how such changes are distributed among the subunits.

A fourth reef emerges from the debates over the effects of different degrees of public-sector centralization or decentralization. Proponents of either structural strategy claim to foster national development but through different means/ends relationships. The centralization option depends on productivity; the devolution option relies on responsiveness (Krane, 1978: 297-298). Although the composite body of center-local research offers substantial detail and insight into country-by-country spe-

cifics, it generally has not tried to show “how intrasystemic differences relate to systemic differences” (Ashford, 1983: 175). That is, “what the discipline [comparative studies] has not done is to formulate findings in a way that allows us to analyze the relation of performance to institutional differences” (Ashford, 1978: 92).

Some empirical studies of national-local linkages have tried to gauge the sense of change and interaction among governmental levels or to identify more rigorously the determinants of particular degrees of concentration or devolution. Although many of these studies have addressed some aspects of public sector organization, they have not broken out of the conceptual obstacles because comparative research continues to use cross-sectional analysis (Hill, 1977; Kee, 1977), and policy performance has been a missing element in the study of multilevel policy interaction (Scharpf et al., 1978: 66). Simply put, very few comparative studies have placed the organizational arrangements between the center and the periphery in the position of an independent variable (see Cameron, 1978). Bringing together the elements of structure and performance can serve as a way out of the theoretical muddle of center-local relationships. By making central control versus devolution an independent factor that, as variation occurs over time has system-wide consequences for national policy objectives, one can chart the policy impacts of changes in government organization.

## **ANALYTIC PROCEDURES**

Comparative studies of central-local structure exhibit numerous alternative operational measures of national control over subnational/local authorities. Most of these measures, unfortunately, break down in comparative and longitudinal extension due to problems of cross-national equivalence or availability. Indicators of fiscal concentration and devolution possess the highest utility for macrocomparative research because of their continuity over several decades and ease of manipulation, which facilitates rearrangement into comparable measures despite differences in national accounting practices (Pommerehne, 1977: 275-353; Kohl, 1983: 201-216). The operational procedure used here involves the construction of three measures of fiscal concentration that describe the varying distribution of policy control among levels of government:

- (1) national government expenditure as a percentage of total government expenditure (NGE/TGE),

- (2) national government expenditure minus defense expenditure as a percentage of total government expenditure minus defense expenditure ( $\text{NGE-Def.E.}/\text{TGE-Def.E.}$ ), and
- (3) national government revenue as a percentage of total government revenue ( $\text{NGR}/\text{TGR}$ ).

The first and third measures are standard ratios widely used in comparative policy and public finance research. The second ratio corrects the first indicator for military spending and provides a measure of concentration in domestic policy.<sup>2</sup>

From one point of view, this article merely extends previous studies by a somewhat larger number of nation-states examined over a longer time span. But from another viewpoint, the tack taken in this article yields several advantages over previous cross-sectional and case-study analyses of center-local interaction. First, reliance on evidence drawn from a few decades (typically the post-World War II period) precludes more rigorous diachronic analysis. More importantly, a telescoped time frame precludes the possibility of discovering patterns or trends in the temporal variation of public sector organization.

## **MULTIPLE PATTERNS OF PUBLIC SECTOR ORGANIZATION**

In contrast to the more typical case studies of one or a few countries, longitudinal analysis of more than a dozen nations along multiple indices of organization enhances the exploration for relationships of structure to policy. The first step in the over-time examination begins with the establishment of the existence of variation in the degree of central control. One technique that allows a researcher to demonstrate macrocomparative variation is pattern analysis (Flanigan and Fogelman, 1971a, 1971b; Pride, 1971). Through the classification of countries by behavior patterns, the technique opens the possibility for the formulation and testing of systemic generalizations (Zapf and Flora, 1971); as Przeworski and Teune (1970: 45) forcefully argue, "systems differ not when the frequency of particular characteristics differ, but when the pattern of the relationships among the variables differ."

Coefficients of variation may be used to measure the relative change in the different indicators of fiscal concentration for each of the 17 nations. The values displayed on Table 1 substantiate the existence not only of over-time structural variation in fiscal concentration but also of two dis-

tinct degrees of structural change. The lower values in the rank order (0.00 to -0.15) encompass countries that have maintained a fixed structural relationship between national and subnational jurisdictions. The higher values (0.15 to -0.62) demonstrate that some countries have engaged in structural shifts of policy control among levels of government. As shown by the values for Spearman's coefficient of rank-order correlation, the two patterns of nations are consistent across the three fiscal measures.<sup>3</sup> Other than a few deviant cases, unitary states cluster in the low end of the distribution, whereas federal states cluster at the higher end.

Although Table 1 shows the amount of change over time, it does not give the direction of change over time. To gauge direction, a more complex set of parameters was devised to delineate the direction of each nation's structural variation.<sup>4</sup> Four evolutionary patterns—curvilinear, linear increasing, linear decreasing, and stable—were identified among the 17 nations. Table 2 cross-tabulates each nation for its respective longitudinal pattern by amount and direction of change.

The power of pattern analysis can be seen in the array of nations on Table 2 that puts into bold relief many of the conceptual issues and hypotheses about center-local relationships. For example, the distribution of countries on each of the tables shown on Table 2 runs counter to the pervasive idea that government organization evolves in a linear fashion as stated in "Wagner's Law" (Musgrave, 1969; Bird, 1971). Likewise, the empirical evidence based on the temporal patterns of fiscal concentration contradicts Peacock and Wiseman's hypothesis (1961) about the inevitability of increasing concentration (also see Brown-John, 1982, for another case challenging Peacock and Wiseman). Similarly, the well-known "convergence" hypothesis does not gain support from the patterns of fiscal concentration (Tinbergen, 1961; Benjamin, 1972: 13-19).

## **DOES STRUCTURE CONDITION POLICY? AN EXPLORATORY ANALYSIS**

Theories of national development (Russett and Monsen, 1975; Palmer, 1980) agree on the necessity of structural changes in public sector organization as a critical response for a nation to survive the crises associated with the modernization process. Pattern analysis of fiscal concentration and devolution demonstrates that certain countries vary differentially over time in their organizational arrangements. The relevance of these longitudinal patterns for the study of national development has been

**TABLE 1**  
**Temporal Stability of Public Sector Concentration**

NGE/TGE		NGE-Def.E/TGE-Def.E		NGR/TGR	
Canada	.57	Canada	.62	India	.50
India	.51	India	.58	United States	.30
United States	.32	West Germany	.54	Canada	.27
West Germany	.26	United States	.37	Norway	.15
Australia	.24	Japan	.25	Sweden	.15
Japan	.22	Australia	.24	Switzerland	.14
Switzerland	.22	United Kingdom	.20	Belgium	.13
United Kingdom	.12	Norway	.13	Brazil	.09
Norway	.09	Switzerland	.12	Japan	.08
Sweden	.09	Brazil	.11	France	.07
Brazil	.08	Mexico	.10	Mexico	.07
Mexico	.07	Romania	.06	Italy	.06
Romania	.06	Sweden	.06	Romania	.06
Italy	.05	Belgium	.05	United Kingdom	.04
Belgium	.04	France	.05	Peru	.02
France	.04	Italy	.04		
Peru	.01	Peru	.02		
Average CV:	.176	Average CV:	.208	Average CV:	.226
Median:	.090	Median:	.120	Median:	.090
Spearman's rank-order coefficient for:					
NGE/TGE with NGE-Def.E/TGE-Def.E:				.965	
NGE/TGE with NGR/TGR:				.999	
NGE-Def.E/TGE-Def.E with NGR/TGR:				.999	

expressed by Ilchman and Uphoff (1969: 246): "At present too little is known about the consequences of such variations [in public sector infrastructure] for the productivity and/or about what productive effects could be achieved with marginal improvements." Despite the extensive body of literature on the obstacles to macrocomparative research, empirical evaluation of the relationship between public structure and policy performance must be pursued by political scientists if they hope to address the issues raised by Ilchman and Uphoff.

The second phase of this article assesses the impact of variations in central control on two critical aspects of national policy: industrial growth and social welfare. Industrial growth is represented by two indices that estimate the production of steel and changes in the composition of the work force. Social welfare outcomes are measured by decreases in infant mortality and by increases in primary school enrollment.<sup>5</sup> Time-

**TABLE 2**  
**Longitudinal Patterns of Fiscal Concentration**

NGE/TGE	Curvilinear	Linear Increasing	Linear Decreasing	Stable
High variation	WG AU SZ CA JA	IN US		
Low variation	UK			BE BR FR IT ME NO PE RO SD
NGE-Def.E/ IGE-Def.E	Curvilinear	Linear Increasing	Linear Decreasing	Stable
High variation	WG JA AU CA UK	IN US		
Low variation		ME		BE BR FR IT NO PE RO SD SZ
NGR/TGR	Curvilinear	Linear Increasing	Linear Decreasing <sup>1</sup>	Stable
High variation	CA	IN US		
Low variation		NO UK	JA	BE BR FR IT ME PE RO SD SZ

KEY: WG—West Germany; AU—Australia; CA—Canada; JA—Japan; UK—United Kingdom; IN—India; US—United States; BE—Belgium; BR—Brazil; FR—France; IT—Italy; ME—Mexico; NO—Norway; PE—Peru; RO—Romania; SD—Sweden; SZ—Switzerland.

series analysis is utilized to generate serial correlation tests of the effect of varying organizational arrangements—central control or devolution—on policy outcomes.<sup>6</sup>

#### **EXPENDITURE CONCENTRATION AND INDUSTRIAL GROWTH**

On first impression, the statistical results displayed on Table 3 confirm the hypothesis that structural relationships do condition policy performance. The healthy values on the basic measure of expenditure concentration (NGE/TGE) for federal countries, especially those with a “linear increasing” structural pattern, contrast with the minimal values



for most unitary states. The same pattern is repeated for domestic expenditure concentration (NGE-Def.E/TGE-Def.E). However, to conclude from these findings that federal states have a better track record on industrial expansion than do unitary states is to miss the influence of a nation's developmental path. If one shifts the analytic focus from constitutional categories (i.e., federal versus unitary) to the longitudinal pattern of central control, then a different picture emerges. First, the low values for unitary states partially derive from the minimal variation in their administrative infrastructure. Conversely, the close relationship between increasing expenditure concentration and industrial growth exemplified by the "linear increasing" federal states can be traced to their relatively small central governments prior to the onset of industrialization. Federal states, taken as a group, began their economic "take-off" with comparatively modest central bureaucracies, and, over time, national leaders pushed for an expansion of central government infrastructure.

On the other hand, because they possessed an extensive organization at the center, public authorities in unitary states did not need to build national bureaucratic structures *de novo* to meet the challenges of industrialization (LaPalombara, 1963; Tilly, 1975). However, it appears from the majority of the correlational results that very high levels of central control may be dysfunctional for economic growth. Certain theorists (Tingbergen, 1961; Holt and Turner, 1966; and Hollingsworth, 1982) hold that too much central control can slow economic performance because a nation that collects and spends the bulk of its public resources through a large central bureaucracy overburdens the country with a costly organizational structure. More simply put, extreme levels of central control probably signal large administrative overhead costs (exceeding economies of scale) that act as a drag on development.<sup>7</sup> In line with this hypothesis, the countries with the strongest negative relationships to industrialization also are the countries with the highest diachronic averages for expenditure concentration. Therefore, one can conclude that some middle range of national to local policy control best fosters economic advance (for a different view, see Wilensky, 1975: 51-54).

By going beyond a nation's constitutional arrangements, the analysis presented in Table 3 illustrates that nations with similar patterns of organizational evolution appear to perform in a similar manner. The results with "domestic" expenditure concentration also point in this direction. Likewise, with the removal of defense expenditure from the concentration index, nations with a curvilinear pattern appear to behave comparably despite constitutional differences.

TABLE 3  
Serial Correlations Between Expenditure Concentration and Industrial Growth

NGE/TGE			NGE-Def.E/TGE-Def.E		
	Steel Production	Percentage of Agriculture	Steel Production	Percentage of Agriculture	
Federal					
Curvilinear					
AU	.456	-.401	.634*	-.936†	
CA	-.513	-.908†	-.433	-.569*	
SZ	-.867***	.161	-.493	.907	
Linear increasing					
IN	.881***	.953†	.899***	.941†	
US	.824***	-.802**	.751**	-.694**	
Stable					
BR	-.751**	.896***	-.434	.751**	
			-.236	.393	
Unitary					
Stable					
BE	-.729**	.568*	-.749**	.338	
FR	-.197	-.043	-.332	.142	
IT	-.053	-.140	.139	-.297	
ME	.606*	-.142			
NO	-.610*	-.288	-.148	-.709**	
PE			.444		
RO	-.904***	.915***	-.301	.689**	
SD	.340	-.177	.843†	-.745	
Curvilinear					
JA	.292	-.341	.407	-.538*	
UK	.363	-.332	.628*	-.632*	
			.552*	-.757**	

Index of forecasting efficiency (E): \* = 15%-25%; \*\* = 26%-40%; \*\*\* = 41%-60%; † = above 60%.

Australia = AU, Belgium = BE, Brazil = BR, Canada = CA, France = FR, India = IN, Italy = IT, Japan = JA, Mexico = ME, Norway = NO, Peru = PE, Romania = RO, Sweden = SD, Switzerland = SZ, United Kingdom = UK, United States = US, West Germany = WG.

## EXPENDITURE CONCENTRATION AND SOCIAL WELFARE

Examination of the structural patterns as they pertain to social modernization repeats the findings with industrial growth. Table 4 shows that for the basic measure of expenditure concentration, federal states apparently behave in a manner distinct from unitary states. However, for domestic expenditure concentration, nations act similarly by patterns of organizational evolution.

The serial correlations between expenditure concentration (NGE/TGE) and social welfare for federal states derive from their relatively minimal national infrastructures prior to the onset of social modernization and to the historic expansion of welfare programs financed by the central government (Heidenheimer et al., 1975). The generally weak correlations for unitary states again imply that most unitary states possessed a central administration that did not require major shifts in policy execution among levels of government. The few significant positive values for unitary states again call attention to the dysfunctional effects of very high levels of central control.

With the serial correlations between social welfare and "domestic" expenditure concentration (NGE-Def.E/TGE-Def.E), the federal-unitary distinction almost disappears and the influence of the structural patterns becomes clearer. Federal and unitary nations characterized by linear increasing public sector concentration manifest strong and similar relationships with changes in social welfare. But in examining the findings for nations in the stable and curvilinear categories, another facet of public sector organization comes into play. Unitary states with stable concentration patterns and middle-range levels of domestic expenditure concentration (e.g., Norway and Sweden) perform in a manner much like the stable federal states. That is, some unitary states exhibit a pattern of center-local interaction resembling the pattern in federal states to a greater extent than other, more highly-centralized unitary states. Consequently, the policy performance of these less concentrated unitary states approximates the behavior of federal states. An apparent exception to the influence of structural patterns may be detected among the nations with curvilinear patterns. In their case, the federal countries show parallel results, but the two unitary states with curvilinear evolution diverge from the federal states by policy areas (see Peters, 1974, for a similar finding). Public sector concentration in the federal states relates strongly to progress in health care but not to primary school enrollment, whereas the

**TABLE 4**  
**Serial Correlations Between Expenditure Concentration and Social Welfare**

	NGE/TGE			NGE-Def.E/TGE-Def.E	
	Infant Mortality	Elementary Education		Infant Mortality	Elementary Education
	<u>Federal</u>			<u>Federal</u>	
Curvilinear			Curvilinear		
AU	-.589	-.106	WG	-.966***	-.361
CA	-.545*	-.684*	AU	-.767**	-.058
SZ	.029	-.560*	CA	-.545*	-.679**
WG	-.982†	-.482*			
Linear increasing			Linear increasing		
IN	-.941†	.862***	IN	-.955†	.882***
US	-.777*	.693*	US	-.779**	.582*
Stable			Stable		
BR		-.959†	BR		-.346
			SZ	-.577*	-.445
	<u>Unitary</u>			<u>Unitary</u>	
Stable			Stable		
BE	.689**	-.025	BE	.670**	.098
FR	-.009	-.083	FR	.159	.085
IT	-.174	-.591	IT	-.425	-.615*
ME	-.594	.476			
NO	-.107	-.461	NO	-.704**	-.439
PE		.515	PE		-.418
RO	.607*		RO		
SD	-.195	-.016	SD	-.759	.052
Curvilinear			Curvilinear		
JA	-.273	.421	JA	-.441	-.586*
UK	-.406	.110	UK	-.445	-.619*
			Linear Increasing		
			ME	-.552*	.740**

Index of forecasting efficiency (E): \* = 15%-25%; \*\* = 26%-40%; \*\*\* = 41%-60%; † = above 60%.

reverse seems true for the unitary states that exhibit wide variation in public sector concentration. One can speculate that the character of service delivery in each of these policy areas also may be functioning as a factor conditioning the different time series.

#### **REVENUE CONCENTRATION AND NATIONAL DEVELOPMENT**

For industrial growth, the effects of revenue concentration displayed on Table 5 look weaker than those for expenditure concentration. Little difference can be found in the values for federal and unitary states. The depressive effect of taxation gains confirmation from the rather robust negative values for steel production, but this result is confined to nations characterized by the highest levels of revenue concentration. The exception here is India, but it should be noted that in the last few decades this country has experienced dramatic increases in revenue concentration. Changes in the center-local relationship on revenues have almost no consistent impact on the secular trends of the labor force's composition. The strongest findings are associated with the late modernizers and are evidence of the catch-up efforts of these national governments to fund industrialization, which in turn creates the need to raise more taxes at the center.

Turning to social welfare, revenue concentration affects modernization differentially by policy area. As with domestic expenditure concentration, revenues available at the center contribute to improvements in health, whereas concentration of revenue may run counter to elementary education expansion. In contrast to the findings with domestic expenditure, neither the federal-unitary dichotomy nor the longitudinal patterns of public organization help explain the statistical results. Apparently, other than the well-documented link between the level of available resources and the level of public service provision (Almond and Powell, 1978: 400-404), the concentration or devolution of revenues is less a policy instrument than is expenditure concentration or devolution (also see Cameron, 1982: 60).

#### **PUBLIC SECTOR ORGANIZATION AND POLICY PERFORMANCE**

Comparison of Tables 3, 4 and 5 underscores the necessity of transcending classic constitutional categories in the study of system differ-

**TABLE 5**  
**Serial Correlations Between Revenue Concentration and National Development**

	NGR/TGR		NGR/TGR	
	Steel Production	Percentage of Agriculture	Infant Mortality	Elementary Education
	<u>Federal</u>		<u>Federal</u>	
Curvilinear			Curvilinear	
CA	-.473	-.566*	CA	-.569*
Linear increasing			Linear increasing	
IN	-.696**	-.823***	IN	-.573*
US	-.395	-.412	US	-.692*
Stable			Stable	
BR	-.200	-.450	BR	-.500
SZ	-.346	-.829***	SZ	-.538*
	<u>Unitary</u>		<u>Unitary</u>	
Stable			Stable	
BE	-.744**	-.186	BE	-.526*
FR	-.562*	-.268	FR	-.521
IT	-.425	-.168	IT	-.612*
ME	-.088	-.621*	ME	-.594*
PE	-.944†	-.939†	PE	-.565*
RO	-.025	-.692**	RO	-.633**
SD	-.301	-.039	SD	-.504
Linear decreasing			Linear decreasing	
JA	-.079	-.272	JA	-.569*
Linear increasing			Linear increasing	
NO	-.355	-.455	NO	-.563*
UK	-.881***	.325	UK	-.736**

Index of forecasting efficiency (E): \* = 15%-25%; \*\* = 26%-40%; \*\*\* = 41%-60%; † = above 60%.

ences. The similar results among nations with similar temporal patterns of fiscal concentration lend credence to the theoretical import of questions such as, "How is such a degree of centralization diminished or enhanced over time?" and "What difference do these changes make?" Taken as a whole, the empirical analysis supports Lindberg's "theory of institutional structure of the political economy" (1982: 23-27). Although the serial correlation analysis of the impact of fiscal concentration and devolution on policy performance is only exploratory, the findings suggest that further investigation along this path would be fruitful in terms of new insights into the relation of structure to policy. "Indeed, one virtue of a structural analysis of social policy may be precisely that of allowing us to see more clearly how, if at all, the goals, procedures and influence related to social policies have changed through time and space" (Ashford, 1984: 371).

## NOTES

1. The data base for each country varies somewhat with the availability of long-run national accounts information and its publication by each national government.

2. The fiscal data from the 17 nations were drawn from sources of serial records that can be termed "primary" in that the original data were either collected or reconstructed for use in scholarly or statistical exposition. To minimize data compilation errors, a simple procedure advised by Scheuch (1966) was adopted. This involves computing decade averages from annual data.

3. See Blalock (1979) for explanations of the coefficient of variation and Spearman's rank-order correlation coefficient.

4. To assign nations to empirically identifiable temporal patterns, the following parameters were established

- (a) High Variation: value of a nation's coefficient of variation exceeds mean value for the set of nations;
- (b) Low Variation: value of a nation's coefficient of variation is less than the mean value of the set of nations;
- (c) Curvilinear Pattern: the difference between a nation's over-time mean value of concentration and either the highest or lowest decade value exceeds +0.15;
- (d) Linear Increasing Pattern: the range must exceed 0.15, no interdecade declines greater than -0.15, and the contemporary concentration value must exceed the mean value by +0.15;
- (e) Linear Decreasing Pattern: the range must exceed 0.15, no interdecade increases greater than +0.15 and the contemporary concentration value must be less than the mean value by -0.15;
- (f) Stable Pattern: the difference between a nation's over-time mean value of concentration and devolution and its highest and lowest decade values must not exceed +0.10.

5. The following indices were utilized to gauge industrial growth: (a) steel production in metric tons and (b) percentage of labor force employed in the primary sector. The following indices were used to measure social welfare progress: (a) reduction in deaths of children under one year of age per 1,000 live births and (b) number of children enrolled in primary schools. Besides the standard sources such as the *UN Demographic and Statistical Yearbooks*, much of the data were obtained from the Minnesota Political Data Archive and from Banks's (1971) *Cross-Polity Time Series Data*.

6. Instead of the usual significance test (F), which takes sample size into account, the index of forecasting efficiency (E) was used because it is a PRE-type statistic that allows for the comparison of product-moment correlations without any reliance on degrees of freedom (see Downie and Heath, 1965: 223-226).

7. One can establish arbitrarily that public sector concentration ratios that surpass 0.75 for any of the three fiscal indicators constitute an extreme degree of central control that many theorists would agree is too much concentration.

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