CHAPTER ONE

Comparative Research and Social Science Theory

Explanation and Theory in Social Science. Theory and Spatiotemporal Parameters: The Postulate of Substitutability. The Status of Proper Names of Systems. Summary.

While a precise definition of comparative research will not be presented immediately, we assume in this book that the goal of social science is to explain social phenomena. We further postulate that the generality and parsimony of theories should be given primacy over their accuracy. In other words social science theories, rather than explaining phenomena as accurately as possible in terms relative to specific historical circumstances, should attempt to explain phenomena wherever and whenever they occur. Although this position is not new, this chapter is written with the belief that the implications of this preference for the conduct of comparative research will become clear when the assumptions underlying this choice are understood. We shall first discuss the assumptions underlying the construction of general and parsimonious theories and, second, recommend some procedures of data-gathering and data analysis in comparative research. We will argue that the bridge between historically anchored observations and theoretical statements can be found in comparative studies and that general theories cannot be constructed in the social sciences without explicit reference to factors operating at the level of systems.

Explanation and Theory in the Social Sciences

In 1954 in Bennington, Vermont, small businessmen supported the radical right more often than salaried employees with the same education. In 1963 in Poland, women who had had premarital sexual experience perceived their marriages as more successful than those who had had no pre-

marital experiences. In 1958 in Finland, persons with congruent status (corresponding levels of income, education, and occupation) voted for the leftist parties more often than persons with incongruent status.

These deliberately selected and disparate findings of social scientists can one day find their way into history books and become a part of the human heritage in such documents as the book relating the eating habits of Frenchmen during the second half of the eighteenth century or some future work reporting on the daily life in Vermont in the middle of the twentieth century. The way in which these findings are formulated makes us think of the future historian: most social scientists are more interested in finding out *why* social phenomena occur than where and when. But all observations of the sociopolitical realm are anchored in time and space. It is in Vermont, Poland, and Finland that these observations are made. They are made at a certain time and in a certain place, and if we were more concerned with historical veracity than with theoretical generality, we would never extend the findings beyond the particular spatiotemporal parameters within which the observations were made. The concern with building general theories of human behavior constitutes such an overriding goal of social scientists, however, that they are willing to risk the error of false generalizations rather than give up that concern.[1] Thus we learn that "frustration brings aggression," that "outgroup hostility breeds ingroup solidarity," that "the disparity of culturally legitimate goals and means results in anomie," and that "a high level of economic development is necessary for a stable democratic political system."

The goal of science is to explain and predict why certain events occur when and where they do. Why did small businessmen in Vermont support McCarthy in 1954? Why was the Kowalski marriage not successful? Why did Smith commit a crime? Why did Napoleon attack Russia? Science is concerned with the explanation of specific events by means of statements that are invariantly true from one set of circumstances to another. But what does it mean to "explain" or "predict" a concrete, specific event?

Since a discussion of "explanation" exceeds the limits of this work, we

[1] A discussion of the types of historical generalizations and errors associated with those generalizations can be found in Stephan Nowak, "General Laws and Historical Generalizations in the Social Sciences," *Polish Sociological Bulletin*, **1**, 1961, pp. 21–30. Nowak defines the problem in the following way: "If . . . the sociologist is cautious, he is also alert to the fact that the more the limits of the validity of his theory exceed the investigated reality, the greater is the danger of his statements being false. . . If in addition he [the sociologist] is acquainted with the postulates of the methodology of science, he usually wants his propositions to be universal, free from limitations of time and space, so that they become scientific laws, since he is aware that statements of this type have many particularly valuable theoretical properties."

shall base the subsequent analysis on the paradigm of explanation proposed by C. G. Hempel.[2] Even Hempel's views, however, will not be presented here in their entirety, but will only be used as the basis for the discussion of comparative explanations of social phenomena.

To explain a specific event is to state the conditions under which it always or usually takes place, that is, to cite general statements (laws) from which other statements concerning properties of specific events can be inferred with some reasonable certainty. In the social sciences such an explanation will most often be of a statistical nature. In order to understand why an individual behaved in a certain way in a given situation, we invoke general probabilistic statements that say that, for an individual of a particular type, it is likely that he will behave in this way, given this type of a situation.

For example, why does Monsieur Rouget, age 24, blond hair, brown eyes, a worker in a large factory, vote Communist? To explain the vote of M. Rouget, one must rely upon general probabilistic statements that are relevant for voting behavior and have been sufficiently confirmed against various sets of evidence. The particular features of M. Rouget must be used as the first premise of the explanation:

M. Rouget is a worker and
works in a large factory and
is young (24 years old).

The second premise consists of a conjunction of general statements describing with a high likelihood the behavior of skilled workers, employees of large factories, and young persons. (No interaction is assumed.)

> One out of every two workers votes Communist; and employees of large organizations vote Communist more often than employees of small organizations; and young people vote Communist more often than older people.

Therefore, it is likely that
M. Rouget votes Communist.

This explanation is incomplete. The probability of a French worker, 24, employed in a large factory, and voting Communist is still far from 1.00. Several other factors, such as place of residence, marital status, father's occupation, religiosity, and so forth, might have to be considered if the explanation (prediction) of M. Rouget's behavior were to approach certainty. Most explanations in the social sciences are incomplete in the

[2] C. G. Hempel, *Aspects of Scientific Explanation and Other Essays in the Philosophy of Science*, Free Press, New York, 1965. See particularly the title essay, pp. 229–497.

sense that the probability of the explained phenomenon taking place does not approach 1.00 (or zero). Since the rules of inference are probabilistic, we cannot expect that, even if the premises are true, the conclusions will invariably follow. As the probability of inferential rules increases, however, the probability of predicting a property also increases—it moves away from what could be expected randomly.

The general statements that serve as premises in an explanation constitute a theory. Usually more than one general statement is necessary to provide a relatively complete explanation. These statements must have certain logical properties: they must be interconnected, and none of their implications can contradict any other implication. Some rules must also be available to determine whether a specific event is an element of the class covered by the theory. In other words, these statements must be empirically interpretable. Finally, the set of such general statements should include a formal deductive framework, such that the inferred consequence is not an intuitively obvious result of the premises. The logical structure of theories, however, is not our central concern.

The accumulation of knowledge consists of the process of gradual confirmation and/or modification of the theories that serve as the general premises in the explanatory scheme. If we are to understand "what happened in the last election in Denmark," "why was there a drop in suicides in Southern Italy," or "what made Joe drop out of school," we must have available a set of general theories sufficiently confirmed to provide a reasonable certainty that when these general statements are applicable, the expected consequences will follow.

At any stage in the development of science it is likely, however, that more than one theory will explain the same class of events. Therefore additional goals are postulated that provide criteria for the evaluation of theories: accuracy, generality, parsimony, and causality.

First, we expect a theory to be accurate, to explain as completely as possible, and to predict as much of the variation as possible. This criterion can be expressed in terms of the amount of variance accounted for by the independent variables—the more variance accounted for by a theory, the smaller the error of prediction. For comparative research this criterion implies that the goal of social science theory is to explain a given phenomenon as accurately as possible *in each social system*. If we wanted to explain the incidence of divorce, for example, we would construct theories that would minimize the error of prediction in each social system. We might find that in one society 99.9 percent of the variance of divorces can be explained by the education of spouses, their religion, and the degree of rigidity. In another social system, we may again be able to account for 99.9 percent of

the variance of divorces, but with the use of different factors, for example, mutual perceptions of the spouses, extent of premarital sexual experience, and sexual satisfaction in marriage. The two theories will be maximally accurate. They will provide a nearly complete explanation of divorce in each society. But they will not meet other requirements imposed on theories: accuracy, generality, parsimony, and causality.

When the accuracy of theories is maximized, their generality and parsimony will often be low. Generality of a theory refers to the range of social phenomena to which it is applicable. The greater the generality of a theory, the greater the range of phenomena that can be explained by the theory. For example, one theoretical proposition may state that "education is related to political participation." This theory provides an explanation of one type of political activity of individuals, but only one type of activity. But what are we saying when we identify education as a determinant of behavior? What is "education"? Is it the number of questions concerning different branches of knowledge one is able to answer? The duration of protection of an individual by his family or by society? Reinforcement of certain behavioral patterns by appropriate rewards? Chemical changes in the composition of brain cells? A number of more general theories can be formulated if any of these definitions replaces the definition of education in terms of number of school years completed. For example, a more general theory may state that individuals who have been protected by society over an extended period of time are more likely to participate in social activities. Since attending school usually provides such protection and since political participation is a type of social activity, the original, less general theory can be deduced from the more general one. The development of natural science consists of more general theories superseding less general theories. As Hempel points out:

> "When a scientific theory is superseded by another in the sense in which classical mechanics and electrodynamics were superseded by the special theory of relativity, then the succeeding theory will generally have a wider explanatory range, including phenomena the earlier theory could not account for; and it will as a rule provide approximative explanations for the empirical laws implied by its predecessor."[8]

In social science, however, it is not always apparent that a less general theory can be deduced from a more general theory even if both are avail-

[8] *Ibid.*, p. 345.

able. Both reward theory and a theory of political participation may potentially explain why an individual votes in an election; but it is not apparent that the explanatory role of education can be deduced from the reward theory or any other psychological theory.

In the example discussed above, 99.9 percent of variance of divorce is predicted in each social system, but not a single statement can be made that would be true for both systems. Such an explanation will not only lack generality but also will not be parsimonious. The smaller the number of factors providing for a complete explanation of a given class of events, the more parsimonious the theory.[4] It would be an interesting experiment to compare the interpretations given to findings derived from particular countries with the interpretations of similar data from various countries. Why were third parties never spectacularly successful in the United States? Because of the bipartisan tradition. Why were third parties never successful in Great Britain? Because of the shift in the composition of the labor force that took the working-class support away from the Liberals and gave it to Labour. But when we confront the two questions simultaneously—why were third parties never particularly successful in either country—the answer will tend to be formulated in terms of factors common to both such as the electoral system. To the extent that different theories—each involving a different set of independent variables—are used for different social systems, the formulation and testing of general theories in the social sciences is not possible.

The criteria of generality and parsimony imply that the same theories must be evaluated in different systemic settings and that social science theories can gain confirmation only if theories formulated in terms of the common factors constitute the point of departure for comparative research. We recognize, however, that in some situations accuracy in a particular social system may be the most important value. For example, if we want to predict election results in the United States, we probably will not be concerned with the same factors that will predict election results in Great Britain. But if the goal is to provide understanding as to why people identify with political parties, then generality and parsimony will be more important than system-specific accuracy. If the role of a theory is to provide immediate

[4] The number of factors is only one of many aspects of parsimony. For a full discussion of this concept and its many definitions see the summary of the writings of Janina Kotarbinska in Henryk Skolimowski, *Polish Analytical Philosophy*, Routledge, Kegan and Paul, London, 1967.

guidelines for social practice, then accuracy in a specific social system may be the most important value.[5]

The fourth criterion imposed on theory concerns causality. We can think of causality in a twofold perspective. Causality is a property of a system of variables. A system of variables is said to be causal to the extent that (1) the dependent variable is not "overdetermined"—no two variables within the system explain the same part of the variation of the dependent phenomenon and (2) the system of variables is isolated—the explanatory pattern does not change when new variables are added.[6] The extent to which a theory is causal, that is, the extent to which general premises are invariant, increases as the number of factors incorporated into the theory increases. In terms of comparative research, the postulate of causality implies that factors operating at different levels of analysis—groups, communities, region, nations, etc.—should be incorporated into theories and that their interaction with the factors operating within each of these systems should be examined.

This particular model of theory as a general, parsimonious, and causal set of statements is assumed throughout the rest of this book. We are not arguing that this particular model constitutes the only or even the best model of theory, but that if this model is accepted, then cross-systemic studies must become an integral part of theory-building and theory-testing.

[5] As W. E. Moore, has stated, generalization involves abstraction and abstraction involves a loss of information. "No [general] theory will yield a *specific* prediction, or yield a *specific* guide to policy . . . except by reversing the process and adding information to the general proposition." W. E. Moore, "The Social Framework of Economic Development," in R. J. Braibanti and J. J. Spengler, eds., *Tradition, Values, and Socio-Economic Development*, Duke University Press, Durham, N.C., 1961, p. 58.

[6] The first aspect of causality—the problem of overdetermination—has recently become fashionable among social scientists, following Simon's article on "Causal Ordering and Identifiability" in W. C. Hood and T. C. Koopmans, eds., *Studies in Econometric Method*, John Wiley & Sons, New York, 1953. Overdetermination can be tested, if strong assumptions are accepted, through the analysis of partial correlations or partial path coefficients. The second aspect of causality has so far received only lip service. The assumption of uncorrelated errors is usually stated but not tested. It seems that Hempel came closest to suggesting an empirical test of this assumption in postulating the criterion of "maximal specificity" *(op. cit.*, p. 402). This criterion implies that causal explanations should be accepted tentatively and then subjugated to the tests of invariance under the addition of new variables. If and only if the path coefficients do not change substantively when new variables are introduced, the assumption of relative isolation of the system of variables can be maintained.

Theory and Spatiotemporal Parameters: The Postulate of Substitutability

In the Introduction we defined some general issues underlying the alleged contradiction between historically based observations and abstractly formulated statements. A question often discussed by students of society is whether historically anchored observations should be treated as specific to particular social systems or whether general theories, free of spatiotemporal parameters, can be developed and tested. As indicated earlier, the issue no longer appears in this extreme form. The problem now is to define the conditions under which general theories can be developed and the procedures that are appropriate for the development and testing of general theories.

The extreme version of the relativistic argument allows no way of bridging historical and theoretical statements. Once a proposition is stated in historical terms, using such proper names as Ghana, Hitler, or British workers during the 1950s, it could be incorporated only into a theory consisting of more general historical propositions, containing such names as Africa, German leaders, or the British population during the 1950s. If, however, a proposition is stated in terms free of proper names, it can be incorporated only into theories consisting exclusively of such propositions. For example, the proposition that "economic crises give rise to charismatic leadership" can be generalized into a statement that "all crises give rise to charismatic leadership."

This distinction between historical and theoretical generalization clarifies the alternative modes of theory construction. Any set of observations can be generalized in one of two ways, depending upon whether historical or theoretical generality is sought. But this distinction is only analytical. Actually spatiotemporal propositions (e.g., measurement statements) can be generalized theoretically, and general statements can be specified historically. On the one hand, the statement that "Hitler was a charismatic leader who came to power in Germany as a result of a crisis" can be generalized into a theoretical proposition relating crises and charismatic leadership. On the other hand, the statement that "crises give rise to charismatic leaders" may have been observed to be true only in Africa. Thus the observed historical situation is not unique, but neither is the general theoretical statement universal. Historical statements are implicitly theoretical. They subsume under the proper names of the social systems a broad range of factors that might be used in theoretical explanation. But theoretical statements will generally include a historical component. As long as Africa differs from the other parts of the world, theoretical analysis is no longer possible, and therefore the name of a social system will have to be used in explanation. Thus "unique" factors can neither be the only ones nor can they be totally discarded in theoretical analysis. They are redefined, rather, as the residuum of theoretical explanation.

The bridge between historical observations and general theory is the substitution of variables for proper names of social systems in the course of comparative research. The theoretical importance of this statement is best understood in terms of Hempel's requirement that classes of events referred to in theoretical ("lawlike") statements be essentially generalizable. Hempel argued:

> "Surely a lawlike sentence must not be *logically* limited to a finite number of instances: it must not be logically equivalent to a finite conjunction of singular sentences, or, briefly, it must be of essentially generalized form."[7]

For example, a statement that "all Mexicans are taller than all Americans" is not a lawlike sentence that can be used for the explanation of the height of Mexicans or Americans. This sentence is logically equivalent to a conjunction of statements giving all asymmetrical relations between individual Mexicans and Americans, and it cannot sustain counterfactual and subjunctive conditional statements such as "if Mr. X, who is an American were a Mexican, he would have been taller." The sentence, "Persons living in warmer climates are invariably taller than persons living in colder climates," however, is not a conjunction of any finite number of statements concerning individuals; it can, at least logically, be extended ad infinitum. In other words, *lawlike statements are possible in the social sciences if and only if spatiotemporal parameters are treated as residua of variables potentially contributing to the explanation.*

The postulate of substitutability concerns the ontological status of such concepts as "group," "organization," "culture," "nation," and "political system"—the ontological status of systems enclosed within some specific spatial and temporal parameters. Before proceeding to the discussion of this postulate and its implications, we will analyze more closely the notion of "historically located social systems," or "spatiotemporal parameters."

A concept of "all historical social systems" or "all spatiotemporal parameters" obviously defines the maximal levels of generality for any statement. Nothing can be more general than always and everywhere. This concept defines the entire population of conditions within which observations of social phenomena can be made, and any particular set of observations is a sample, random or not, of this population. We can conceive of the set of historical circumstances of the most general nature that contains all historical social systems or spatiotemporal parameters. This set becomes denumerable if additional assumptions are made.

[7] Hempel, *op. cit.*, p. 340.

One such assumption is that this set contains "systems relatively isolated by some factor."[8] For example, human beings allegedly shared some characteristics not shared by animals. Some historical fact, whether it was the elevation to the biped or the acquisition of the superego, defined the "relatively isolated system"—human beings. This type of isolated system of humans is often assumed by psychologists without regard for other isolating factors. Systems can be isolated on the bases of all kinds of historical events that determined any one of their common characteristics. Classifications of civilizations provide an example of systems isolated with regard to some basic cultural influence, such as "Judeo-Christian," "Sanskrit," and "Incan." Any denumeration in terms of relatively isolated systems is, obviously, a hypothetical one. Cross-system research must demonstrate that differences within those systems are indeed smaller than the differences among them.

Another way denumerating the set of all spatiotemporal parameters consists of finding some cutoff point in the past, such as a listing of countries that existed after World War II. This set is first defined temporally and then denumerated in terms of countries or "nations." In the light of this discussion of "relatively isolated systems," it is clear that there are many ways of denumerating the set of all historical circumstances. The alternatives range from denumerating it as a set consisting of one element, "the animal," to denumeration in terms of any observable subsystem. If we limit the temporal parameters and confine the spatial dimension to nations, we would be able to enumerate those systems that constitute the universe in cross-national research. The problem of "uniqueness versus generality" in cross-national studies concerns, therefore, the ontological status of such proper names as Mexico, Ghana, Australia, or Yugoslavia.

The Status of Proper Names of Systems

In Germany and Sweden, better-paid workers are likely to be class conscious, whereas in Britain, the United States, and Australia, the less well-paid workers are class conscious.[9] How can we interpret this finding?

In one interpretation this finding is a "historical generalization," since it specifies the spatiotemporal parameters and encloses the statement about relationships within those parameters. In another interpretation, this finding is a "general proposition" stating that the relationship between income of workers and the extent of their class-consciousness depends upon some

[8] The notion of "relatively isolated systems" was introduced by S. Ossowski, "Two Conceptions of Historical Generalizations," *The Polish Sociological Bulletin*, **9**, 1964.

[9] Reinhard Bendix and S. M. Lipset, "The Field of Political Sociology," in L. A. Coser, ed., *Political Sociology*, Harper and Row, New York, 1966, p. 32.

other factors not yet considered. The nature of the countries might at the most provide a clue as to what these factors might be.

Consider the example of the relationship between motivation to learn a foreign language and grades among the students of various departments at the same university. In some departments such a relationship can be observed; in others it cannot. Should the interpretation of this finding be that "at the University of Warsaw during the 1960s, there is a relationship between motivation and grades in the English department, but not in the French department" or that "the relationship between motivation and grades depends upon the department of the university"?

It should be noted that in both examples we are dealing with situations that are ostensibly experimental. A relationship is being examined separately in two groups of subjects, random samples of populations of countries or university departments. Formally, the situation seems to be analogous to an experiment examining the relationship between motivation and grades in two groups taught by different methods. There are two groups within which two variables are assessed for each individual and for which a numerical value of the relationship can be established. In the experimental situation, however, the individuals are randomly drawn into groups from a single population, and it can be assumed that the error (the influence of other factors, such as intelligence) is not correlated with group membership.

The situation faced in comparative research is not experimental. Specific spatiotemporal parameters, or names of systems, are not equivalent to experimental variables, such as method of instruction. Indeed, we do not know what the experimental variables are. Furthermore, in an experimental situation it is possible to ask what would be a person's value on the dependent variable if he belonged to a different group. This question is justified on the assumption that membership in a group is randomly determined. Consequently if a person were taught by a different method, his performance would have been different. Whether this question and, in general, the use of "controlling and correcting" techniques are equally legitimate in cross-national situations is not clear. If spatiotemporal parameters are understood historically—as not reducible to variables—conditional statements such as "if a person belonging to group (country) *A*, belonged to group (country) *B*, then . . ." or "if group *A* had the same amount of trait . . . as group *B*, then . . ." are clearly unjustifiable. This problem can be illustrated with an example derived from *The Civic Culture*.[10]

[10] G. A. Almond and Sidney Verba, *The Civic Culture*, Princeton University Press, Princeton, N.J., 1963, p. 122. We have discussed this example in our earlier article, "Equivalence in Cross-National Research," *Public Opinion Quarterly*, **30**, 1966–67, admittedly without awareness of the assumptions underlying our recommendation.

Almond and Verba present the following table which relates education and the "feeling of freedom to discuss politics" in five countries.

Table 1 Feeling of Relative Freedom to Discuss Politics, by National and Education [a]

	Total		Education					
			Primary or Less		Some Secondary		Some University	
Nation	%	(N)	%	(N)	%	(N)	%	(N)
United States	63	(969)	49	(338)	70	(443)	71	(188)
Great Britain	63	(939)	59	(593)	70	(322)	83	(24)
Germany	38	(940)	35	(790)	52	(124)	60	(26)
Italy	37	(991)	30	(692)	53	(245)	59	(54)
Mexico	41	(1004)	39	(877)	54	(103)	54	(24)

[a] Numbers in parentheses refer to the bases upon which percentages are calculated.

One historical and one theoretical statement can be derived from these data: (1) The intensity of the feeling of freedom to discuss politics is highest in Britain and the United States, lower in Mexico, and so forth. (2) Education is positively related to the feeling of freedom to discuss politics.

Interpreting these data theoretically, we can ask what the intensity of the feeling of freedom to discuss politics *would have been* if the level of education were the same in all five countries. The grouping of individuals into countries is not random. Indeed, for each individual the probability of inclusion is 1.00 for one country and 0.00 for all other countries. Nonetheless, the influence of education can be randomized ex post facto by some statistical techniques. If the names of the countries are replaced by a variable (in this case level of education), the originally observed differences among countires can be modified to take this factor into account. The resulting statements will still be historical: they will compare countries identified by names. But at least one component of the proper names of these countries has been replaced by a variable free from historical specification.

In order to provide an illustration, education will be treated as if it were expressed on an interval scale. ("Some university education" is scored as 3, "some secondary education" as 2, and "primary or less" as 1.) The average educational level in each country can now be calculated. When the regression of "freedom to discuss politics" on education is analyzed and the means of "freedom to discuss" are accordingly adjusted, the original values undergo a substantial change.

Table 2 Original and Adjusted Means of Relative Freedom to Discuss Politics, by Nation and Education

Nation	Freedom (Original)	Education	Adjustment .345 $(x_i - x)$	Freedom (Adjusted)
United States	.63	1.84	.1578	.47
Great Britain	.63	1.39	.0034	.63
Germany	.38	1.19	−.0655	.45
Italy	.37	1.36	−.0069	.38
Mexico	.41	1.11	−.0931	.50

After adjusting for the level of education, Great Britain is clearly first with regard to "freedom to discuss politics," Mexico is second, and the United States is third. One theoretical proposition and one including both a theoretical and a historical component can now be formulated: (1) Education is related to freedom to discuss politics. (2) If the educational level in these countries (names) *would have been* the same, *then*. . . ."

Since Mexico is Mexico and the United States is the United States, many will consider statement No. 2 to be nonsensical. As has been discussed, one of the main problems in generalizing across spatiotemporal parameters stems from the fact that social phenomena are either "functionally interdependent" or "interrelated in syndromes" that have specific historical localizations. Therefore a change of one element of these syndromes would bring about not only a change in the other elements, but a change in the entire pattern. For a fully developed theory, however, this change may not be much of a problem since an entire set of interconnected phenomena can be handled at the same time.

The basic assumption is that names of nations, or of social systems in general, are treated as residua of variables that influence the phenomenon being explained but have not yet been considered. Thus such concepts as "culture," "nation," "society," and "political system," are treated as residua of variables, which can be incorporated into a general theory. If the statements reporting particular observations without specifying the spatiotemporal parameters are elliptical, then statements of a historical nature are also elliptical if they do not list the variables that are implicit under the specification of the historical conditions. The often emphasized historical ellipticalness of theoretical statements has its direct counterpart in the theoretical ellipticalness of historical statements.

If we accept this residual nature of names of social systems, we can then attempt to replace these names by variables. When we find that societies differ with regard to a particular characteristic, we can ask what it is about these societies that causes this difference. If the factor first considered does

not answer this question satisfactorily, it is possible to consider other factors, gradually replacing the notion that "nations differ" by statements formulated in terms of specific variables. Instead of stating differences among countries with regard to perceived freedom to discuss politics, we may thus formulate a statement that explains freedom to discuss politics in terms of education, perceived distance among parties, and extent of exposure to mass media.

Can the entire content of system residua be exhausted? The answer in principle is positive. Since the number of societies, cultures of political systems is highly limited and the number of relevant variables is very high, however, we may often find that explanatory systems will be overdetermined. The number of observations or degrees of freedom will be too small to allow consideration of all relevant factors. This disparity between the model and the practice of science will result in statements that will generally have a historical residuum—statements in which names of social systems will be cited after theoretical explanations have been exhausted. Although "specific" factors may not be completely removed, they are reinterpreted as residua from theoretical explanation.

Summary

The role of social science is to explain social events. Explanation consists of applying general sentences or, more precisely, theories or sets of such general sentences, to particular events. If the explanation is to be general, parsimonious, and causal, then the accumulation of knowledge—confirmation and/or modification of theories—must involve comparative research. However, explanation in comparative research is possible if and only if particular social systems observed in time and space are not viewed as finite conjunctions of constituent elements, but rather as residua of theoretical variables. General lawlike sentences can be utilized for explanatory purposes. Only if the classes of social events are viewed as generalizable beyond the limits of any particular historical social system can general lawlike sentences be used for explanation. Therefore the role of comparative research in the process of theory-building and theory-testing consists of replacing proper names of social systems by the relevant variables.

CHAPTER TWO

Research Designs

"Most Similar Systems" Designs. "Most Different Systems" Designs. Univariate Comparisons. Comparing Relationships.

Most comparative studies take as their point of departure the known differences among social systems and examine the impact of these differences on some other social phenomena observed within these systems. An alternative strategy, however, is available. With this strategy, differences among systems are taken into account as they are encountered in the process of explaining social phenomena observed within these systems. Although emphasis will be placed on the latter strategy, the assumptions and implications of both strategies will be the subject of this chapter.

As discussed in the previous chapter, a general theory is composed of propositions formulated in terms of variables observed either within social systems or at the level of systems, but devoid of the names of social systems. Since the number of the relevant determinants of any kind of social behavior is likely to exceed the number of accessible social systems, the objective of a theory free of all proper names will not be easily reached, and thus procedures must be formulated to maximize this objective.

All research involves defining the population for which the study is to be conducted and selecting a sample from this population. Sampling methods vary greatly, depending upon the problems of the research and the nature of the population. Sometimes the sample is a random selection from the entire universe; sometimes it is selected in several steps in which some larger social units are chosen first and other social units within them are sampled subsequently; in other cases the sample is "stratified"—individuals are selected on the basis of their position on some variable, such as income or education. The common and obvious procedure in cross-systemic re-