

## THE IMPACT OF FEDERALISM ON EDUCATION FINANCE: A COMPARATIVE ANALYSIS\*

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### ABSTRACT

Drawing on the implications suggested by several recent studies in comparative public policy, this article examines the impact of the structure of intergovernmental relations on the patterns of distribution of educational funds. The fundamental hypothesis underlying this analysis is that differences in this structure, and in particular the distinction between federal and unitary systems of government, are systematically related to differences in distribution across and within nations. The variations in total educational allocations among eighteen nations in Europe and North America are considered in order to discover whether the aggregate funding of education, relative to a nation's wealth, is related to the structure of intergovernmental relations. Then, in a more intensive analysis, the intranational patterns of distribution are compared in four federal and four unitary systems. This analysis suggests that there is a significant difference between the two types of system in the degree to which educational policy outputs equalize the territorial disparities in wealth and effect a redistribution of funds within the nation.

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Making policy involves the distribution of social resources among arenas of public concern. Thus, policies are frequently evaluated in terms of their distributional effects – what policy arenas and which policy advocates receive a relative advantage in the allocation of outputs? That is, who gains at whose expense in the policy process?

It is not by chance that students of public authority who are concerned with patterns of distribution very often study education policy.

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\* This paper was presented at the IXth World Congress of the International Political Science Association, Montreal, August, 1973. The research reported here has been supported by a grant from the National Science Foundation (6538031) for the study of education finance in Canada, the Federal Republic of Germany, Switzerland, and the United States. We wish to acknowledge the aid provided by the Inter-university Consortium for Political Research in this research. We are also grateful to Stefanie H. Cameron of the University of Michigan and Stephen Schechter of the Center for the Study of Federalism for several important suggestions.

Education policy lies at the crossroads of the economy and the polity. The education policy process involves interaction of class, religion, ethnic and linguistic conflicts. No other arena of social policy more accurately reflects patterns of social distribution which have cumulated through past resolution of these conflicts in favor of particular groups.<sup>1</sup> And because educational outcomes structure the allocation of values within a society not only for the immediate period but also for future generations, no other arena of policy has been more politicized by those advocating or opposing fundamental social reform. Rokkan, for example, has ably demonstrated that the conflicts between center and periphery which emerged at critical junctures in the process of nation-building in Europe were politicized in jurisdictional disputes over the control of education.<sup>2</sup>

Wherever support for education has become a politically contested issue there has been continuing experimentation and dispute over the format of public responsibility. In particular, those who perceive distributional inequities in educational systems often advocate centralization of financial responsibility. Thus, for example, much of the recent discussion about educational finance in the United States has advocated an assumption of greater financial responsibility by the American states and/or the federal government.<sup>3</sup> Centralization, it is argued, may reduce the extent to which education spending mirrors territorial disparities in social resources. On the other hand, advocates of decentralization may argue that centralization does not result in any measurable improvement of disparities and may only increase the bureaucratic overload of a society and its policy-making apparatus. Although advocacy of greater or lesser centralization usually rests upon values placed on fundamental aspects of cultural pluralism, positions are often taken or rationalized in terms of assumed implications for substantive policy. The growing attraction of decentralization and the related concept of regional autonomy is amply demonstrated by the serious proposals for, and, occasionally, implementation of fundamental reforms in such formally unitary systems as Britain, Belgium, France, Italy, and Sweden.<sup>4</sup> To the extent that this attraction with decentralization takes on institutional reality, it is plausible that the distributional consequences in the field of education — one of the largest arenas of domestic policy — will change.

In the face of contemporary patterns of flux in intergovernmental relations within advanced industrial nations, an inquiry into the distributional consequences of these relations has more than heuristic value. In particular, it is useful to assess patterns of resource allocation to education within and across a set of nations which display wide

variations in their degree of centralization. In so doing, we shall attempt to provide answers for the following questions: Is the structure of intergovernmental relations systematically associated with the allocation of resources across and within nations? Do nations which are more centralized spend more, both in absolute terms and relative to their resource base, than decentralized nations? And, more importantly, do nations which are more centralized distribute funds for education more evenly than decentralized systems? Does centralization affect policies of equalization of within-nation disparities in resources? Do unitary systems, in fact, go so far as to carry out a system-wide redistribution of resources from the wealthy to the poor – from, to use Rokkan's terms, the center to the peripheries?

### Previous research base

In recent years, comparative research has begun to suggest the probable significance for public policy of the structure of intergovernmental relations of a nation. This contrasts with the pattern of explanation which emerged from the first comparative and empirical studies of public policy variations in the American states.<sup>5</sup> In these early studies, the importance of a wide set of political variables for explaining public policy was questioned. Instead, it was sometimes suggested, differences in policy were more closely associated with variations in the socioeconomic resource base and, in particular, with levels of wealth of the states than with any measurable aspects of their governmental or political structures.

As the technology and domain of inquiry expanded, however, initial conclusions about the importance of socioeconomic variables, relative to political variables were refined, elaborated, and in some cases, rejected. For example, it has been found that policy outputs across several arenas tended to cluster together, and some of these clusters – in particular, one composed of welfare and education policy outputs – are as closely associated with political attributes as they are with measures of socioeconomic structure.<sup>6</sup>

The suggestion that certain elements of the states' political structure are as important as those of the socioeconomic environment has been supported by several studies. Walker, for example, found that the propensity of American states to adopt new programs in a variety of fields was in part dependent on the degree of equity in the apportionment of representation.<sup>7</sup> Cowart found that indicators of the electoral process were more closely associated with expenditures in a new program area – the Anti-Poverty Program – than were various indicators

of socioeconomic environment.<sup>8</sup> Similarly, Boaden found, in an analysis of English county boroughs, that partisan control of municipal councils was significantly related to education policy outputs.<sup>9</sup>

Only with recent development of comparative subnational research has the term "political variables" come to include a specification of the structure of intergovernmental relations. Yet, in spite of the underdeveloped nature of theory in this field, various studies have suggested that the pattern of intergovernmental relations may be of critical importance for policy, since it establishes the framework within which all other variables – political and socioeconomic – operate.<sup>10</sup> This conclusion emerges from three different analytical settings: comparative urban research, single-country subnational studies, and cross-national research.

Several comparative urban studies have concluded that one must examine the relation of localities to higher levels of government in order to understand patterns of urban policy. Kesselman, for example, sketches a system of interaction by which urban policy makers are constrained by officials at other levels of government. More importantly for our purposes here, this system of interaction is defined to a large extent by the manner in which financial responsibility is allocated among levels of government. Thus the variations across nations in, for example, the degree of centralization, may explain why urban policies vary comparatively.<sup>11</sup> This is one of the conclusions which emerges from Anton and Williams' comparative study of housing policy in Stockholm and London. They suggest that differences in residential class segregation in the two cities may be a function of Stockholm's greater centralization in housing policy-making.<sup>12</sup>

This theme has been stated most forcefully by Jacob, Teune and their colleagues in their study of community activism in America, India, Yugoslavia, and Poland.<sup>13</sup> The authors concluded that the explanation of community activism was system specific rather than universal, largely because structures of national/local responsibility dominated the character of the explanatory variables. That is, national policies, such as the allocation of most funding responsibility for education to the American localities or the emphasis placed on the development of the new western territories by the Polish government, determined the relationships within each nation among the local-level sociopolitical and policy variables.<sup>14</sup>

The general conclusion to be drawn from these comparative urban studies is that policy outputs at one level of government are critically influenced by the structure of relations among several levels of government. Variation in urban policy outputs across several nations is a result

of the differences among them in the structure of intergovernmental relations.

Several studies in single nations have drawn conclusions similar to those emerging from comparative urban research. A recent study by Simeon of federal-provincial relations in Canada addresses the question: "What are the consequences of federal structures and institutions for the processes of policy-making?"<sup>15</sup> Simeon concludes his analysis of Canada's peculiar form of executive federalism, to use Smiley's term,<sup>16</sup> with the suggestion that this form of intergovernmental relations produces patterns of policy that differ from those which would occur in either a more centralized system or a federal system with little coordination across levels of government.<sup>17</sup>

The significance of intergovernmental relations has emerged from another single-nation study of policy-making in a federal system.<sup>18</sup> We have analyzed patterns of change over time in education policy in the American states and have found that the strongest determinant of progressive policy change was a measure of the increase in the share of financial responsibility carried by the states rather than the localities. The fact that the analysis was longitudinal, treating degree of change as the dependent variable, considerably strengthens the validity of the causal inferences relating intergovernmental relations and public policy.

A third type of study – that conducted with nations as units – has also affirmed the significance of intergovernmental relations and, in particular, the impact of centralization on educational policy. Pryor has considered the extent to which centralization, viewed as a systemic attribute setting the background for the policy process, affects various public consumption expenditures. He found that the proportion of national wealth devoted to education was greater in a set of seven centralized systems, and that centralization was in fact the only significant determinant of variations across the nations in the proportion.<sup>19</sup> On the other hand, Pryor found that total allocations to education did not seem to vary between the centralized and non-centralized systems. While shortcomings in Pryor's analysis make these conclusions speculative at best,<sup>20</sup> the mode of research is innovative and is particularly useful for assessing the impact of intergovernmental relations. As we shall suggest, however, it is necessary to combine Pryor's type of analysis between dichotomized sets of nations with the approach of those concentrating on within-nation patterns by means of urban and sub-national data.

## Hypotheses

The existing research base, summarized in the preceding section, provides a provocative point of departure for our research. The core message is that the patterns of allocation of public resources, for example, funds for education, may be critically affected by the structure of relations among levels of government. More particularly, the distributional consequences of education policy may systematically differ across sets of nations as a function of variance in intergovernmental structures. The impact of these structures on public policy may be neither nation-specific nor comparable across all nations. Instead, distributions of resources to education may be comparable within a set of systems, e.g., decentralized systems, and yet markedly different from those in systems with a different structure of intergovernmental relations. Whereas Jacob, Teune and their colleagues were forced by their findings to abjure cross-national generalizations, it may be possible, by maximizing variance on one promising facet of several systems, to move a step beyond system-specific conclusions.

The surest means of assessing the impact of different structures of intergovernmental relations is by maximizing the variance on this systematic property across the set of nations under investigation.<sup>21</sup> We do this by contrasting the patterns of resource distribution in certain centralized systems with those found in a particular subset of decentralized systems — federal nations. The choice of constitutionally defined federal systems highlights a key distinction — that the important difference in intergovernmental relations is not simply that between *de facto* centralized and decentralized but that between unitary and federal systems of government. Two federal (or unitary) systems may manifest different degrees of allocation of financial responsibility to the central government and yet the two may not differ in any measurable way in the structure of intergovernmental relations (e.g., Austria and Switzerland, as seen in Table I). On the other hand two systems, one of which is unitary and the other federal, may have very different structures of intergovernmental relations in spite of comparable levels of fiscal centralization (e.g., Norway and Austria).<sup>22</sup>

Federalism differs from unitary systems in the reservation of certain specified or implied public policy responsibilities to authorities within intermediary subnational governments.<sup>23</sup> The decentralization of policy-making characteristics of federal systems recognizes internal diversity in the sociopolitical composition of territorial jurisdictions and the right of these jurisdictions to use their resources in different ways.<sup>24</sup> The nature of federal systems thus insures considerable varia-

TABLE I

Percent of Total Educational Expenses, 1965, from Central Government in Eighteen Nations\*

Nation	% Central Government	Nation	% Central Government
Federal Republic of Germany	3	Denmark	66
Switzerland	9	Sweden	67
Canada	10	Finland	67
United States	12	Netherlands	81
Norway	50	Belgium	81
United Kingdom	57	Italy	81
Austria	59	France	83
Luxembourg	61	Portugal	90
Spain	63	Ireland	91

\* Source: See Note 32.

tion in policy performance among subnational units. In fact, the opportunity for such variation is part of the inherent constitutional logic of this system of government.<sup>25</sup>

Public education in federal systems has, perhaps more than any other policy, been the preserve of subnational governments (which have frequently chosen to pass much of the financial responsibility on to municipalities). In contrast to the implied, and occasionally explicit, limits in federations on the central government's educational role, the growth of public policy authority of the national government in unitary systems has more often than not been fought out precisely in the arena of education. Thus while subnational and local dominance characterizes education policy in federal systems, national government dominance generally characterizes unitary nations' education policy. As may be seen in Table I, the constitutionally federal systems — Austria, Canada, Germany, Switzerland, and the United States — are generally characterized by a much lower central fiscal role than the unitary systems. There are notable exceptions, however, and we shall consider these later in our analysis.

Since differences in the structure of intergovernmental relations between federal and unitary systems seem to be clear in the field of education policy, we hypothesize that the distributional consequences for public policy are markedly different in these two types of systems. This is the fundamental hypothesis underlying our analysis. We shall seek confirmation by testing a series of derivative hypotheses about the nature of the difference between education policy outputs in federal

and non-federal systems. In so doing we shall be able to provide at least a partial answer to the following question: What difference for public policy does federalism make?

One of the most important aspects of education policy, and one which might vary in federal and non-federal systems, involves the aggregate size of funds allocated to this policy area, relative to the resource base of the nation. There is a widespread view that more of a nation's wealth is allocated to education in centralized than in decentralized systems. Pryor suggests several reasons why this should be so. In centralized systems, he argues, there is greater hierarchic control and unity of budgetary organs, greater comparability of budgets and thus greater policy emulation across nations, thereby heightening the capacity to concentrate resources in such fundamental policy areas as education.<sup>26</sup> In discussing the relation of increasing affluence and centralization Peacock and Wiseman infer that greater centralization will result in greater allocations of funds for the following reasons: centralization is both a product and cause of the development of uniform standards of policy; it enables government to overcome problems which transcend or are external to local governments; and it allows a greater reliance on more efficient (i.e., wealth-elastic) revenue systems.<sup>27</sup> In addition, Heidenheimer has suggested that the very nature of decision-making in a federal system – the myriad of decision makers and policy-making institutions – contributes to the fragmentation of effort by national advocacy groups and the entrenchment at the subnational level of forces which resist reform.<sup>28</sup> In contrast, centralization tends to produce an integration of academic and bureaucratic experts, advocacy groups, and national policy makers. Finally, one might assume that a relatively large central government role reflects a broad national consensus in support of the policy – a carry-over from the nineteenth century struggle for national integration which prompted the assertion of central government responsibility for education in the first place. Thus we hypothesize that:

H<sub>1</sub>: The greater the central government's financial responsibility for education the greater the funds expended on education in the total system, relative to the resource base of the system.

As noted earlier and illustrated in Table I, however, fiscal decentralization and constitutional federalism are not necessarily identical. The relative decentralization of England and Norway, compared to the other constitutionally unitary systems, and the centralization of the Austrian federation are the most notable deviators. One may argue that, irrespective of the level of government doing the spending, the formal

autonomy of multiple decision points implicit in federalism will have an overall conservative effect upon aggregate educational spending. Therefore, it is reasonable to test a sub-hypothesis of the first proposition, namely:

H<sub>1a</sub>: Federal systems allocate less to education, relative to their resource base, than do unitary systems.

Although the question of the impact of federal and unitary structures of government on the level of education spending of whole nations is interesting, this is only one aspect of the distribution question. A more important aspect, and one which lies at the heart of the problem of distributional inequities, involves the patterns of allocation within nations. There are, of course, many standards by which the equity of distribution might be measured. One of the most meaningful, although certainly not the only standard,<sup>29</sup> is the pattern of variation in the allocation of funds for education among the territorial jurisdictions within each nation. Since the distinction between federal and unitary systems involves the question of territorial jurisdictions, it is plausible that within-nation variation in outputs may be strongly related to differences in the structure of intergovernmental relations.

Federalism insures considerable variation in policy performance among the subnational units. Not only are there multiple layers of authority and numerous decision points, but decision makers at the subnational level have substantial autonomy. The effect of multiple levels and units of decision-making, each characterized by a degree of autonomy, is likely to be the perpetuation of policy diversity in federal systems. The overall effect would be wide territorial variation in the total funds allocated to education. In contrast, the presence of a strong central role in funding education reduces the multiplicity of decision points. Centralization should encourage, in contrast to the situation in federal systems, uniformity and equalization of outputs across the nation. Thus we hypothesize that:

H<sub>2</sub>: Unitary systems manifest less relative variation than do federal systems in educational expenditures across the nation's subnational jurisdictions.

The structure of intergovernmental relations may affect not only the magnitude of intranational variation in spending, but also the extent to which this variation is socioeconomically constrained. Federalism may result in a pattern of allocation which is, in terms of the entire system, constrained by variation in resource bases across the subnational decision units. It is common for subnational (e.g., state, province, canton)

decision-makers in a federal system to implement partial equalization programs to compensate for resource disparities of municipalities or local subdivisions within their jurisdiction. Subnational governments usually attempt to reduce variations across localities in total allocations to education. Furthermore, federal governments sometimes attempt to reduce variations across the subnational units. However, national government in most federal systems is responsible for only a small portion of all funds allocated, their equalization programs are partial at best, and much of their funding is allocated on a strict per capita basis quite irrespective of within-nation disparities in resource bases. Thus public policy outputs may, with only slight adjustments, mirror existing disparities within a nation in, for example, levels of wealth. In contrast, nations with major funding from central governments, granting little autonomy to intermediate levels, may produce policy outputs which are less constrained by intranational resource variations. That is, internal variations in policy outputs which do occur across territorial units of unitary systems may be less closely associated with internal variations in socioeconomic structure and, in particular, levels of wealth, than is the case in federal systems. As a result, the policy process in non-federal systems may effect a more territorially equitable distribution of allocations, thereby equalizing intranational disparities in social resource base. Accordingly we hypothesize that:

H<sub>3</sub>: Variations in educational expenditure within non-federal systems are less closely associated with subnational disparities in socioeconomic resource base than in federal systems.

These hypotheses preface our consideration of the impact of federalism or non-federalism on the distribution of educational funds within nations. As was suggested earlier, one important facet of the distribution pattern is whether certain areas benefit at the expense of other areas in the allocation of education funds. If the structure of inter-governmental relations, and more precisely the distinction between federal and unitary systems, is related systematically to public policy, then surely the patterns of relative advantage should differ in the two systems. We need to see to what degree federalism results in an advantage, in terms of cumulative spending by all levels of government, for the richer areas of a nation. Is total spending higher in industrial than in agrarian areas? To what degree is education spending higher in the more commercialized, tertiary-dominated urban centers of a nation? If either type of governmental system results in a relative advantage to the urban, industrial and/or wealthy commercial centers then the impact of policy is to mirror social disparities and to perpetuate the inequalities

of treatment in a system. That is, less would be allocated for each student's education in the non-industrial and non-commercial peripheries than would be in their opposites, thereby discriminating according to residential location. On the other hand, systems in which total educational allocations are distributed in relatively equal amounts among the socioeconomically disadvantaged and the wealthier areas tend, by this equalization, to compensate for territorially based social disparities.

Finally, the impact of public policy may be not only to *equalize* distributions but to effect a system-wide *redistribution* of social resources. That is, education allocations in one or both types of systems may give a relative *advantage* to the most socioeconomically deprived areas of a nation.

If it is true, as the previous hypotheses suggest, that federalism results in a system of expenditures which is to a considerable extent constrained by social resource disparities across the subnational units, then we expect policy outputs to favor the most advantaged areas in federal systems. Both the industrial and the commercial centers, and in particular the wealthiest areas, will receive relatively larger allocations. In contrast, in unitary systems, where outputs are hypothesized to be less constrained by areal disparities in social resources, the impact of policy would be to equalize distributions, and possibly to redistribute resources from the wealthiest areas to the poorer, non-industrial, non-commercial and rural areas. Thus we hypothesize that:

H<sub>4</sub>: Unitary systems tend to compensate for disparities in socioeconomic resource base by effecting redistribution of resources to the non-industrial, non-commercial, and poorest areas. In contrast, allocations in federal systems are non-equalizing and tend to mirror these disparities.

## Findings

### FEDERALISM AND EDUCATION ALLOCATIONS ACROSS NATIONS

The first major hypothesis suggests that nations in which financial responsibility for education is relatively centralized will allocate more of available social resources to education than will decentralized systems. In order to test this proposition, nation-level data for the eighteen countries of western Europe and North America have been analyzed.<sup>30</sup> Most of these nations are, by world standards, relatively wealthy and industrialized. By limiting our analysis to this subset and by treating the

level of expenditures relative to the level of national income as the dependent variable, we have attempted to control for the overwhelming relation between levels of expenditure and levels of wealth which has been reported by most cross-national studies.<sup>31</sup>

In Table II, the correlations are presented for these eighteen nations among attributes of their systems of education finance and the proportion of national income devoted to education.  $H_1$  is clearly rejected. Nations with a relatively large central government role in education funding devote less of their national wealth than do those nations in which subnational and local governments have predominant financial responsibility. The relation between central government role and the dependent variable is certainly not overwhelming. Yet the fact that the relationship between these two variables is slight at best, and in fact in the contrary direction (i.e., a negative sign), clearly suggests that the type of financing system may, in terms of national allocations, have no significant policy impact. On the contrary, the most significant attribute of the funding system is the role of localities. This role, it should be noted, is obviously large in federal systems. However, certain unitary systems such as those of Britain and Scandinavia assign as much responsibility to the localities as do federal systems.

In order to test the subordinate hypothesis ( $H_{1a}$ ) which asserts that constitutionally federal systems in particular tend to allocate less of their national resources to education than unitary systems (which is not, we have noted, the same as testing the impact of mere fiscal centralization), we created an index of policy effort relative to level of centralization. By regressing the proportion of national wealth devoted to education upon the proportion of funds deriving from the central government, the effect of fiscal centralization is held constant. If the hypothesis is true, the residuals from this regression — which, when

TABLE II

Correlation of Educational Spending as Percent of National Income with Scope of Levels of Government, 1965

Percent of all education funds from:	% National income Spent on Education 1965
Central government	-.17
Subnational & Local governments	.26
Subnational	-.01
Local	.54

standardized, compose the index – should cluster the federal nations together. In particular, the residuals for the federal systems should form a distinct group at the negative pole of the index. This would confirm the suggestion that these systems are, in comparison with unitary systems of government, relative under-achievers in terms of total distributions of national wealth to education.

Table III presents the effort/centralization index. There is some confirmation of the hypothesis, although it is not primarily the federal systems but rather those of the Iberian peninsula which are the major under-achievers. The European federal systems – Germany, Switzerland, and Austria – do cluster together and allocate considerably less to education than do most of the nations of northern Europe. On the other hand, federal systems do not all behave alike. In particular, those of North America differ from those of Europe in their allocations to education. In fact, if one were to exclude Spain and Portugal, Canada and Germany – two decidedly “federal” systems – compose the two poles of the index.

TABLE III

Index of Education Effort Relative to Degree of Centralization of Education Finance\*

	Index of Effort/ Centralization Ratio
** Canada	1.27
Netherlands	1.17
Finland	0.98
Denmark	0.97
Sweden	0.92
Italy	0.56
Norway	0.38
Luxembourg	0.38
United Kingdom	0.36
** United States	0.15
Ireland	-0.12
Belgium	-0.17
France	-0.44
** Austria	-0.53
** Switzerland	-0.70
** Germany	-1.13
Portugal	-1.92
Spain	-2.13

\* Effort is measured by taking percent of national income allocated to education. Index is obtained by regressing Effort on percent of education revenues deriving from central government.

\*\* Constitutionally federal systems.

The difference between Canada and Germany suggests that both, but Canada in particular, may be deviant cases. Why is it that Canada outperforms not only other federal systems but all the unitary systems of Europe – in marked contrast to Germany's performance? The data in Table IV suggest several explanations for the contrast between Canada and Germany. Education consumes twice as large a portion of total governmental budgets in Canada. It would appear that a major reason involves the much greater development of higher education in Canada. Any explanation must be somewhat speculative, but it seems that some of the differences in policy may flow from Canada's relatively greater flexibility in financing education.

The two systems differ markedly in the extent to which non-central, and in particular provincial and Länder, governments changed their scope of financial responsibility in a five year period in the mid-1960s. In Canada the provinces have moved into the field of education as part of a broader assertion of provincial responsibility.<sup>33</sup> In Germany, however, the scope of financial authority has remained inflexible. Municipalities continued in the middle 1960s to have no share in funding higher education while that of the Länder dropped. The greater financial flexibility of Canadian federalism, as manifested by its ability to respond to increased demand for higher education in the 1960s, may be a product of the greater institutionalization of intergovernmental coordination. In contrast to Germany, where a Bund-Länder Commission for Education Planning came into effect only in 1970, Canada has had throughout the last decade a form of intergovernmental coordination in the Federal-Provincial Conference.<sup>34</sup> Through this latter body, a system of revenue sharing has been created, based largely on wealth-elastic categories such as personal and corporate income. Flexibility, in the sense of adjusting the funding shares of the various levels of government, is assured by the quinquennial renegotiations provided by the Fiscal Agreements Act. Of major importance, from the view of the large allocation of education funds relative to national income, is that these negotiated arrangements have contained sophisticated systems of equalization grants from the federal government to the provinces, particularly to Quebec and the Atlantic Provinces. The institutionalization in Canada of a system of intergovernmental coordination which provided revenue sharing to aid poorer Provinces and periodic adjustment of funding responsibilities stands in marked contrast to the situation in Germany. In the latter, systems of intergovernmental equalization, renegotiation, and adjustment of financial shares remain largely non-existent.

TABLE IV

A Comparison of Attributes of the German and Canadian Education Systems\*

	Canada	Germany
Percent of government expenditures for public education, 1965	23.6	10.9
Percent of the population age 20–24 in higher education	30.1	11.3
Change 1963–1968 in non-central government percentage in funding higher education	+ 7.6	- 3.5
Change 1963–1968 in province/land percentage in funding higher education	+19.8	- 3.5

\* Data from OECD, *Reviews of National Policies for Education: Germany* (Paris: OECD, 1972), p. 132; and *Education Statistics: A Review from 1960–61 to 1970–71* (Ottawa: Statistics Canada, 1973), pp. 178, 493–495, 500, 502.

## FEDERALISM AND EDUCATION ALLOCATIONS WITHIN NATIONS

Questions of the magnitude of aggregate national education funding are interesting. However, the thrust of debate over the impact of structures of intergovernmental relations (and in particular the differences between federal and unitary systems) is aimed at patterns of distribution within nations. Our second hypothesis suggested that there is less variation in education expenditures across the territorial units of a unitary system than among those of a federal system. In order to test this and subsequent hypotheses, patterns of within-nation variation have been examined in four federal systems (Canada, Germany, Switzerland, and the United States) and compared with those in four unitary systems (England, the Netherlands, Norway, and Sweden). Austria was excluded from the analysis on the grounds that the large central share (59 percent) and lack of legislative and policy-making autonomy in the field of education make it an atypical federal system, at least in this policy area.<sup>35</sup> The choice of the four non-federal systems was somewhat more complex.<sup>36</sup> Table V presents various data on the financial aspects of education in the four non-federal and four federal systems considered here.

If our second hypothesis is valid, the non-federal systems should have considerably lower degrees of intranational variation in educational expenditures per pupil than the federal systems. In order to test this, coefficients of relative variation ( $[\text{standard deviation}/\text{mean}] \times 100$ ) have been computed for total education spending per pupil in the sub-national units of the eight nations.<sup>37</sup> The results, in Table VI, suggest

TABLE V

Percent of Total Education Expenditures, By Source, 1965\*

	Central	Sub-national	Local & Private	% National Income, Education 1965
<i>Non-Federal</i>				
England	57	0	43	6.4
Netherlands	81	0	19	7.6
Norway	50	2	48	6.5
Sweden	67	2	31	7.3
<i>Federal</i>				
Canada	10	46	44	8.5
Germany	3	68	29	4.3
Switzerland	9	47	44	5.0
United States	12	29	59	6.5

\* Source: See Note 32.

that, although there are some exceptions to the rule, federal systems display considerable intranational variation in total funds allocated to education. Conversely, unitary systems and, perhaps surprisingly, particularly that form in existence outside Scandinavia, seem to moderate their inter-regional disparities. Thus the second hypothesis is confirmed.

TABLE VI

The Intranational Variation in Educational Expenditures Per Pupil, 1965-66

	Coefficient of Relative Variation*
<i>Non-Federal Systems</i>	
England	7.4
Netherlands	5.2
Norway	11.9
Sweden	16.9
<i>Federal Systems</i>	
Canada	29.0
Germany	15.6
Switzerland	26.8
United States	20.3

\*  $\frac{\text{Standard deviation}}{\text{mean}} \times 100$

In order to test the third and fourth hypotheses, relating to the structure of intergovernmental relations and the degree and patterns of socioeconomic constraint of education policy, it is necessary to develop measures of within-nation variations in resource base. These measures must be parsimonious and cross-nationally comparable and yet also reflect unique constellations of social differentiation likely to constitute political cleavages in each system. That is, they must be equivalent while still accommodating unique system-specific features associated with racial, religious, ethnic, and linguistic variations in the nations.

In order to develop measures which are both cross-nationally equivalent and yet system-sensitive, a multidimensional perspective of social structure has been utilized. By means of factor analysis of a set of socioeconomic and cultural attributes of subnational units in several nations, Hofferbert, et. al. have derived two independent indices of social structural variation.<sup>38</sup> One, labeled industrialization, traced the differences among the units in the extent of secondary sector employment and production, and, conversely, the differences in the size and degree of reliance on primary sector activity. The second dimension, presently labeled integration, is more complex insofar as it is independent of the measure of primary-secondary differentiation. This second dimension does nevertheless trace an important pattern of variation, although it is one generally ignored by many development theorists. It traces the difference across subnational units in the attributes of the most "modern" sectors of society — in this day and age, measures which are often associated with post-industrial society: tertiary sector dominance, commercialization (including commercialized agriculture), higher education, employment in the professions, media diffusion, and personal affluence.<sup>39</sup> What makes the integration dimension particularly interesting, however, is the juxtaposition of the variation across a nation in these modern and post-industrial attributes upon a variation based on the ethnic, linguistic and religious cleavages of a society. It is precisely those areas of least tertiary sector development, and least commercialization and affluence, which have often contained relatively large groups of individuals who by their language, religion or their ethnicity constitute national minorities. And as a result it has been these areas which have most often been the site of confrontations against secularization and commercialization, and which have manifested regional defenses against what Rokkan has termed the "central nation-building culture."<sup>40</sup>

The essential utility of the two-dimensional indexing of social structure is the ability to move to a more sophisticated conception of

“modernity” or “development” than is customary in much comparative research. The factory/farm distinction can thus be viewed separately from the conceptually richer and more distinct index of post-industrial/traditional or center/periphery dimension which we have here and elsewhere labeled “integration.” Integration – in the sense of a national network of interaction between remote actors and relative strangers – is not necessarily or historically dependent upon industrialization. The advantage of the factor analytic technique (as revealed in Appendix I) is its ability to approximate cross-national comparability despite variations in measurement accuracy of specific indicators.

Appendix I presents the factor structures for the dimensions of industrialization and integration.<sup>41</sup> By comparing the composition of these dimensions one can determine the extent to which they represent cross-nationally equivalent patterns of within-nation variation. The most highly loaded variables on the industrialization dimension are ones which trace the occupational and sectoral attributes associated with manufacturing or industry, urban work force, size of firm, etc. Wealth tends to be related to this dimension, but only moderately so. The non-industrial areas tend, not surprisingly, to be those with the most predominant primary sectors (although not necessarily agrarian, as the Norwegian case suggests).

It is more difficult to assess the cross-national comparability of the integration dimension, precisely because it does contain the complex juxtaposition of “traditional” and “modern” aspects of society. However, one notes certain features common to all. The highest loaded variables are associated with affluence; commercialization either in the sense of occupation, as in the case of the Netherlands, Norway, Sweden, and Switzerland, or in the sense of exchange, as is the case in the United States (retail and farm sales) and Canada (farm sales); professionalization, as is the case with the loading of doctors per thousand in several nations; and, where available, education, particularly higher education. Recalling Bell’s emphasis on the importance of the role of services and the production of knowledge in post-industrial society,<sup>42</sup> it seems clear that this dimension traces, within these nations, a phenomenon which has heretofore been treated solely in terms of whole nations.

We continue to label the dimension “integration,” however, in recognition of the particular salience of those system-specific cleavages which distinguish areas in terms of those attributes discussed in the preceding paragraph. The culture features of integration are ethnicity in Canada and the United States, language in Switzerland, Canada and Norway, and religion in Canada, Switzerland, Germany, Norway, Sweden and

the Netherlands. It should be noted that the salient cleavage in terms of integration in the Netherlands is that of no religion versus Catholicism and orthodox Calvinism rather than Protestantism versus Catholicism.<sup>43</sup> One should also note that, of the attributes of non-integrated areas, religion seems to be the most cross-nationally prevalent (although the other bases of differentiation may be more liable to produce internal conflict) and that, not surprisingly, federal systems (and in particular Canada) tend to contain a complex multiplicity of these features of cultural pluralism.<sup>44</sup>

The factor scores obtained for each of the subnational units on these dimensions seem intuitively plausible. For example, industrialization for Norway contrasts the fylker of Ostfold, Oslo, Buskerud, Vestfold and Telemark with the fishing-dominant areas in the north. Integration contrasts Oslo and Bergen with the fylker of Oppland, Hordaland, Sjøgn og Fjordane, and Nord Trøndelag. Those for Switzerland contrast, on industrialization, the cantons of Solothurn and Schaffhausen with Valais and Ticino, while integration contrasts Zurich, Genève, Basel-Stadt and Vaud with Uri, Schwyz, Obwald and Appenzell Inner Rhoden. Industrialization for England contrasts Staffordshire, Warwickshire and Yorkshire West Riding with Cornwall, Lincoln and Shropshire, while integration contrasts London, Surrey, Sussex, Oxfordshire and Berkshire with Durham and Northumberland in the north, and the rural west. And the dimensions for the Netherlands contrast the heavily industrial (and Catholic) provinces of Noord-Brabant and Limburg with the rural provinces of Zeeland and Friesland. Integration contrasts Noord-Holland, Zuid-Holland, and, to a lesser extent, Utrecht with the rest of the country.<sup>45</sup>

The factor scores for these two dimensions allow a parsimonious but comparable measurement of variations in resource base within each nation. Thus by investigating the intranational relationships of the scores on these dimensions and total educational expenditures per pupil it is possible to test the third and fourth hypotheses.

According to the third hypothesis, variations in educational expenditures in federal systems are much more constrained by variations in resource base than are those in non-federal systems. A relatively simple way of testing this proposition, once one has appropriate measures, is to compare the coefficients of determination ( $R^2$ ) obtained for each nation with the expenditures per pupil predicted by the two social structural dimensions. If educational expenditures in non-federal systems are territorially non-discriminatory this should be manifested in markedly lower coefficients than those found in federal systems. This seems to be the message of Table VII, bearing out the third hypothesis.

TABLE VII

Coefficients of Determination for Intranational Variations in Educational Expenditures Per Pupil, 1965-66\*

	Coefficient of Determination
<i>Non-Federal Systems</i>	
England	31
Netherlands	73
Norway	22
Sweden	17
<i>Federal Systems</i>	
Canada	69
Germany	69
Switzerland	80
United States	58

\* Percent of the variance explained by industrialization and integration.

There are, however, some important differences among the non-federal systems. In particular, Norway and Sweden display a lower degree of constraint than does the Netherlands. However, as will be seen shortly this simple measure masks as much as it suggests.

These differences between federal and non-federal systems in the degree of intranational variation and socioeconomic constraint are surely important. Nevertheless, the critical question from the perspective of the impact of policy on the equity of distribution involves the patterns of relative advantage in the two types of systems. The fourth hypothesis suggested that distribution in non-federal systems compensates poorer areas for disparities in resource base, while distributions in federal systems tend to mirror, and thus perpetuate, these disparities. Hypothesis four can be tested by investigating the relation between the total per pupil education expenditures and the two socioeconomic dimensions.

If it is true that non-federal systems compensate for resource disparities one would expect to find the relationship between expenditures and these dimensions to be moderate. In contrast the relationships, especially that involving the integration dimension, should be strong and positive in federal systems. Non-federal systems may effect an equalization of allocations – reflected in near-zero relationships – or even a system-wide redistribution of funds – reflected in negative relationships between the dimensions and the dependent variable, indicative of great-

est expenditure levels in the least advantaged areas. Regardless of which pattern is found in the non-federal systems, it is critical to our fundamental hypothesis regarding the consequentiality of intergovernmental relations that the relationships of the dimensions to the spending variable are comparable for each system of government and that the two patterns of distribution advantage are distinctive.

Table VIII presents the simple correlations between the two dimensions of industrialization and integration and the spending variable in each of the eight nations. These data confirm the fourth hypothesis. They provide strong evidence that the patterns of distribution differ systematically according to the structure of intergovernmental relations. In particular, three of the four federal systems effect a distributional advantage for those areas which are industrialized. More important, in view of its closer association with wealth, is the very strong positive relationship between integration and spending (the range in the coefficients is from 0.73 to 0.87). Quite clearly, federal systems in their distributions in this policy area tend to mirror and thus perpetuate the wealth-related disparities of the nation. In spite of the variability in proportion of wealth devoted to education found in Table II, all four nations reflect a nearly identical pattern of relationship in this, the fiscally most important domestic policy area in these systems.

The non-federal systems, in education finance, differ significantly from the federal pattern. And with the exception of England, all the non-federal systems display a similar pattern of distribution. The impact of

TABLE VIII

Correlations of Industrialization and Integration with Total Educational Expenditures Per Pupil, 1965-66\*

	Industri- alization	Integration
<i>Non-Federal Systems</i>		
England	-.13	.54
Netherlands	-.85	-.04
Norway	-.46	-.07
Sweden	-.41	-.02
<i>Federal Systems</i>		
Canada	.39	.74
Germany	-.41	.73
Switzerland	.22	.87
United States	.23	.73

\* Pearsonian product-moment correlations

public policy in these systems is, in distribution terms, to equalize the within-nation disparities associated with integration. While the federal systems perpetuate the disparities and the inequalities which are the inheritance of the historic patterns of social cleavage and wealth, non-federal systems tend to compensate for these disparities. And one also finds that, again with the exception of England, the three non-federal nations effect a system-wide distribution to the least industrialized areas – the fishing dominant north in Norway, the timber and agrarian north of Sweden, and the heavily Protestant north of the Netherlands. The comparable patterns of distribution in these three non-federal systems – the equalization of integration-related disparities and the redistribution in favor of the non-industrial areas – seem to suggest that the most conscious criterion of compensation involves differential levels of industrialization. This may reflect institutionalization in the party system and the policy arena of advocacy groups – such as primary sector based unions and trade associations.

There is, in the comparability of the patterns of distribution of Sweden, Norway, and the Netherlands an intriguing phenomenon. Since the pattern of distribution in these nations is not socioeconomically constrained in the manner common to the federal systems, it is particularly interesting to note the similarity in this pattern, and especially the nearly identical correlates displayed by the two Scandinavian systems. It has often been suggested that nations may emulate their neighbors by borrowing policy program innovations.<sup>46</sup> However, the equally interesting question of whether nations “borrow” the criteria by which public policy effects a redistribution or equalization of regional disparities has seldom if every been addressed. And yet these data clearly imply the presence of similar criteria.

In the discussion of the three non-federal systems, England has thus far been excluded. This nation represents for the non-federal systems something of a deviant case just as Canada did for the federal systems in the cross-national analysis. When one considers the pattern of distribution, and particularly the pattern vis-a-vis the wealth-related integration dimension, it seems that England behaves in a sense more as a federal than a non-federal system (a finding which we suspect would be even more noticeable if the analysis had included Scotland and Wales). While central government grants to the Local Education Authorities – the administrative counties and county boroughs which together form the geographic counties – do manifest the non-federal pattern of giving a relative advantage to the least industrialized areas ( $r = -0.40$ ), it is also true that the total allocations tend to be greatest in the most integrated areas, i.e., in London, Surrey, East Sussex and Hertfordshire.

In one sense, this finding should not be surprising. While England lacks a meaningful intermediate policy-making jurisdiction comparable to that found in federal systems, there is nevertheless a myriad of decision points – including not only boroughs and counties but also excepted districts and divisional executives – and the net effect when combined with the tradition of strong local government has been to fragment decision-making authority in a manner quite distinct from the other three non-federal systems.<sup>47</sup> England's rather unique, semi-federal pattern of distribution also reflects the important changes made in the 1958 Local Government Act. In this act, the previous system of central government grant aid was changed from a percentage equalization to a general grant system. The new system weighted local need by the age and number of children but it did not include, as the former system had, an equalization of the variation in local property values.<sup>48</sup> The system was improved somewhat in the Local Government Act of 1966 which replaced the general grants by rate support grants. That is, the new formula for aid to the LEAs included a partial equalization of the differences in yield which occurred with identical rates. Nevertheless, because equalization is pegged to average rather than peak tax yields, there is equalization only up to the national average and "above average authorities in terms of resources still do exceptionally favorably."<sup>49</sup>

### Conclusion

Drawing on the implications suggested by several recent studies in comparative public policy analysis, we have attempted to determine the impact of federalism on the equity of distributions of education policy outputs. The fundamental hypothesis underlying this analysis has been that the structure of intergovernmental relations systematically affects the pattern of distribution. Several subsidiary hypotheses were tested in order to discover whether this structure, and in particular the distinction between federalism and non-federalism, affects public policy. The hypothesis was not confirmed in the cross-national analysis where, among a set of eighteen nations, the structure of intergovernmental relations was only weakly related to proportions of national wealth devoted to education. In the within-nation comparisons, based on four federal and four unitary systems, however, the hypothesized distinctions did appear. The structure of intergovernmental relations does indeed exert a strong contextual effect on the policy process. Unitary systems manifest considerably less internal variation and socioeconomic

constraint on expenditures for education than do the federal systems. Most importantly, the non-federal systems compensate for the inherent disparities in resource base within the nations. They tend to equalize the wealth-related disparities associated with a dimension of socio-political integration while redistributing resources to the least industrialized areas. Federal systems on the other hand tend in their educational allocations to mirror and thus perpetuate the wealth-related intranational disparities. Traditional, poor, non-integrated areas -- those with the greatest concentrations of religious, linguistic, and ethnic particularities -- are left to their own devices. They "take advantage" of their policy autonomy by providing relatively less fiscal support for education than is available to their counterparts in the unitary nations.

The most important deviations from the systematic relation of structure of intergovernmental relations to distribution pattern are the relatively high proportion of national wealth devoted to education in Canada and the relative lack of equalization of wealth-related intranational disparities in England. The causes of both deviations can be traced to periodically negotiated legislation which shapes existing patterns of intergovernmental systems of revenue sharing.

Although we find that the pattern of distribution systematically differs in the two types of systems, we have only begun to suggest why this may be so. It seems clear that one possible area of fruitful policy research will be an investigation of the criteria for equalization and redistribution within nations as well as an examination of the processes by which nations borrow and emulate these distributional criteria.

We can conclude by returning briefly to a consideration of contemporary changes in patterns of intergovernmental relation and, in particular, to the growing attraction of decentralization and quasi-federalization. It seems clear that a trade-off may be involved between the degree of local and subnational control and regional autonomy on one hand and the degree of equity in policy distributions on the other. Whatever the appeals of decentralization it seems obvious from the analysis presented here that a fundamental change in intergovernmental relations toward federalism may in fact exacerbate rather than alleviate intranational disparities in socioeconomic resources.

## Notes

1 See Torsten Husén, *Social Background and Educational Career: Research Perspectives on Equality of Educational Opportunity* (Paris: OECD, 1972); OECD, *Group Disparities in Educational Participation and Achievement*, Background Studies # 4 and 10, Conference on Policies for Educational Growth (Paris: OECD, 1971); and Christopher S. Jencks et al., *Inequality: A Reassessment of the Effect of Family and Schooling in America* (New York: Basic Books, 1972).

- 2 See Stein Rokkan, "Nation-Building, Cleavage Formation and the Structuring of Mass Politics," in *Citizens Elections Parties* (New York: David McKay, 1970), 72–144.
- 3 See Advisory Commission on Intergovernmental Relations, *Who Should Pay for Public Schools: Report of the Conference on State Financing of Public Schools* (Washington, D.C.: ACIR, 1971); Robert D. Reischauer and Robert W. Hartman with Daniel J. Sullivan, *Reforming School Finance* (Washington, D.C.: Brookings Institution, 1973); and the New York State Commission on the Quality, Cost, and Financing of Elementary and Secondary Education, *The Fleischmann Report, Vol. I* (New York: Viking, 1973).
- 4 These patterns of change are most pronounced in Belgium where quasi-federal institutions have, with the constitutional changes of 1970, been superimposed on a unitary state. See Frans Coppeters and Maurice-Pierre Herremans, *Les Problèmes communautaires en Belgique* (Bruxelles: Institut Belge d'Information et de Documentation, 1971).
- 5 See, for example, Richard E. Dawson and James A. Robinson, "Inter-Party Competition, Economic Variables, and Welfare Policies in the American States," *The Journal of Politics*, XXV (May, 1963), pp. 265–289; Thomas R. Dye, *Politics, Economics and the Public: Policy Outcomes in the American States* (Chicago: Rand McNally, 1968); and Richard I. Hofferbert, "The Relation Between Public Policy and Some Structural and Environmental Variables in the American States," *American Political Science Review*, LX (March, 1966), pp. 73–82. For a comprehensive review of this field see Richard I. Hofferbert, "State and Community Policy Studies: A Review of Comparative Input–Output Analyses," in *Political Science Annual Vol. III*, ed. James A. Robinson (Indianapolis: Bobbs-Merrill, 1972).
- 6 See Ira Sharkansky and Richard I. Hofferbert, "Dimensions of State Politics, Economics, and Public Policy," *American Political Science Review*, LXIII (September, 1969), pp. 867–879.
- 7 Jack L. Walker, "The Diffusion of Innovation Among the American States," *American Political Science Review*, LXIII (September, 1969), pp. 880–899.
- 8 Andrew T. Cowart, "Anti-Poverty Expenditure in the American States: A Comparative Analysis," *Midwest Journal of Political Science*, 13 (May, 1969), pp. 219–236.
- 9 Noel Boaden, *Urban Policy Making: Influences on County Boroughs in England and Wales* (Cambridge: University Press, 1971).
- 10 One of the first attempts at systematic theory-building in this field is A. Lee Fritschler and Morley Segal, "Intergovernmental Relations and Contemporary Political Science: Developing an Integrative Typology," *Publius, The Journal of Federalism*, I (Winter, 1971), pp. 95–122.
- 11 Mark Kesselman, "Research Perspectives in Comparative Local Politics," *Comparative Urban Research*, I (Spring, 1972), pp. 10–30.
- 12 Thomas Anton and Oliver P. Williams, "On Comparing Urban Political Systems: Residential Allocations in London and Stockholm," delivered at the Annual Meeting of the American Political Science Association, Chicago, 1971.
- 13 The International Studies of Values in Politics, *Values and the Active Community* (New York: Free Press, 1971), particularly chapter 10.
- 14 The Polish-United States difference is elaborated in Henry Teune and Krzysztof Ostrowski, "Political Systems as Residual Variables: Explaining Differences Within Systems," *Comparative Political Studies* 6 (April, 1973), pp. 3–21.
- 15 Richard Simeon, *Federal-Provincial Diplomacy: The Making of Recent Policy in Canada* (Toronto: University of Toronto Press, 1972), p. 3.
- 16 Donald V. Smiley, *Constitutional Adaptation and Canadian Federalism Since 1945*, Documents #4 (Ottawa: Royal Commission on Bilingualism and Biculturalism, 1970).
- 17 Simeon, op. cit., pp. 268–277.
- 18 See David R. Cameron and Richard I. Hofferbert, "Social Change, Politics, and Policy Innovation: The Case of Education Finance," mimeo., Center for Political Studies, Ann Arbor, Michigan.

- 19 Frederic L. Pryor, *Public Expenditures in Communist and Capitalist Nations* (London: George Allen and Unwin, Ltd., 1968).
- 20 The most important weaknesses are: 1) the apparent theoretical irrelevance of the criterion of dichotomization (centralized versus market economies) to the dependent variables (proportion of GNP allocated for various public consumption expenditures); 2) the confusion between economic system and public policy centralization – as manifested by the fact that five of the seven “non-centralized” systems have higher centralization ratios than five of the “centralized” systems (p. 75); and 3) the failure to relate policy centralization directly to the dependent variable, e.g., proportion of GNP spent on education.
- 21 See Adam Przeworski and Henry Teune, *The Logic of Comparative Social Inquiry* (New York: John Wiley, 1970).
- 22 For a discussion of certain peculiarities which seem to make Austria something of a deviant case among federal systems in education policy, see Kurt Steiner, *Politics in Austria* (Boston: Little, Brown, 1972), pp. 99–101.
- 23 We should note the occasional, although rare, cases in which municipalities are the sub-national units, e.g., Bremen, Hamburg, Genève, Basel-Stadt, Wien. On the concept of federalism see Robert R. Bowie and Carl J. Friedrich, ed., *Studies in Federalism* (Boston: Little, Brown, 1954); Arthur W. Macmahon, ed. *Federalism: Mature and Emergent* (Garden City: Doubleday, 1955); Williams H. Riker, *Federalism: Origins, Operations, Significance* (Boston: Little, Brown, 1964); Daniel J. Elazar, *American Federalism: A View From the States* (New York: Crowell, 1966); Aaron Wildavsky, ed., *American Federalism in Perspective* (Boston: Little, Brown, 1967). We might note that there is in all this literature remarkably little concern for how federalism as a system of government affects public policy. Instead, the dominant concern has been the definition, bases of origin, and institutional framework of federalism.
- 24 For an analysis of the peculiar mix of subnationally superimposed and nationally cross-cutting cleavages see James A. Dunn, Jr., “Consociational Democracy and Language Conflict: A Comparison of the Belgian and Swiss Experiences,” *Comparative Political Studies*, 5 (April, 1972), pp. 3–40; and Arend Lijphart, “Linguistic Fragmentation and other Dimensions of Cleavage: A Comparison of Belgium, Canada, and Switzerland,” delivered at the IXth World Congress, International Political Science Association, Montreal, August, 1973.
- 25 See Alexander Hamilton, et al., *The Federalist Papers* (introduction by Clinton Rossiter) (New York: New American Library, 1961), particularly papers #10 and 51.
- 26 Pryor, op. cit., pp. 44–47.
- 27 Alan Peacock and Jack Wiseman, *The Growth of Public Expenditures in the United Kingdom* (Princeton: Princeton University Press, 1961).
- 28 Arnold J. Heidenheimer, “The Politics of Educational Reform: Explaining Different Outcomes of School Comprehensivization Attempts in Sweden and West Germany,” delivered to IXth World Congress, International Political Science Association, Montreal, August, 1973.
- 29 One criterion is the differential access to higher education for students from various class backgrounds. See OECD, op. cit.
- 30 The eighteen nations are Austria, Belgium, Canada, Denmark, the Federal Republic of Germany, Finland, France, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States.
- 31 For the eighteen nations included here, the correlation of GNP per capita and total educational expenditures per capita = +.94.
- 32 The education data were obtained from World Survey of Education, Vol. V: *Educational Policy, Legislation, and Administration* (Paris: UNESCO, 1971).
- 33 See Donald V. Smiley, *Canada in Question: Federalism in the Seventies* (Toronto: McGraw-Hill Ryerson, 1972).
- 34 Simeon, op. cit.
- 35 See note #22.

- 36 In order to limit a possible bias of comparing relatively less affluent unitary systems with relatively affluent federal systems, Spain, Portugal, Ireland and Italy – all having per capita GNP well under \$1500 in 1965 – were excluded. Luxembourg was eliminated because of its size, and France and Belgium had to be eliminated because data were unavailable. Of the remaining six, four were the nations of Scandinavia. Two of these four were chosen for inclusion with the two non-Scandinavian nations. Data were unavailable for Scotland and Northern Ireland and therefore the analysis was limited to England rather than the United Kingdom. We have used data on expenditures per pupil except for Switzerland, Norway and Sweden where pupil data were unavailable and per capita data were substituted. Except for Sweden and the Netherlands, where 1965 data are used, the time point is 1966. We wish to express our gratitude to several individuals who supplied subnational data in the non-federal systems: M.F. Stonefrost of the Institute of Municipal Treasurers and Accountants in England, Terje Sande of the University of Bergen, Margareta Askeland of the Statistiska Centralbyrå in Sweden, and J.Ch.W. Verstege of the Centraal Bureau voor de Statistiek in the Netherlands.
- 37 The subnational units are as follows: 50 American states, 10 German Länder, 10 Canadian provinces, 25 Swiss cantons, 20 Norwegian fylker, 25 Swedish län, 11 Dutch provinces, and 45 English geographic counties. The coefficient of relative variation is discussed in John H. Mueller and Karl F. Scheussler, *Statistical Reasoning in Sociology* (Boston: Houghton Mifflin, 1961), pp. 159–161.
- 38 For multi-national applications, see Richard I. Hofferbert and Ira Sharkansky, “Social Structure Politics in Subnational Systems: A Comparison in Four Nations,” in Allan Kornberg, ed., *Comparative Legislative Systems*, David McKay, 1973; David R. Cameron, J. Stephen Hendricks, and Richard I. Hofferbert, “Urbanization, Social Structure and Mass Politics: A Comparison Within Five Nations,” *Comparative Political Studies* IV (October, 1972) pp. 259–290.
- 39 See Daniel Bell, *The Coming of Post-Industrial Society: A Venture in Social Forecasting* (New York: Basic Books, 1973), pp. 12–33, 49–164.
- 40 Rokkan, op. cit. The integration dimension seems quite comparable, in both theory and content, to Rokkan’s center-periphery cleavage.
- 41 A principal components analysis was performed with a Kaiser varimax orthogonal rotation of the original correlation matrix of the socioeconomic data for each nation in order to maximize the independence of the dimensions. The factor scores, representing the weighted summation of the original data for each unit, were obtained for the units of each of the eight nations. The dimensions have been analyzed in greater detail in several papers: The United States, in Cameron and Hofferbert, op. cit.; England, in Andrew J. Milnor and D. Scott Palmer, “Politics, Affluence, and Industrialization: Reflections on Recent British Elections”; and Norway, Sweden, Switzerland, the Netherlands (and Belgium and Austria) in David R. Cameron, “Structures of Partisan Cleavage and Processes of Change in the Centers and Peripheries of Six European Democracies,” delivered at ECPR Meeting, Strasbourg, March 1974.
- 42 Bell, op. cit., pp. 167–265.
- 43 See Arend Lijphart, “The Netherlands,” in Richard Rose, ed., *Electoral Behavior* (New York: Free Press, 1974).
- 44 See John Meisel, *Working Papers on Canadian Politics* (Montreal: McGill-Queen’s University Press, 1973) and John Meisel, “Cleavages, Parties, and Values in Canada,” delivered at IXth World Congress, International Political Science Association, Montreal, August, 1973.
- 45 Full listings of the factor scores and sources for social and political data are available from the authors upon written request.
- 46 Pryor, op. cit., pp. 44–47.
- 47 John P. Parry, *The Provision of Education in England and Wales* (London: George Allen and Unwin, 1971).
- 48 John Vaizey and John Sheehan, *Resources for Education: An Economic Study of Education in the United Kingdom, 1920–1965* (London: George Allen and Unwin, 1968).
- 49 Ibid., p. 40.

## Appendix

### Factor Structures for Dimensions of Industrialization and Integration: Four Non-Federal and Four Federal Nations

#### NETHERLANDS

<i>Industrialization</i>		<i>Integration</i>	
% economically active in manufacturing '60	.89	% economically active, commerce and finance	.96
% pop. Catholic '60	.84	doctors/000 pop. density	.85 .84
employees/firm, manufacturing '60	.74	% pop., no religion	.71
net migration/000 pop. '58, 1958-71	.67	university students/000 pop.	.70
average family income, '62	.62	% pop. in municipalities over 20,000	.63
% pop. in municipalities over 20,000, '62	.61	average family income	.59
density, '62	.44	% pop., Protestant	.01
university students/000 pop., '71	.09	average size of farms	-.08
doctors/000 pop., '62	.02	net migration, '58-71	-.08
% economically active in commerce and finance, '60	-.17	employees/firm, manufacturing	-.29
% pop., scattered (ver-spreide) '60	-.39	% pop., Catholic	-.30
% pop., no religion, '60	-.39	% economically active, manufacturing	-.47
% economically active in agriculture, '60	-.77	% economically active, agriculture	-.60
% pop., Protestant, '60	-.85	% pop., scattered	-.70
average size of farms, 1959	-.86		

#### ENGLAND

<i>Industrialization</i>		<i>Integration</i>	
% active pop. in manufacturing, '61	.90	% pop., university educated	.82

<i>Industrialization</i>	
% active pop., skilled workers, '61	.79
income/capita, '61	.55
% active pop., employees, '61	.36
televisions/000 pop., '61	.16
% active pop. in utilities and transportation, '61	.11
% farms over 1,000 acres, '64	.05
annual natural pop. increase, '51-61	-.07
% pop., university educated, '61	-.28
% pop., born in Britain, '61	-.28
% active pop., own-account workers, '61	-.41
% increase pop. via migration '51-61	-.45
% active pop., self-employed, '61	-.60
% active pop., agricultural workers, '61	-.71
% active pop., in agriculture, '61	-.77

<i>Integration</i>	
% active pop., employees	.64
% active pop., self-employed	.62
income/capita	.53
% active pop., own-account workers	.52
annual natural pop. increase '51-61	.07
% active pop. in utilities and transportation	.06
% active pop. in manufacturing	-.07
televisions/000 pop.	-.23
% active pop., agriculture workers	-.26
% active pop. in agriculture	-.28
% farms over 1,000 acres	-.28
% active pop., skilled workers	-.35
% increase pop. via migration	-.37
% pop., born in Britain	-.39

SWEDEN

<i>Industrialization</i>	
% economically active in manufacturing, '65	.89
% economically active in secondary sector, '65	.88
% pop. '65, foreign immigrants, '61-69	.68
net migration/000 pop., 65, '61-70	.65
% pop. in localities over 10,000, '65	.23

<i>Integration</i>	
% economically active in commerce	.96
personal income/family	.95
% pop. in localities over 10,000	.93
% pop. 15-19 in gymnasium	.71
% pop., foreign immigrants	.50
net migration	.37

<i>Industrialization</i>	
personal income/family, '65	.11
% pop., attending Church, '64	-.02
% economically active in commerce, '65	-.08
value of forest lands & forests/capita, '66	-.17
% pop. 15-19 in gymnasium, '67	-.31
% pop. in sparsely populated areas, '65	-.43
% economically active in mining, '65	-.45
% economically active in agriculture and forestry, '65	-.45
% arable farm land, wholly owned, '66	-.52
% farms under 10 hectares, '66	-.65

<i>Integration</i>	
% economically active in mining	-.06
% farms under 10 hectares	-.06
% economically active in manufacturing	-.17
% economically active in secondary sector	-.21
% farm land, wholly owned	-.44
% pop. attending Church	-.58
value of forests & forest lands/capita	-.69
% economically active in agriculture and forestry	-.79
% pop. in sparsely populated areas	-.83

#### NORWAY

<i>Industrialization</i>	
% economically active in manufacturing, '60	.84
% manufacturing employees in firms over 6, '60	.76
employees/manufacturing firm, '69	.72
personal income/taxpayer, '60	.63
% men 20-24 finished secondary education, '60	.62
% pop. in densely populated areas over 2,000, '60	.53

<i>Integration</i>	
% economically active in commerce	.82
% pop. in densely populated communes over 2,000	.80
doctors/000 pop.	.76
income/taxpayer	.72
% men 20-24 finished secondary education	.61
% manufacturing employees in firms over 6	.47
employees/manufacturing firm	.44

<i>Industrialization</i>	
doctors/000 pop., '60	.38
% economically active in commerce, '60	.32
% pop. members teetotalers organizations, '60	.07
% primary pupils in schools using Nynorsk, '60	.04
% economically active in agriculture and forestry, '60	-.21
% pop. church goers, '56	-.37
% pop. in sparsely populated communes, '65	-.52
% pop. in fishing-dominated sparsely populated communes, '65	-.84
% economically active in fishing, '60	-.87

<i>Integration</i>	
% economically active in manufacturing	.16
% economically active in fishing	-.01
% pop. in fishing-dominated sparsely populated communes	-.08
% primary pupils in schools using Nynorsk	-.77
% pop. in teetotalers organization	-.79
% pop. Church goers	-.79
% pop. in sparsely populated communes	-.81
% economically active in agriculture and forestry	-.87

#### SWITZERLAND

<i>Industrialization</i>	
% pop. in industry & trades, '60	.96
% pop. factory workers, '60	.94
workers/factory, '60	.69
% taxpayers earning over 20,000 Fr., '60	.21
% pop. in towns over 10,000, '60	.19
density, '60	.00
% pop. in commerce & finance, '60	-.08
certificats de maturité/000 pop., '64	-.10
doctors/000 pop., '61	-.22
% pop. Italian speakers, '60	-.23

<i>Integration</i>	
% pop. in commerce & finance	.94
% taxpayers earning over 20,000 Fr.	.92
% pop. in towns over 10,000	.91
doctors/000 pop.	.90
certificats de maturité/000 pop.	.66
density	.60
% pop. French speakers	.45
% pop. Italian speakers	.10
% pop. factory workers workers/factory	.08
% pop. in industry and trades	.03

<i>Industrialization</i>	
% farms under 10 hectares, '55	- .24
% pop. French speakers, '60	- .35
% pop. Catholics, '60	- .50
% pop. in agriculture, '60	- .50
% pop. born in same canton, '60	- .66

<i>Integration</i>	
% farms under 10 hectares	- .46
% pop. born in same canton	- .53
% pop. Catholics	- .54
% pop. in agriculture	- .77

#### GERMANY

<i>Industrialization</i>	
% economically active in manufacturing, '61	.89
% economically active, workers, '61	.88
workers/manufacturing firm, '61	.84
% Catholic, '61	.66
% economically active, civil servants and white collar employees, '61	.06
% pop. in communities over 10,000	- .03
gross domestic product/capita	- .11
% economically active in primary sector, '61	- .30
% economically active in banking, finance and public administration, '61	- .36
% gross domestic product from agriculture, '60	- .46
doctors/000 pop., '61	- .49
% pop. refugees, '61	- .66

<i>Integration</i>	
% pop. in communities over 10,000	.97
gross domestic product/capita	.93
% economically active in finance	.90
% economically active, civil servants and white collar employees	.86
doctors/000 pop.	.70
workers/manufacturing firm	.49
% economically active, workers	- .09
% pop. refugees	- .17
% economically active in manufacturing	- .23
% pop. Catholic	- .56
% economically active in agriculture	- .84
% economically active in primary sector	- .91

UNITED STATES

<i>Industrialization</i>		<i>Integration</i>	
Value-added/capita, manufacturing	.92	% population over 25, college graduates	.81
% Employed persons, manufacturing	.88	% employed persons, professions	.80
Density	.78	Income/capita	.80
% Urban	.64	Retail trades sales/capita	.77
% Population, foreign white stock	.47	% farms with products over \$40,000	.76
% Employed persons, finance and insurance	.45	% employed persons, finance and insurance	.69
Newspaper circulation, copies/1,000	.44	% urban	.62
Income/capita	.43	Acreage/farm	.58
Retail trade sales/capita, 1958	.13	% population, foreign white stock	.56
% employed persons, professions	.10	Newspaper circulation, copies/1,000	.34
% population over 25, college graduates	.09	Density	.14
% population, black	.03	Value-added/capita, manufacturing	-.02
% farms with products over \$40,000	-.17	% employed persons, manufacturing	-.26
acreage/farm, 1959	-.59	% employed persons, agriculture	-.34
% employed persons, agriculture	-.66	% population, black	-.62

CANADA

<i>Industrialization</i>		<i>Integration</i>	
% labor force over 15 in manufacturing, con- struction and mining, 1961	.96	% commercial farms with sales over \$10,000	.92
Value-added/capita, manufacturing, '61	.91	% population 19-24 at- tending university	.89
Employees/manufactur- ing firm, '61	.90	% non-British and French stock	.88
% population in urban areas over 10,000, '61	.85	% population 1961, im- migrants 1946-61	.76
		Average earnings, males in labor force	.74

<i>Industrialization</i>	
% labor force over 15 in tertiary sector (services, commerce, and finance), '61	.74
Net interprovincial migration, 1956-61	.62
Average earnings, males in the labor force, '61	.62
% population 1961, immigrants 1946-61	.61
% population, French, '61	.47
% commercial farms with sales over \$10,000, '61	.29
% labor force over 15 in federal, provincial, & local administration, 1961	.17
% population 19-24, attending university, 1961	.10
% population, non-British or French stock 1961	-.12
% population, British, 1961	-.39
% labor force over 15 in farming, logging and fishing, 1961	-.87

<i>Integration</i>	
% labor force in public administration	.48
% population in urban areas over 10,000	.42
% labor force in tertiary sector	.40
Net interprovincial migration, '46-61	.36
Value-added/capita, manufacturing	.26
% labor force over 15 in primary sector (farming, logging, fishing)	.11
Employees/firm	.01
% population, British	-.11
% labor force over 15 in manufacturing, construction & mining	-.17
% population, French	-.64