

THE CONDUCT OF COMPARATIVE RESEARCH

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Prepared for the Conference on Cross-National Research
in the Social Sciences, Ann Arbor, Michigan,
October 3-8, 1977

(Preparation of this paper was supported in part by
NIMH Grant # 1 R01 MH26606, "A Comparative Study of
Status Attainment")

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This paper is intended to make a case for comparative social research, with special attention to secondary analysis as a research strategy. The paper reviews the special features of comparative research and of particular research strategies, and offers some suggestions for facilitating comparative endeavors. For ease of presentation the paper is organized into the following sections: the purpose of comparative analysis; strategies of comparative inquiry; the problem of comparability of measurement; and practical considerations and recommendations. Because my own experience with comparative research has mainly been in the area of social stratification,¹ my examples will be drawn from this area. However, what I have to say has, I believe, much greater generality, and may prove of equal interest to students of other aspects of social life.

The Purpose of Comparative Analysis

Some may wonder what is the point of attempting a comparison of structure and process in different societies. After all, it is difficult enough to understand phenomena in any one society without complicating the task by analyzing data from more than one society at a time. However, if we take as the goal of social research the identification of the regular or lawful features of social organization, a comparative approach is mandatory. For without comparative data we can never be sure whether the phenomena we observe in one society are characteristic of social systems in general, or are restricted to particular types of social systems, or are peculiar to a particular society at a particular point in its history. For example, in the contemporary United States educational attainment is the single

most important determinant of occupational achievement, and social origins are relatively unimportant (Blau and Duncan, 1967:200-201). Is this something unique to the United States as a consequence of particular features of American history? Or does the same pattern hold in other industrialized societies, because the organization of an industrial economy requires a universalistic system of certification for occupational roles? Or does education play the same role in allocating people to occupational roles in all complex societies, industrialized and non-industrialized alike, because the division of labor itself creates a characteristic hierarchy of occupations with respect to skill and training requirements?

To answer questions of this sort we must extend our analysis beyond single societies and undertake the comparison of two or more societies. Comparative strategies may be grouped into three types, those concerned with replication, those concerned with comparison in the strict sense, and those concerned with generalization. Each of these strategies has certain purposes, and certain advantages and disadvantages.

Replication. One important use of comparative analysis is to conduct truly independent replications of analysis carried out in any one society. Because so much of our analysis is of an exploratory character, a recommended (although too often not honored) strategy for overcoming the temptation to shape one's hypotheses to fit one's data is to use one data set or sample to formulate a set of hypotheses and another data set or sample to test the hypotheses -- that is, to replicate the results with an independent sample. However, there is an important

sense in which replications based on independent samples of the same population are not truly independent replications. Such replications ensure that the results observed in the first study did not arise simply as an artifact of sample fluctuation. But they cannot ensure that the observed results do not reflect phenomena other than those hypothesized. To check this possibility it is necessary to carry out replications based on samples drawn from different populations.

For example, suppose we have carried out an analysis in one country showing that upward mobility causes people to become more politically conservative. By carrying out a replication of our analysis in a second country, we can create a truly rigorous test of the validity of our conclusions. If upward mobility causes political conservatism in several countries with varying political and stratification systems and historical experiences, we can have much more confidence that conservatism is a general consequence of upward mobility than if we observe such a relationship in only one country. In general, by specifying our hypotheses a priori on the basis of the outcome of an analysis in one society, we impose narrow limitations on what result from a second society we would accept as confirming them; and by carrying out the replication with data from a different society, we create the real possibility of getting results different from those we obtained in the original analysis.

Comparison. A second use of comparative analysis is specifically to test hypotheses about differences between particular societies. For example, it has been argued that the stratification system of Britain is more rigid than that of the United States, due to differences in the historical development of the two countries. Treiman and Terrell (1975)

were able to test this idea by comparing correlations among status variables in the two countries, and found the assertion to be true but the differences not to be very strong. Similarly, it could be hypothesized with respect to Hungary and Austria, two countries relatively similar in their level of development (Taylor and Hudson, 1972:225, 314, 326, 335) and sharing a similar history in important respects, that intergenerational mobility is more extensive in Hungary because property inheritance has been abolished there but not in Austria.

This sort of comparison is usually undertaken between countries judged to be relatively similar in gross structural characteristics, on the assumption that observed differences in the phenomena under study may then be interpreted as stemming from those particular societal features that differentiate the societies -- the economic system in the case of Austria and Hungary, the newness of American society compared to Britain, etc. However, a limitation of this approach -- which we might call the "comparative case method" -- is that usually there are too many ways to explain any observed difference -- that is, there are more variables than cases. For example, whereas an analyst might conclude that what principally differentiates Austria and Hungary is the inheritance of property in the one country and not the other, it is quite possible that some other factor, such as differences in the cost of schooling, is what really creates differences in the amount of mobility. It is extremely important for comparative analysts to be sensitive to the possibility that observed results are due to causes other than those hypothesized.

Of course, having observed a particular result it is possible to test one's explanation by analyzing data from a third country. For

example, if differences in property inheritance account for differences in the amount of mobility in Austria and Hungary, then other socialist countries at a similar level of development as Hungary and Austria -- Poland, for example -- should also exhibit a higher mobility rate than Austria. If Poland is not similar to Hungary and different from Austria in its mobility rate, considerable doubt is cast on the hypothesis that property inheritance is the crucial determinant of the differences in the mobility rate between Austria and Hungary.²

Generalization. A third use of comparative analysis is to establish generalizations about the uniform features of social structure -- social structural universals, on the one hand, and systematic co-variation of various societal features, on the other. In both cases, we need to compare data for a relatively large number of societies -- although, interestingly, it takes much less data to document inter-societal similarities than to document systematic inter-societal differences. This is because differences may arise from a variety of sources and hence it is necessary to have sufficient data to separate systematic variability from idiosyncratic variability.

Suppose, for example, that we had data for six societies, varying widely in level of industrialization and including both capitalist and socialist societies. And suppose that we had comparable data for all six societies relating educational attainment to occupational status attainment. Now, if we observed a similar causal connection between education and occupation (say a standardized partial regression coefficient of $.55 \pm .05$) we would be quite justified in concluding, at least tentatively, that the effect of education on occupational attainment is fundamentally similar in all societies. But if the relation between

education and occupation varied substantially across these six societies we would not be able to say much at all about the sources of variation.

Suppose, however, that we had comparable data from 30 societies rather than six. Then we could attempt to account for societal variations in the effect of education on occupational attainment by investigating such hypotheses as, for example, the more industrialized a society the greater the effect of education on occupational attainment. Of course, in this circumstance we could also investigate many other hypotheses linking such macrosocietal features as level of industrialization and socialist vs. capitalist form of politico-economic organization to variations in stratification systems, and linking variations in certain aspects of stratification to variation in other aspects. For example, we could test such hypotheses as: the greater the degree of income inequality, the lower the rate of mobility; the lower the rate of mobility, the greater the propensity to identify with a particular social class; the greater the degree of status crystallization, the greater the pathological consequences of status discrepancy; and so on (see Treiman, 1970).

Unfortunately, heretofore comparable data from a large sample of societies have not been available.³ The production of such data -- which must come from sample surveys conducted in a large number of societies, with close attention to comparability of measurement (see below) -- is a major need of comparative sociology. But the collection of such data is no easy task. In the following section we review alternative strategies for developing the data base to sustain a comparative analysis.

Strategies of Comparative Inquiry

There are three basic ways of accumulating the data necessary to carry out a comparative analysis: (1) a single research group may design and execute a data collection effort in two or more countries; (2) a consortium of researchers located in two or more countries may collectively design a data collection effort but independently execute it and then exchange the resulting data; (3) or a research group may re-analyze pre-existing data.

"Safari research" -- data collection in several countries by a single research group. In an earlier stage of comparative research it was common for a researcher to travel from country to country staying only long enough in each place to arrange for a pre-written questionnaire to be administered to a local sample, either through the use of an existing field work agency or by training an interviewing staff on the spot. This method has long outlived its usefulness -- if it ever had much. In the first place, it is intrinsically impossible to collect data from a large number of countries in this way, simply because no single research group has either sufficient time or sufficient money to invest. To obtain the sort of data with which I am working in my comparative status attainment project, for example, would cost something like 10 million dollars and several years' time. Second, the quality of the data obtained in this way is bound to be poor, simply because the safari researcher cannot be very familiar with the local scene. This will invariably result both in foolish errors with respect to the design of the sample, the translation of the questionnaire, and the interpretation of results, and also in the inability to ensure that competent field work is done. Third, the political situation in many

parts of the world precludes the collection of data by non-nationals. Understandably, many countries have come to resent the invasion by foreign researchers who have provided nothing of value in return for their exploitation of the good will of the population to provide information. For these reasons, the days of "safari research" are largely over.

Cooperative cross-national research. A more viable strategy, especially now that competent social scientists are to be found in many countries, is for researchers from several countries to join together in a cooperative effort in which a research design is collectively worked out but data collection is conducted in each country by the local research group. Such a procedure has the enormous advantage of promoting standardized data collection and yet overcomes the difficulty inherent in data collection by those unfamiliar with the local scene. Moreover, the involvement of local researchers minimizes political interference from local authorities and maximizes opportunities for cost sharing. Finally, such arrangements provide an ideal mechanism for the sharing and exchange of technical expertise.

On the face of it, this strategy would appear to be optimal. However, it too contains an inherent difficulty, precisely the opposite of that endemic to "safari research." In cooperative arrangements there is usually no clear-cut authority structure. Typically, researchers from several countries form a consortium to collect comparable data and to carry out analysis in such a way that the results can be directly compared. However, funding, timing, and final control over the questionnaire, field work, and data processing usually remains in the hands of each research group. This

means that decisions regarding study design and data collection procedures must be negotiated between the various research groups, much in the way international agreements are negotiated.

Such a necessity might not be of much consequence but for the fact that both funding arrangements and local interests create strong pressures to collect information in such a way as to satisfy local needs. Thus, in any such effort there is bound to be tension between the need to satisfy local interests and the need to standardize the research design and data collection procedures in order to facilitate cross-national comparisons.

Such tension takes the form of debates about what items to include, and with what amount of detail; how variables should be coded -- achieving cross-national comparability may require sacrificing comparability with other locally produced data sets; how the sample should be constructed; and so on. Even when the local research group has no vested interest in a particular sampling or coding procedure, often the field work agency hired to carry out the work does. This means that the local research group will have to insist upon non-routine procedures if it is to meet its obligation to achieve comparability. For example, it is customary in Germany for gastarbeiter households to be excluded from national probability samples. For a stratification study this is disastrous, since in the larger West German cities between 15 and 20 per cent of the population are gastarbeiter, who make up the bottom of the labor force. The exclusion of gastarbeiter from German surveys creates much the same distortion of the German stratification system as would the exclusion of blacks from surveys conducted in the United States. But for a German research group to collect data comparable to those collected in other

countries -- representative samples of the non-institutionalized adult population or of all households -- would require a substantial alteration of established sampling and field work procedures, and hence would entail special effort and special pressure. A similar difficulty arises with respect to the coding of routinely collected "background" variables. Typically, survey centers have established ways of asking about education, occupation, income, size of place of residence, etc., and established procedures for coding these variables. Attempts to change the format of such questions typically meet considerable resistance, both because interviewers tend to be especially error prone when familiar items are altered and because alteration destroys comparability with other data collected by the same agency.

For these reasons, attempts to collect comparable data in several countries on a cooperative basis are often not nearly as successful as might be supposed; cooperative comparative analysis is no guarantee that true comparability of data will be achieved. Further, the problems of coordination limit the number of countries that can be feasibly included in a cooperative effort. How then can we create sufficient data to permit generalization about the systematic covariation of various features of social structure? That is, how can we create enough data to be able to treat societies as the units of observation? At present, the only route open to us is to reanalyze data that have been collected originally by others -- that is, to carry out the secondary analysis of pre-existing data sets.

Comparative secondary analysis. While there is a long history of the use of published data for new analysis, until recently there has been relatively little interest in re-analyzing basic data. However, recent developments have spurred an interest in this approach, which holds considerable promise as a way of accumulating comparable data for a large number of societies.

First, changes in the technology of data processing have resulted in an enormous improvement in the quality of data. Specifically, the switch from unit record processing of punch cards to magnetic tape processing by computer has had the consequence that researchers have become willing to code their data in much greater detail than previously, because whereas punch card processing procedures (e.g., tabulation by counter-sorter) put a premium on packing as much information into a single punch card as possible the size of a computer tape file (data set) is relatively unaffected by whether a variable requires one, two, or more digits to code; and in any event a single reel of tape can hold more data than any single sample survey is likely to generate regardless of how detailed the coding is. Moreover, the ease of recoding data by computer has encouraged the retention of great detail so as to permit alternative recordings of variables. This greatly reduces the complication of trying to create comparable measures from different studies. When data are coded in great detail, it is usually possible to aggregate each study in such a way that the aggregated variable is comparable across studies. However, when the data are initially coded in a summary form, further aggregation is almost never possible, and when it is it usually yields measures so crude as to be almost worthless -- a good negative example is the practice

of aggregating occupational classifications into "nonmanual," "manual," "farm" trichotomy.

Second, the development of functioning data archives, such as the Inter-University Consortium for Social and Political Research, here in Ann Arbor, and the Zentralarchiv für Empirische Sozialforschung in Cologne, has greatly facilitated the exchange of data between researchers. As all of us know, in the course of research data sets become altered in various ways and documentation tends to become somewhat informal. Hence, most of us are somewhat reluctant in practice, even though agreeable in principle, to furnish copies of our data sets to colleagues elsewhere. We do not want to be embarrassed by the exposure of our own poor housekeeping nor bothered to remedy it by answering the questions inevitably raised by new users. Thus, the existence of high quality data archives that take as their responsibility not only the diffusion of data among users but also the careful preparation and documentation of data for public use is enormously beneficial.

In consequence of these two developments, together with the general increase in research sophistication in the United States but especially in other countries, a great deal of high quality data is now available that can be used for comparative analysis. Of course, not all data of interest are deposited in archives, and it sometimes requires rather delicate negotiations to work out mutually satisfactory arrangements to obtain the data originally collected by other researchers. Still, it is now technically feasible to undertake comparative analysis involving a large number of societies by relying entirely upon pre-existing data sets. However, the use of such data requires solution of a very serious and very difficult problem -- the

problem of comparability of measurement. The major disadvantage of comparing data from surveys designed and executed by diverse investigators for diverse purposes is that typically the variables of interest will not be measured in the same way across surveys. Hence, some way must be found to transform the original data to create comparable variables for each society. In the following section we turn our attention explicitly to the problem of measurement comparability.

Comparability of Measurement across Societies

The question may arise as to whether it is necessary to be overly concerned with comparability of measurement. After all, the argument goes, our research findings are not very precise and hence our conclusions are not much affected by variations in measurement procedures -- all we really need is a gross sense of whether one variable is associated with another. I suggest that such an argument is fallacious, on two grounds: first, the increased sophistication of social research has resulted in increased focus on precision of measurement. At the very least, we now routinely make statements about the relative importance of various variables in determining some outcome, drawing inferences from the size of regression coefficients. But the validity of such inferences turns on the assumption that all of the variables are properly measured. Second, comparative analysis is peculiarly concerned with the establishment of systematic variations within the context of general similarity. For example, when Terrell and I concluded that the amount of intergenerational occupational mobility is greater in the United States than in Britain, our evidence was that the father-son occupational prestige correlation in Britain was .35 whereas it was .26 in the United States. Clearly, the two countries are similar in a gross way, but nonetheless -- if our numbers are trustworthy (and we took great pains to

ensure that they are; see my 1977 exchange with Burawoy) -- Britain is a somewhat more closed society than the U.S. Since I have shown elsewhere (Treiman, 1977:210; Hertz, Treiman, and Wieken, 1977: Ch. 2) that such correlations can be made to vary by as much as .2 by alternative scalings of the occupational status variable, it is evident that measurement does matter.

Basically, the issue is this: how can we ensure that whatever we observe when we compare societies reflects true social structural similarities or variations and not artifacts of measurement that either mask true differences or imply differences when none exist? I argue that to do this we must first decide what we want to measure -- that is, we must define our concepts in a precise way, a task that is not nearly as easy as it might seem. Second, we must operationalize our concepts in such a way as to preserve an identical connection between concept and indicator in each country under study, for only then can we have confidence that a comparison of indicators across societies is an appropriate basis for inferences about true societal similarities and differences at the structural level.

To avoid becoming too abstract, let us work through a concrete example, drawn from my comparative mobility research. Suppose we are interested in determining the connection between educational attainment and occupational status -- to, for example, test the proposition that the connection is stronger in more industrialized countries. Suppose, further, that we have a standard way of measuring the prestige of occupations (Treiman, 1977: Chs. 8 and 9), and that we are satisfied to use occupational prestige as an indicator of "occupational status." Then our only problem is to measure educational attainment in a comparable way across countries, since once we do so we can simply compute the correlation between educational attainment and occupational status for each country.

But the measurement of educational attainment is not nearly as obvious as it seems, and depends heavily upon what we mean by the term. At least three obvious possibilities come to mind:

(1) We may be interested in nothing more than the amount of schooling an individual has had. In this case, it is fairly easy to construct a "years of school completed" variable, as is common in American studies, or a "school leaving age" variable (which can be converted into a "years of school completed" variable on the assumption that everyone starts school at the same time), as is common in Great Britain. However, the validity of such a scale depends upon the implicit assumption that all schooling is of equal value so that educational attainment is merely a matter of how much schooling one has had without regard to type of schooling. Clearly, this assumption is invalid in Great Britain, although it seems to be valid in the United States (Treiman and Terrell, 1975:580-581). In Great Britain there are basically two tracks, "grammar school," which leads to higher education or to high level jobs, and "secondary modern school," which is generally terminal and leads to manual jobs.

(2) Because we are interested in the connection between education and occupation, we might choose to explicitly represent this connection by scaling education in terms of its "occupational effect." By scoring each educational category with the mean occupational prestige of those in the category, we maximize the correlation between education and occupation (in effect we are computing the correlation ratio of occupation on education). This provides an explicit basis of cross-national comparison (assuming, of course, that the complexity of each educational system is adequately represented in the data). In a system in which the educational system had

no effect on occupational outcomes the correlation ratio would be zero, and in a system in which occupational status was completely predictable from knowledge of one's educational experience, the correlation ratio would be unity.

Despite the conceptual clarity of "effect proportional" scaling, there are two statistical difficulties that make this approach awkward: First, the procedure is unduly sensitive to sampling error. If the educational system of a country under study is at all complex, it is necessary to cross-tabulate several educational variables to appropriately specify educational experience. In Great Britain, for example, account must be taken of school leaving age, type of school attended before leaving, and type of subsequent schooling for those who returned to school. Obviously, a complete cross-tabulation of these three variables will produce cells with very small numbers of cases, which means that the occupational status means will be very unreliable. One way to overcome this difficulty would be to estimate the scores for each cell by means of an additive regression model (this is what Terrell and I did in our 1975 paper), but such a procedure precludes taking account of interactions between amount and type of schooling. For example, it may be the case that each additional year of grammar school is worth more (in terms of occupational prestige) than each additional year of secondary modern school, but an additive regression procedure would not detect this. The second awkwardness of effect proportional scaling is that variables scaled in this way are inappropriate for use in multivariate analysis. The problem is that by deliberately maximizing the correlation between two variables, we inevitably reduce the statistical effect of other variables correlated

with the independent variable. Specifically, by scaling education in terms of its occupational payoff we give it too much weight in a multivariate analysis of occupational attainment. Suppose we estimate an equation predicting occupational prestige from education and father's occupation. By scaling education in such a way as to maximize the correlation with occupational status we reduce the possible effect father's occupation can have on respondent's occupation, since father's occupation and education are positively correlated.

(3) A third approach to the scaling of education -- which is at the same time conceptually the best and practically the most difficult to achieve -- is to classify types and amounts of schooling in terms of their intrinsic intellectual content. Thus, we might distinguish between basic education, /academic secondary school, secondary vocational school, tertiary technical school, and tertiary academic school. The difficulty is that variations in the social organization of education make it difficult in practice to locate particular types of schooling in this scheme. For example, it has been suggested that German gymnasium is the equivalent of the last two years of American high school plus the first two years of American college. But to equate the two would be to ignore the fact that in the American system the first two years of college are often vocationally oriented, particularly at junior colleges. Is a person with an Associate of Arts degree from a junior college with a specialization in mechanical drawing the equivalent of someone who has completed gymnasium? Probably not. What, then, is the appropriate equivalence? And how can we find it without aggregating educational categories to the point where we lose most of the useful information?

Clearly, there is no easy solution to the problem of scaling variables for comparative analysis. Many other variables which, like education, appear to present no difficulty when analysis is conducted in a single society prove to be equally difficult when regarded in a comparative context. There are two reasons for this. First, differences in social organization force us to confront precisely what we mean by various concepts that we are accustomed to treat very casually when we analyze data from our own society; when we can fall back on conventional operational definitions we need not overly concern ourselves about conceptual clarity. But faced with various ways of defining operational variables, we do need to think about just what it is we want to represent. We have seen that this is true of educational attainment. It is equally true of occupational status, and even of income -- a variable seemingly very straight forward. And of course it is even more true of other sorts of variables such as political liberalism, societal development, etc. Second, even when we are clear about just what it is we want to measure, we have to establish an isomorphism between our concept and our indicators, and have to be sure that variations in the way things are concretely organized in different societies do not introduce contaminating features into our indicators. These problems will not be solved in the short run, but rather will depend upon a great deal of careful work by comparative analysts. Such work, however, will be greatly facilitated if we overcome certain practical difficulties.

Practical Considerations and Recommendations

To this point we have reviewed the aims and methods of comparative research and have, I hope, made a convincing case for the desirability and viability of both cooperative research efforts and comparative research

via secondary analysis of pre-existing data. Such strategies are, of course, not without problems, and we have touched on some of these in the course of our previous discussion. The theoretical and methodological difficulties inherent in cross-national comparisons are fundamental, and will only be solved by the concerted efforts of scholars attempting to carry out comparisons. There are, however, a number of practical difficulties that currently impede such efforts, but which could easily be overcome. It is these that I wish to review here, offering recommendations for their solution.

First, as was noted above, a major difficulty in comparative research is that data are not coded in a standardized way. To some extent this can be overcome after the fact by recoding or transforming variables to achieve comparability. But to do this requires that the greatest possible detail be preserved in the original coding. These observations lead to the following recommendations:

(1) All data should be initially coded in the greatest possible detail, regardless of whether comparative analysis or secondary analysis is anticipated. Specifically, this means that when information is collected on educational attainment both amount and type of schooling should be ascertained, and if possible a complete educational history, and each school type should be separately distinguished; that occupational information should be coded into the local three digit census code or the International Standard Classification of Occupations (International Labor Office, 1969), and status of worker (owner, manager, foreman or supervisor, ordinary employee, apprentice; skilled vs. unskilled worker; etc.) determined as well; that individual income as well as family income be ascertained, in exact amounts or small increments (to avoid having half the population in the lowest category, or similar problems); that age, religion, ethnicity, place of

birth, and current residence, etc. all be ascertained in the most disaggregated way possible.

(2) Wherever possible, questions should be worded and responses coded in a standardized way. Standardized information is a great deal easier to compare than non-standardized information. Thus, insofar as is possible without violating Recommendation 1 standardized ways of collecting information should be developed.

(3) In cooperative comparative data collection efforts, greater heed should be paid to comparability of data collection procedures. To ensure that comparable data are collected from comparable samples, greater attention needs to be paid to local variations in survey research procedures -- who gets included in the sample, how is the sampling actually accomplished, what are the replacement procedures for refusals and unavailable respondents, what is the procedure for picking individuals within households if a household selection procedure is used, what are the age cutoffs, etc. -- and greater effort must be made to ensure that local procedures are modified in such a way as to maximize cross-national comparability.

(4) Data collection and data processing procedures should be documented exhaustively, and data should routinely be deposited in an archive upon the completion of the initial study for which they were collected. The very high cost of original data collection coupled with the high probability that secondary analysts will see possibilities not envisioned by the original investigators mandate that survey data be processed in such a way as to facilitate re-analysis by other investigators. This imposes a special burden on original investigators, since they will need to document their data processing decisions carefully and completely to prepare them

for use by others; but in fact original investigators would profit from good housekeeping, as anyone who has tried to return to an analysis after six months or a year can appreciate -- good record keeping saves time and reduces frustration! This is especially true when one is working with more than one data set, as is always true in comparative analysis.

So far we have considered practices investigators should follow. Let us now turn to a set of recommendations directed at funding agencies. The basic problem is that the special needs of comparative analysis, on the one hand, and secondary analysis on the other, have never been adequately recognized in funding arrangements. Nor, for that matter, have the special advantages of these approaches, which leads to the next two recommendations:

(5) Comparative research should be given higher priority by funding agencies.

(6) Analysis should be given higher priority by funding agencies.

Currently, too high a premium is placed on the collection of new data and not enough on the analysis of data, new or old. One corrective would be to give renewal applications higher priority, since the bulk of a first grant is ordinarily spent on data collection and preliminary analysis. Also, projects whose main purpose is analysis of already existant data should be given higher priority since such projects have high benefit/cost ratios simply because the cost is relatively low.

Other changes in funding arrangements are necessary to promote comparative analysis and particularly the secondary analysis of comparative data:

(7) Funding agencies should require that newly collected data be archived, and should provide funds explicitly to do so. By requiring as a condition of funding that data be deposited in a public data archive and

by providing the funds to prepare data for deposit, funding agencies can go a long way toward increasing the data base available for comparative secondary analysis. Of course, suitable protection must be provided to original researchers to permit them to complete their analysis without pressure, but on the other hand the research community must be protected from the "data retentive" researcher who gets funds to collect data but never completes his analysis and uses this as a basis for denying data access to other researchers. An appropriate way to do this might be to require archiving within some specified time -- say three years -- after the completion of data collection.

(8) Funding agencies should permit extensive foreign travel in conjunction with comparative research projects. This applies to both cooperative projects and secondary analysis projects. Consider cooperative projects first. The only way to ensure that data are collected in a standard way is for the participants in a cooperative project to consult frequently and to engage in extensive discussion. This requires frequent face-to-face meetings. It is literally impossible to exchange sufficient information by mail or by telephone to plan, organize, and execute a cooperative project. For the comparative secondary analyst the need for face-to-face communication is different but equally compelling. First, apart from data deposited in archives, most data acquisition requires personal negotiation. Since there is no intrinsic reason for a primary investigator to make his data available to another researcher, and to do so generally requires great effort and considerable inconvenience, it is necessary to rely upon good will and upon the exchange of favors as a basis for securing an agreement to obtain data from individual researchers

for secondary analysis. Moreover, even when researchers agree in principle to make their data available, they are usually so busy that it is difficult to get them to actually go through the effort to document them and send them by mail. In my experience, the only way to be certain of obtaining data is to visit the researcher who holds them and literally carry a copy of the tape and documentation away. Finally, it will usually be the case that documentation is incomplete, or is available only in a foreign language; so again it is necessary to communicate with the primary investigator to determine how to proceed with data processing. For all these reasons, comparative secondary analysis requires extensive foreign travel if it is to be done at all well.

(9) Funding agencies should recognize the very high cost and lengthy time frame of computing when conducting comparative secondary analysis, and make appropriate budgetary provisions. A reasonable estimate is that more than half the time of any comparative project involving extensive secondary analysis will need to be devoted to "data shaping" activities, including most particularly the construction of comparable variables and scales. This sort of effort is fully as time consuming as the execution of a sample survey, but this fact tends not to be recognized by funding agencies. If we are to encourage careful comparative work, in which a serious effort is made to achieve cross-national comparability, we must have sufficient computer funds and sufficient time to devote to the comparative measurement problem.

(10) Funding agencies should provide more adequate copying, mailing, and translating budgets to comparative projects. Both cooperative and secondary analysis projects require much more exchange of information than projects restricted to a single country, and much of the material

will need to be translated from one language to another. Such costs are a legitimate part of the special needs of comparative researchers if they are to do their job correctly.

FOOTNOTES

¹I have recently published a comparative study of occupational prestige hierarchies based on data from 60 societies (Treiman, 1977) and am currently engaged in a comparative study of social mobility and the process of status attainment which involves the re-analysis of sample survey data from over 30 societies (Treiman and Kelley, 1974). Thus, I have made something of a career of analyzing other people's data for comparative purposes.

²Of course, even if Poland and Hungary are more similar in their mobility rates than either is to Austria, the difference might still be due to the relative cost of schooling, or still some other factor that differentiates Austria from the other countries. The real problem is that to establish systematic patterns one needs more cases than variables.

³This assertion ignores the substantial body of research based on analysis of aggregate data from relatively large samples of societies. This is because the analysis of characteristics of societies is, like the analysis of data from a single survey, much simpler than the comparative analysis of social structural arrangements. Aggregate analysis is generally restricted to one level -- the analysis of characteristics of individuals where the individuals are societies rather than persons. The comparative analysis of survey data, by contrast, invariably involves analysis at two levels, because we are ultimately interested in describing differences and similarities in social systems yet our data base consists of information about persons. In this situation, we use information about the patterns of association among variables pertaining to individual persons to describe social systems, and then compare systems by comparing these patterns of association and also relating them to macrosocial phenomena.

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