

THE FOURTH GENERATION OF COMPARATIVE STRATIFICATION RESEARCH*

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ABSTRACT

In a 1991 paper in the *Annual Review of Sociology* Ganzeboom, Treiman, and Ultee identified three generations of comparative research on social stratification and social mobility. In the present paper we briefly recap the first three generations and then review recent developments that together may be regarded as constituting a fourth generation. In the 1990's, stratification research has become increasingly comparative (cross-temporally, cross-nationally, or both), as international collaboration has intensified and the quantity of suitable data has vastly expanded. These developments have been accompanied by major progress in measurement and standardization and in research designs and statistical methods. The paper reviews these developments and concludes with an assessment of the fate of several areas of research that we identified as promising in our 1991 review.

INTRODUCTION

In a paper published in 1991 with Wout Ultee (Ganzeboom et al. 1991), we reviewed developments in comparative stratification research over the last half century within a framework of three distinctive generations.¹ Although the research questions addressed in the first post-war generation were quite diverse, the main achievement was to produce a set of national probability sample surveys that made it possible for the first time to characterize the stratification patterns of national societies. The central comparative question was whether societies differed in their degree of “openness,” measured by the rate of occupational mobility between generations, and the central conclusion—subsequently proved incorrect—was that observed mobility rates and patterns are essentially similar in industrialized societies (Lipset and Bendix 1959).

The second generation shifted the central research question from how much mobility there is across generations to how intergenerational transmission of status occurs. A new round of higher quality sample surveys was conducted in many nations; procedures for hierarchically scaling occupations were devised (Duncan 1961; Treiman 1977); and multivariate statistical techniques—path analysis, or structural equation modeling—were introduced (Duncan 1966,1975; Blau and Duncan 1967:Ch. 5), which permitted the assessment of the relative importance of various paths to status attainment, e.g., indirect transmission of advantage through education vs. direct transmission of occupational status through mechanisms independent of education. While the seminal contribution of Blau and Duncan, which established the central importance of education as the mechanism by which status is transmitted from generation to generation in the United States, inspired replications

¹For still earlier state-of-the-art reviews see the references cited in Ganzeboom et al. (1991:278-9). In addition, there are subsequent reviews by Rosenfeld (1992), Myles and Turegun (1994), Breiger (1995), and Kerckhoff (1995).

in many countries, with essentially similar results, no definitive cross-national comparison of status attainment was completed.²

The third generation was characterized by a return to the analysis of intergenerational occupational mobility tables, but this time with a new arsenal of statistical techniques: log-linear and log-multiplicative analysis. These procedures enabled researchers to disaggregate observed mobility patterns into a portion due to shifts in the distribution of positions and a portion due to underlying differences in the chances for success of people from different social origins. The principal comparative question was the same as that posed by Lipset and Bendix, but the conclusion drawn by Erikson and Goldthorpe (1992), who carried out the major comparative project, was much more sophisticated: observed mobility patterns vary across countries because shifts in the occupational structure across generations occur at different rates from country to country, but the underlying structure of mobility chances—the relative odds of mobility between occupational classes—is very much the same in all industrial societies.

In our 1991 judgement, stratification research through the first three generations became successively more rigorous, with major advances in the availability of high quality data, the solution of vexing measurement problems, and the adoption of an increasingly sophisticated arsenal of statistical procedures. However, these developments were achieved at the cost of a successive narrowing of research questions, from a general interest in the determinants and consequences of social status and of mobility between statuses to a narrowly focused interest on the bivariate relationship between the occupational classes of fathers and sons. Fortunately, this trend, which was

²Completing such a study has been a part of Treiman's research agenda for the past 30 years and of Ganzeboom's for the past 10 years. A monograph now in progress is intended to bring this project to completion.

perhaps a necessary concomitant of the enormous technical advances of our field, appears now to have reversed. Although it is always dangerous to summarize historical developments while they are in progress, we nonetheless are willing to characterize a fourth generation of research: a return to the broad questions of early stratification research, in particular, the central question of how the stratification outcomes of individuals are affected by their social environment, with improved data; improved statistical tools, especially statistical procedures that combine the advantages of both the quantitative methods of the second generation and the qualitative methods of the third generation; and improved research designs, particularly multilevel designs that permit estimates of both micro- and macro-level effects.

Before turning to a discussion of fourth generation research, we devote some attention to the CASMIN project, which was the culmination of the third generation of comparative mobility research. As the major publication in our field in the 1990's, *The Constant Flux* (1992) is central to many of the ongoing debates, and thus warrants special attention.

CONCLUDING THE THIRD GENERATION: THE CASMIN PROJECT

In many ways the CASMIN ("Comparative Analysis of Social Mobility in Industrial Nations") project, from which the central publication was Erikson and Goldthorpe's *The Constant Flux* (1992), marks the end of the third generation of comparative stratification research. Although not published until 1992, *The Constant Flux* dealt almost exclusively with data collected in the 1970's. The CASMIN researchers obtained unit-record data from 12 large scale national surveys, mainly dedicated social mobility surveys organized by researchers inspired by Blau and Duncan (1967). These data were subjected to extensive recoding to render the occupational and educational

classifications as comparable as possible across countries, with advice from local experts. The first major achievement of the CASMIN project was the level of measurement comparability achieved. The project generalized for international use the class categories earlier developed for analysis of British data (Goldthorpe 1980:39-42). The resulting “EGP” scheme, originally consisting of 10, later 12, categories, was meticulously generated from detailed information on occupational titles and employment and supervisory status. It has been shown to be a powerful predictor of social mobility and other life chances (Evans 1992), and has become widely accepted as the international standard for the categorical classification of occupations. The CASMIN project has not provided a standard algorithm to generate the EGP categories from detailed data. However, such an algorithm was produced by other researchers (Ganzeboom et al. 1989; Ganzeboom and Treiman 1996) and is used by many.

The second major achievement of the CASMIN project and more generally of the third generation was to take seriously the discrete nature of social stratification and social mobility, not only in theorizing but also in methods of analyses. While second generation research had relied primarily upon continuous one-dimensional measures of stratification variables, the CASMIN researchers explicitly rejected the unidimensionality of stratification and modeled intergenerational mobility between discrete occupational classes as determined by four factors: *hierarchy*, *inheritance*, *sector*, and *affinity*. *Hierarchy* is, of course, the vertical dimension of stratification stressed in the second generation. *Inheritance* refers to the disproportionate propensity for men to work at jobs that are in the same occupational class as the jobs held by their fathers—the propensity for the sons of unskilled laborers to be unskilled laborers, and so on. *Sector* distinguishes agricultural from non-agricultural occupations, which is necessary considering that in industrial societies there is virtually

no mobility *into* agricultural occupations, although there is massive mobility *out of* agricultural occupations. Finally, *affinity* refers to disproportionately high or low mobility between particular occupational categories that cannot be accounted for by the other three factors. In our judgement, the demonstration of *inheritance* and *sector* effects is an important addition to our understanding of how intergenerational mobility occurs, although *hierarchy* effects are rather more important than Erikson and Goldthorpe make them out to be (see Hout and Hauser 1992). Finally, *affinity* effects appear to us to be something of a "fudge-factor," introduced to improve the fit of the model to the data.

The major conclusion of *The Constant Flux* is that in industrial societies there is a core mobility pattern common to all countries and that the small observed differences between nations are due to idiosyncratic historical and political circumstances rather than to generic factors such as the precise level of industrialization.³ They also claim that there is little evidence that mobility has increased over time. Their first conclusion, that the *pattern* of mobility, that is, the relative likelihood of (exchange) mobility between occupational classes, is largely invariant across industrial societies, ranks as a major discovery,⁴ although there is rather less certainty that the *amount* of mobility is as cross-nationally invariant. Their second conclusion is suspect, since they have data for only one point in time and hence must rely on the dubious assumption that there are no age effects on mobility and hence that age differences may be interpreted as cohort effects. By contrast, Ganzeboom et al. (1989), in an analysis of 149 mobility tables from 35 countries, showed that the

³It is not entirely surprising that Erikson and Goldthorpe can find no evidence of the level of industrialization since their analysis is restricted to industrial nations. This point would not be relevant but for the fact that Erikson and Goldthorpe cast their analysis as a refutation of the "liberal theory of industrialism."

⁴Even here there is some contrary evidence (see Sørensen 1992; Wong 1990, 1995).

rate of intergenerational mobility has in general increased over time: in 16 of the 18 nations for which they had replicate data there was a significant increase in mobility chances, on the order of one to two per cent per year over the second half of this century, which implies very substantial change in mobility regimes from one generation to the next (see also Wong and Hauser 1992). It is quite possible that the more or less universal trend toward greater societal openness is the consequence of processes posited by Treiman in a 1970 review that is still widely cited—industrialization, urbanization, and the increasing pervasiveness of mass communications—but these claims have yet to be put to an explicit test. Ganzeboom et al. also showed substantial variation in intergenerational mobility rates across the 35 countries they analyzed (which range much more widely in level of development than the 12 industrial nations analyzed by Erikson and Goldthorpe)⁵ but they did not attempt to relate observed differences in the extent of mobility to the level of industrialization or other differences between countries.

THE FOURTH GENERATION

What is most distinctive about stratification research in the 1990's is that it is increasingly comparative, either over time or cross-nationally or both.⁶ Increasingly, students of stratification are addressing the central question of how stratification outcomes are affected by institutional

⁵This analysis has itself been subjected to criticism, both by Erikson and Goldthorpe (1992:53-54,100-101) and by Jones (1992). See the papers and rejoinders in the December 1992 issue of the *European Sociological Review* for the most complete airing of the controversy regarding the central claims of *The Constant Flux*.

⁶Of 44 papers presented at a meeting of the ISA Research Committee on Social Stratification and Mobility (RC 28), held in Tel Aviv in May 1997, more than half (23) involved either cross-national or cross-temporal comparisons, or both. Three other papers presented cross-sectional multilevel analyses within nations, of firms, schools, etc.

arrangements.⁷ This is an inherently comparative question, since it calls for the comparison of the impact of different social contexts—different societies, or single societies at different points in time, or smaller units, such as regions, cities, firms, and schools.

We begin our discussion of the fourth generation by reviewing the major ongoing comparative projects. We then discuss new research designs, particularly multilevel strategies, the adoption of new statistical techniques, and other new data collection efforts, all of which have led to substantial improvements in the quality of research in our field.

Major Comparative Projects

Over the past decade there have been two distinctive approaches to carrying out comparative analysis of stratification systems. Not surprisingly given the enormous cost of surveys, there has been a continued reliance upon the re-analysis of existing data, although with greater attention to questions of data comparability than in the past. In addition, several new data collection efforts have been launched, with comparable data collected in sample surveys conducted in several nations. These projects necessarily are more limited in scope than are the secondary-analysis projects; but they have a (potential) comparative advantage with respect to the comparability of the data collected. We review first the secondary analysis projects of Shavit and Blossfeld, Shavit and Müller, DiPrete, and Ganzeboom and Treiman, and then turn to the new data collection projects of Wright, Kelley, and Szélenyi and Treiman. (In each case we identify the project by the principal organizers, although most of these projects involve many additional participants.)

⁷Kerckhoff (1995) makes the same point. Indeed, he characterizes his review as concerned with “the beginning of a fourth generation of stratification research ... in which the roles of institutional arrangements in the shaping of stratification processes are systematically taken into account” (p. 324).

Secondary Analysis Projects

Trends in Educational Transition (Shavit and Blossfeld). At the 1990 World Congress of Sociology in Madrid, Yossi Shavit and Hans-Peter Blossfeld organized a session reporting on trends in educational transition ratios in 13 nations (Shavit and Blossfeld 1993). A year earlier they had invited researchers to produce parallel analyses of existing data from each nation, with two main tasks: to estimate OLS equations predicting the level of schooling ultimately attained from various social origin variables; and to estimate logistic regression equations predicting from the same set of factors the odds of making the transition from each educational level to the next, following the paradigm formulated by Robert Mare (1980, 1981). The results reported in the Shavit-Blossfeld volume showed that the dominant (although by no means universal) pattern was one of declining levels of educational reproduction over time, even though for most of the nations studied the odds of making any particular transition remained unchanged over time.⁸

A serious limitation of the Shavit-Blossfeld project is that it achieved only partial standardization. Shavit and Blossfeld did not force a completely standardized format on the separate contributions. The separate chapters differ substantially in the scope of the data and the precise specification of the models. Moreover, occupational status was measured in a number of different ways (Blossfeld and Shavit 1993: 11). The result is that it often is quite difficult to compare results across countries. In this respect, the CASMIN work reached a substantially higher level of cross-national comparability. Nonetheless, it must be appreciated that the Shavit-Blossfeld project is also

⁸This claim is at odds with Blossfeld and Shavit's (1993:15) summary of the 13 studies. They see much less consistency than we do, claiming that only the Netherlands and Sweden show a systematic decline in the effect of social origins on educational attainment over time. However, in six of the eight nations for which OLS regressions were reported cohort-by-cohort, the trend in the R^2 's is clearly down.

a model of efficiency—the entire project, from conception to publication, took only four years, which is a major accomplishment in itself.

The School-to-Work Transition (Shavit and Müller). Moreover, the project became the model for a new round of comparative analyses: of the school-to-work transition, this time headed by Shavit and Walter Müller. The 13 papers constituting this project were presented at the 1996 Stockholm conference of the ISA RC28 and published a year later (Shavit and Müller 1997). These papers represent an improvement in standardization: both education and occupational status (at labor market entry) were measured in the same way in all countries, occupation by the EGP classification and education by the CASMIN educational categories developed by Müller et al. (1990). Moreover, these papers carry the fourth generation strategy of combining quantitative and qualitative analysis a step further: both education and occupational position were modeled in a discrete fashion, and represent the first extensive use of multinomial regression analysis in comparative research in our field.

As Blossfeld and Shavit had done, but in a much more extensive way, Müller and Shavit (1997) carried out a "meta-analysis" of the results of the 13 country studies, in which they focused on how variations in the educational systems of each of the countries affected the connection between schooling and the status of the first job; the increased rigor of the meta-analysis constitutes another major improvement over the Shavit-Blossfeld project. Several of the conclusions of Müller and Shavit are noteworthy. For example, they showed that vocational education yields higher returns in countries where vocational training is occupationally specific and where there are arrangements between employers and schools for the graduates of particular vocational training programs to enter specific firms than in countries where these conditions do not hold. They also

showed that occupational returns to education are higher in countries with nationally standardized school curricula and requirements than in other countries, since in the former employers are able to rely upon educational credentials as certifying a particular level of competence.⁹

Labor Market Institutions and Employment Outcomes (DiPrete et al.) Whereas Shavit and Müller focused on educational institutions, DiPrete and his colleagues are focusing on how the organization of labor markets mediates the consequences of economic upturns and downturns. Using data from labor force surveys that are now conducted in many nations, they have thus far compared four nations: Germany, the Netherlands, Sweden, and the United States.¹⁰ In a recently published paper (DiPrete et al. 1997), they characterize the career mobility regime of the U.S. as "individualist," and that of the Netherlands as "collectivist," with Sweden and Germany falling in between. Thus, in the U.S., in contrast to the other nations, workers tend to be pushed out of declining industries. Moreover, the particular workers who bear the brunt of economic declines depend strongly on individual characteristics—education and length of tenure. In the Netherlands, at the other extreme, there is no measurable effect of industry expansions or contractions and no variation by education or tenure in the likelihood of leaving jobs.

Status Attainment in Comparative Perspective (Ganzeboom and Treiman). As noted above, the authors of this paper have been engaged for more than a decade in an effort to complete the work of the second generation by carrying out a cross-national comparison of the process of status attainment. Our aim is to develop a comprehensive account of to what extent and in what

⁹For another analysis focusing on the effect of differing educational structures for status attainment, see Krymkowski's (1991) comparison of Poland, the U.S., and West Germany.

¹⁰Following the May 1997 meeting of the ISA Research Committee on Social Stratification in Tel Aviv, which included strong French representation for the first time in many years, the project is being expanded to include French data in collaboration with researchers from the Institut National de la Statistique et des Etudes Economiques.

ways the processes of educational and occupational attainment vary over time and across societies and what macro-social factors account for such variations. To that end, we have attempted to secure and to standardize the key variables in all existing probability surveys of national populations that contain information on intergenerational occupational mobility. Thus far, we have obtained some 250 sample surveys from about 40 nations covering most of the 20th century.¹¹ Of these, 113 have been standardized and a common subset of variables has been made available for public use in the *International Social Mobility and Politics File* (Nieuwbeerta and Ganzeboom 1996) available on CD-ROM through the Steinmetz Archive in Amsterdam.¹²

Our goals are conceptually modest although technically ambitious: we aim to test the set of hypotheses laid out by Treiman some 25 years ago (1970) regarding the impact of societal development (educational expansion, urbanization, economic growth, etc.) and political structure (principally the distinction between communist and non-communist nations, but also between welfare-states and *laissez-faire* states) on the level of educational and occupational reproduction and on the centrality of education in transmitting advantage across generations. Preliminary analyses

¹¹Combining data from different surveys for a single nation has much to recommend it. First, doing so magnifies the statistical power of the data, not only by expanding the sample size but also by lengthening the historical time-frame. A single survey typically will include individuals differing by at most about 50 years in age whereas a concatenation of all surveys since World War II, when survey research began to be widespread, makes it possible to study persons born throughout the century. Second, combining data from different survey years permits estimation of cohort replacement models within an age-period-cohort framework (De Graaf and Luijkx 1993; Grusky and DiPrete 1990; DiPrete and Grusky 1990b). Third, including data from several surveys in a single analysis makes it possible under some circumstances to assess the effect of measurement error and survey house differences. (Of course, the analyst must be careful not to bury measurement problems under the welter of data available when many surveys are joined and also must be careful not to misinterpret artifacts of measurement as true cohort differences, which may happen when some birth cohorts are represented by single surveys.)

¹²The complete data base, consisting of all files we have processed, each of which contains the full set of variables included in each survey, is catalogued on the World Wide Web (<http://fswinfo.fsw.ruu.nl/soc/HG/ismf/index.htm>). Access to the catalogued surveys must be arranged with Ganzeboom (ganzeboom@cc.ruu.nl) since use of some of the data sets requires the permission of the original investigators.

have shown that the dependence of education on social origins has declined over time, as a consequence of educational expansion (Ganzeboom and Treiman 1993); that occupational reproduction has declined over time (Ganzeboom et al.1989); and that over the course of the 20th century occupational attainment has become more achievement-based, that industrialization strengthens the effect of achievement relative to ascription, and that socialism has a similar effect (Treiman and Yip 1989; Ganzeboom and Treiman 1997). Rijken (1997) has shown results similar to those of Ganzeboom and Treiman with respect to educational attainment.

New Data Collection Projects

The Comparative Project on Class Structure and Class Consciousness (Wright). In 1980, Erik Olin Wright launched a comparative project on class structure with closely comparable surveys conducted in the U.S. and Sweden. Since that time, the initial surveys have been more or less closely replicated in 14 additional nations and have been repeated in the U.S., Australia, and Sweden.¹³ The principal thrust of the project (Wright 1989, 1997:xxvii-xxxiii) was to take seriously the Marxist class paradigm and to collect data that would permit an empirical comparison of the relative efficacy of Marxist vs. alternative conceptions of social class. To this end, a variety of data were collected both to measure alternative definitions of class and to assess the consequences of location in the class structure, particularly for class consciousness. A second important concern was to assess various theories regarding the causes and consequences of the macro-structural properties of societies, particularly for their class relations. A variety of comparative analyses have come out of this project, including a demonstration by Baxter (1994) that the subjective class identification

¹³Ten of the national surveys have now been organized in a common file available through the Inter-university Consortium for Political and Social Research (ICPSR #9323).

of working women in the U.S., Sweden, Norway, and Australia depends on the class positions of their husbands' jobs rather than on the class positions of their own jobs, a result that lends support to Goldthorpe's (1983) contention that class is a family affair; a demonstration that the openness of class boundaries, as measured by friendship patterns of persons in different class locations, is structured in a very similar way in the U.S., Canada, Sweden, and Norway (Wright and Cho 1992); and a comparison of the permeability of class boundaries to intergenerational mobility in the same four nations (Western and Wright 1994) that showed, consistent with the expectations of Marxist theory, that the property boundary was the least permeable, expertise distinctions more permeable, and the authority boundary the most permeable.

One important shortcoming of these data is that because each survey was locally funded, pressure for exact replication of the questionnaires used in the initial surveys was at best modest, with the result that the surveys are only moderately comparable. Comparability has been further compromised by the fact that Wright himself has repeatedly revised his definition of social classes and that a good deal of the energies of project participants appears to have been devoted to definitional issues (Wright et al. 1989). In this sense, it is fair to say that the level of cross-national comparability achieved is about the same as that of the Shavit-Blossfeld project, leaving open the question of to what extent apparent cross-national differences reflect true differences in social structure rather than non-comparabilities in measurement.

International Survey of Economic Attitudes (Kelley). The principal interest of this project is to link subjective perceptions of how the social stratification system does operate and beliefs as to how it should operate, perceptions regarding the social position and level of living of respondents, and political attitudes. It is thus a useful supplement to the main body of new comparative data,

which are principally concerned with objective aspects of social stratification and mobility (for earlier studies, based on previously available data, see Evans et al. 1992; Kelley and Evans 1993). The project opportunistically adds a module on economic attitudes to ongoing surveys wherever possible, in addition to fielding surveys with economic attitudes as the central focus. So far the core of the survey has been conducted twice in Australia, twice in Poland, once in Finland, and once in Bulgaria; see Evans and Kelley (1994) for an early report. In addition, many of the questions that make up the core were asked in a 1992/93 Hungarian survey and in a 1991 Polish survey. Although great attention has been paid to standardizing the attitude questions, there is rather less comparability across these surveys with respect to the measurement of socio-demographic characteristics.

Social Stratification in Eastern Europe after 1989 (Szelényi and Treiman). The collapse of communism in Eastern Europe in 1989 created a unique opportunity for students of social stratification, as well as for students of social change more generally. Many Eastern European nations, in particular, Czechoslovakia, Hungary, and Poland, already had well-developed interests in social stratification and strong survey research capabilities. Even within this rich tradition, Hungary stands out: every decade since 1962, the Hungarian Central Statistical Office has carried out a micro-census explicitly devoted to issues of intergenerational social mobility. The collapse of communism thus represents a major social transformation that can be studied on the basis of comparable information collected before and after the transition.

Szelényi and Treiman, in cooperation with researchers from Eastern Europe and also from the Netherlands, exploited this opportunity by organizing a set of sample surveys in each of six post-communist Eastern European countries: Bulgaria, the Czech Republic, Hungary, Poland, Russia, and Slovakia (Treiman and Szelényi 1993). In each country a probability sample of about 5,000 persons

in the general population was surveyed, mainly in 1993, using an essentially identical questionnaire. In addition, a probability sample of 2,000 members of the old and new elite was surveyed in each country (1,000 persons who had held *nomenklatura* positions—positions requiring the approval of the central committee of the communist party—in 1988; and 1,000 persons who held comparable positions in the political, cultural, and economic elite in 1993). As of early 1997 more than 150 papers and monographs based on these data had already been published or presented at conferences (Treiman 1997, 1998).

The importance of this project is that it was explicitly designed to investigate the consequences for stratification systems of the transformation to post-communism, and hence includes detailed educational, occupational, and residential histories as well as an unusually rich array of information on the characteristics of parents and grandparents—in particular, their occupational position at various historical dates, e.g., 1948, 1952, etc.—and also information on the property owned by respondents, parents, and grandparents, again at specified dates. The resulting data set is distinctive in that unusually high standards of data comparability were imposed upon the local survey teams. Although differences in educational systems necessitated local variations in the wording of the educational attainment questions, such differences were kept to a minimum and were designed in advance in such a way as to permit recoding to two different international standards: the CASMIN educational categories and a years-of-school-completed variable. Occupation questions were asked in an identical way in all countries and responses were recoded to the three accepted international standards (see below).

Although findings from this project are too numerous to summarize here, one question addressed by the project (Szelényi, Wnuk-Lipinski, and Treiman 1995) is of particular interest.

There has been a lively debate among Eastern European scholars as to the likelihood that the old communist elite would be able to "land on its feet," transforming itself into a new elite. There are those, such as Staniszkis (1991), who argued that social connections and positional advantages left over from the old regime would propel members of the old communist elite into elite positions in the new regime. There were others, such as Szelényi, Szelényi, and Kovách (1995), who argued that the fall of communism was accompanied by a change in the "logic of stratification," in which the assets that were valuable in the old regime—political loyalty and political capital—were devalued in the new regime and were replaced by the assets crucial for entrepreneurial success—financial capital and entrepreneurial expertise. As usual, the truth is somewhere in the middle and rather more complex than anticipated by *a priori* theories. The old *political* elite was deposed. Among the old *economic* elite—those who managed the socialist economy—there was a "revolution of the deputies"—that is, those in the top positions were deposed, mainly through forced early retirement, but were replaced by their deputies. So, in one sense, all the collapse of communism did was to speed the advancement of those who were lucky enough to be in the right position at the right age. The *cultural* elite, mainly managers of "social sector" institutions—schools, hospitals, newspapers, research institutes, etc.—fell somewhat in between the old political and economic elites, as would be expected from the requirement during the communist period that they be both "red and expert," that is, politically loyal but also technically competent.

The debate about the consequences for the old elite of the transformation to post-communism is in some respects similar to a lively debate among students of Chinese society regarding the consequences for *cadres* of the ongoing transition of the People's Republic of China to a market economy. In a provocative 1989 article, Victor Nee proposed that the shift from a redistributive to

a market economy in China should favor “direct producers” at the expense of *cadres*. Others have challenged both the theoretical claim and Nee’s empirical evidence, suggesting that the contrast between a redistributive and a market economy is overly simplistic, and that a variety of factors affect the relationship between decollectivization, market reform, changes in property rights, and changes in the power and privilege of local officials (Oi 1992; Peng 1992; Walder 1992, 1996; Lin 1995; Parish and Michelson 1996; Xie and Hannum 1996). This debate, which is very much ongoing, has had the welcome effect of bringing research on China, an unusually interesting case, within the purview of the more general theoretical concerns of students of social stratification (see, for example, Róna-Tas 1994; Szelényi and Kostello 1996).

Design Developments

The most important recent development in stratification research has been the ascendancy of multilevel analytic designs (for a review see DiPrete and Forristal 1994). Generically, these are designs that include at least two levels of data: a micro level, almost always individual people, and a macro level, which specifies a social context. The basic idea is to study how the behavior of individuals varies according to the social context. Although the macro, or contextual, level may be quite variable, most multilevel applications in stratification have specified either time periods or geographical units, e.g., nations, or both.

There are several ways to analyze multilevel data. The most common approach is to carry out micro-level analysis for each context separately and then to compare the results, either formally or informally. This is the implicit design of any comparison of two or more contexts. Often such comparisons are limited to two points in time or to two or at most a handful of nations. Such comparisons suffer from what is known as the “degrees of freedom” problem. Because any pair of

nations or time points may differ in any number of ways, it is difficult to be certain that the particular macro-level differences one adduces to explain any particular differences in the micro-level outcomes are, in fact, the causal agents rather than some other macro-level differences. For this reason, comparisons of small numbers of contexts are more useful for establishing cross-context regularities than for establishing cross-level differences. To establish differences across contexts, comparisons of three or more contexts are far more persuasive than comparisons of only two contexts. Any sociologist with the slightest imagination can invent a *post hoc* explanation for any particular observed difference. By contrast, comparisons of as few as three contexts are far more constraining, since we would ordinarily expect at least a monotonic relationship between the level of the contextual variable and the level of the measured micro-level outcome—for example, between the level of industrialization and the relative strength of the effects of education and parental status on occupational status attainment. It turns out that such monotonic relationships are not easy to find, even with as few as three contexts.

The obvious way around the degrees of freedom problem is to compare enough contexts to be able to treat contexts as observations. In this approach, a micro-level process is modeled separately for each context. Then, in a second step, the contexts are treated as observations and the coefficients from the micro-model are treated as dependent variables (by using multilevel modeling procedures both levels can be estimated simultaneously [Mason et al. 1983; Bryk and Raudenbush 1992; see Kreft et al. 1990 for a review of estimation software]). The variation in the micro-level coefficients is explained by variation in the contextual variables. Note that in this approach complete explanation of variation in the micro-level coefficients is not necessary; rather, the coefficients are

treated as stochastic, that is, themselves subject to error. The paper by Treiman and Yip (1989) is an example of this approach.

An interesting new development in stratification research, which exploits the multi-level approach, is the treatment of time as a variable, studying the impact of temporal change on various stratification outcomes. While many previous studies have compared outcomes at two points in time—which is logically equivalent to comparing two nations—until recently there have been few studies that have taken calendar time as a context, studying year-by-year variations in stratification outcomes, and linking variations in outcomes to macro-social historical events such as depressions, wars, revolutions, and social policy changes. This kind of research has burgeoned in recent years as comparable data have accumulated over time.

For example, DiPrete and Grusky (1990a) analyzed the impact not only of general trends but also of specific political inventions on the level of occupational attainment in the U.S. in the 1970's and 1980's, using data from General Social Surveys conducted more or less every year between 1972 and 1987. They showed not only a leveling off of the trend toward greater societal openness but also that year-to-year changes in employment and personnel policies and governmental job training budgets had a notable impact on promoting opportunities for women, Blacks, and those from disadvantaged backgrounds.

Deng and Treiman (1997) assessed the effect of a specific historical event, the decade-long Cultural Revolution, on educational reproduction in the People's Republic of China. Here the data were from a single source, a one per cent sample of the 1982 Census of China. By exploiting the fact that a large fraction of adult Chinese men live in the same households as their fathers, Deng and Treiman were able to utilize census data to study intergenerational relationships. Analyzing

educational attainment for persons born between 1945-1964 as a function of year of birth, father's occupation, father's education, and the interaction between the father's status characteristics and year of birth, and allowing for the effect of year of birth to be discontinuous for those of middle-school age before, during, and after the 1966-76 Cultural Revolution, they showed that, as hypothesized, the advantage of coming from a cadre or intelligentsia family was radically diminished during the Cultural Revolution, and that intelligentsia sons were particularly hard hit.

Interestingly, no comparable effect has been found for Eastern Europe (Heyns and Bialecki 1993; Matějů 1993). Even during the period of the "long 50's" in Hungary—the Stalinist years, during which communist ideology was particularly enforced and punitive measures aimed at the children of the pre-communist bourgeoisie and intelligentsia were particularly pronounced—there was no noticeable impact on educational reproduction: family cultural capital continued to play a strong role in educational attainment before, during, and after the "long 50's" (Simkus and Andorka 1982; Róbert 1991; Széleányi and Aschaffenburg 1993). Clearly, one lesson to be drawn from the juxtaposition of these two analyses—obvious, but still worth repeating—is that communism was not monolithic; the way particular communist regimes were organized mattered (and matters) a great deal.

The analyses discussed above all involve the analysis of data from repeated cross-sections of the population—birth cohorts in the case of single survey or, often, replicate surveys combined into a single file. An alternative design, increasingly important in stratification research, is to collect life history data from a sample at a given point in time. This was the strategy of the Széleányi-Treiman project, which collected complete educational, work, and residential histories from each respondent—although these data have yet to be analytically exploited in any substantial way. The

advantage of life history approaches is that they permit the analysis of contingent relationships throughout the career. For example, some have argued that in communist Eastern Europe, party membership was a necessary condition for occupational advancement, while others have argued that many persons chosen for advancement joined the party shortly after being promoted, much as American junior executives join a country club not so much as to improve their promotion chances as to solidify the legitimacy of their membership in the executive ranks. By studying the relative timing of party joining and occupational advancement, it would be possible to decide between these hypotheses. Event history analysis can be used to study a different set of contingencies as well, variation in the macro-social context. It has been claimed (Thernstrom 1973) that the Great Depression mainly affected those who were just beginning their careers when the depression began. Since event history data permit the isolation of those whose career beginnings coincide with the onset of such sustained catastrophes as the Great Depression, it is possible to analyze the impact of these events on the lives of individuals in a way not heretofore possible. However, life history data also have a major limitation—since such data are typically collected from a representative national sample of adults, the histories of younger members of the sample are necessarily truncated. For this reason, great care must be taken to guard against bias due to sample selectivity by age.

One way of partly overcoming this limitation is to focus on selected birth cohorts, thus ensuring that a substantial fraction of respondents experienced particular historical conditions at identical ages. This is the strategy of the German Life History Study (Mayer 1990), which emulated a Norwegian survey (Rogoff Ramsøy 1977, 1984) and was in turn emulated by a Swiss survey (Buchmann and Sacchi 1997). In the German study, life history data were collected in 1981-83 from persons born in 1929-31, 1939-41, and 1949-51, that is, age 32, 42, or 52 at the time of the interview.

The same team used a similar design to collect life history data in 1990 for residents of former East Germany, which has resulted in a rich account of how changing policies of the government of the D.D.R. and changing features of the macro-social structure affected the life chances of individuals (Huinink et al. 1995; see also the review by DiPrete 1997). The study of social change has also been the focus of much of the work based on the West German and Swiss surveys, including for Germany analyses of cohort differences in career mobility (Blossfeld 1989), changes in the status of women (Mayer et al. 1990), changes in involvement in continuing education and its effect on income (Schömann and Becker 1995; Becker and Schömann 1996), and for Switzerland changes in career patterns over time (Buchmann and Sacchi 1995a, 1995b). Life history data have also been used to show the effect of variations in the organization of educational systems and labor markets on the school-to-work transition and on career dynamics in West Germany, Norway, and the U.S. Allmendinger (1989a, 1989b) and on career dynamics in West Germany and Poland (Mach et al. 1994).

A limitation of both cross-national and cross-temporal multilevel designs is that it is difficult to generate enough cases to sustain anything other than the simplest analysis at the macro level. We seldom have more than 30 or 40 nations or years, which is hardly enough cases from which to estimate a model with more than one or two contextual variables. An obvious solution is to cross years by nations. This is the approach the authors of this review are taking in our current analysis of the process of status attainment, discussed above. Drawing upon data from some 250 sample surveys conducted in about 40 countries since the middle of the century, we define 15 five-year birth cohorts ranging from 1900-1904 to 1970-1974. Thus in principle we have 600 (= 15 x 40) contexts

on which to base our macro-level analysis,¹⁴ and are able to study the effect of both variations between nations and cross-temporal variations within nations on the status attainment process. For example, we can test the hypothesis that parental occupational status has a smaller effect on educational attainment in welfare states than in *laissez-faire* systems by assessing the character of the welfare system in each nation separately for each five year period.

Statistical Developments

As noted above, the major statistical development in the fourth generation has been the increasing utilization of statistical procedures that combine the advantages of both the quantitative methods of the second generation and the qualitative methods of the third generation. Whereas the second generation of research in stratification relied mainly on ordinary least squares regression procedures and the third generation of research was dominated by log linear and log multiplicative techniques,¹⁵ the fourth generation may be characterized by the use of statistical procedures that permit quantitative and qualitative measurements of both independent and dependent variables to be combined. Although stratification research began to incorporate discrete representations of *independent* variables some 25 years ago, only recently has the discrete representation of *dependent* variables in multivariate analyses become widely applied, first through the adoption of logistic regression procedures that permitted the correct representation of dichotomous dependent variables

¹⁴In practice, of course, we have substantially fewer contexts since we do not have data for all cohorts in each nation.

¹⁵To be sure, there continue to be advances in these techniques as well. One of the most important is the development of a log-multiplicative layer effect model (Xie 1992) that permits a single-parameter estimate of the extent of association in a mobility table under a very flexible set of models, and thus provides a powerful way to make comparisons across tables. See the papers in Erikson and Jonsson (1996) for several applications of this technique.

and more recently through the adoption of various extensions of logistic regression, particularly multinomial logistic regression.¹⁶

Binomial logistic regression procedures are now utilized quite routinely in research papers in our subfield. Since many outcomes of interest are binary, e.g., attainment of university education, acquisition of a managerial job, etc., it is quite natural to study the chances (odds) of obtaining favorable outcomes. A particularly interesting application of binomial logistic regression is in estimating Mare's educational continuation model (as in the papers in the Shavit-Blossfeld volume discussed above); see Allison (1982) for additional detail on the design issues involved.

Some outcomes are, of course, polytomous, e.g., attainment of several alternative occupational class positions, but nonetheless may depend, in part, upon variables best represented in a quantitative way, for example, years of schooling. Multinomial logistic regression procedures permit the estimation of such models and hence are finding increasing use in stratification research. Moreover, various specialized forms of logistic regression have been introduced (see Hosmer and Lemeshow 1989 and Long 1997 for excellent explications of these methods). A particularly important development is the introduction of various procedures for adding individual level covariates to log-linear mobility models (Logan 1983, DiPrete 1990, Breen 1994). Working in this tradition, Logan (1996a, 1996b) has elaborated the two-sided logit model as a way of simultaneously considering the factors that affect variations in opportunity and the factors that affect variations in choice. Although not yet widely used, these procedures show great promise for advancing

¹⁶We do not discuss event history techniques here, except in passing, since we reviewed developments in this area in the previous section. The major technical treatments of this topic by sociologists include Tuma and Hannan (1984); Allison (1984, 1985); Blossfeld et al. (1989); Yamaguchi (1991), and Blossfeld and Rohwer (1995). See also Mayer and Tuma (1990) for a collection of empirical applications, many of interest to students of stratification.

comparative research on social mobility by combining the insights of the second and third generations.

Another statistical development of potentially great importance is attention to the problem of selection bias (Berk 1983; Winship and Mare 1992). It often is the case in non-experimental research that selection into the sample under study is not independent of the outcomes of interest, a condition that—if uncorrected—leads to biased inferences about social processes. For example, individuals may seek higher education in order to prepare for a specific profession; and women may return to work only if they secure a sufficiently high wage. Although as yet little attention has been paid to such problems in comparative stratification research, a number of U.S. studies have employed various procedures to adjust for selection bias, e.g., studies of the effect of school tracking (Gamoran and Mare 1989), youth employment (Mare and Winship 1984; Mare et al. 1984; Hagan 1991; Sakamoto and Chen 1991), college choice (Manski and Wise 1983), occupational mobility in the 19th century (Hardy 1989), women's socioeconomic achievement (Fligstein and Wolf 1978; Tienda et al. 1987; England et al. 1988; and Hagan 1990), and migration and mobility (Tienda and Wilson 1992).

Measurement standardization

Considerable closure has now been achieved with respect to the measurement of the key stratification variables: occupational status or position; and education. Despite the salience of the Marxian distinction between capitalists and workers, most stratification research has focused on the **occupational** division of labor. Jobs are aggregated into classes, or assigned status scores, on the basis of the similarity of their content—their responsibilities and duties—and the similarity of the positions they occupy in labor markets and production units, principally what kind of supervisory

responsibility they entail and the nature of the employment status (the most important distinction being between employees, self-employed workers without employees, and employers). A good deal of effort has gone into creating tractable occupational classification schemes and three such schemes have emerged as the classifications of choice, at least for cross-national comparative research: the EGP scheme (Erikson and Goldthorpe 1992) as a categorical classification of occupational class categories; the ISEI (Ganzeboom et al. 1992; Ganzeboom and Treiman 1996) as a socioeconomic index of occupations (linking their average educational requirements and average income); and the SIOPS (Treiman 1977) for situations in which researchers wish to measure the prestige of occupations (see Ganzeboom and Treiman 1996 for a review of all three schemes). Still, despite the widespread acceptance of these classification schemes, challenges continue to be thrown up, notably Hauser and Warren's (1997) argument that separate measures of the educational qualifications of occupations and of their income returns are superior to ISEI measures that confound the two dimensions and Grusky and Sørensen's (1998; also Sørensen and Grusky 1996) argument that social classes—both in the sense of shared market position and shared perception of class interests—are better measured by disaggregated occupations than by highly aggregated occupational class categories of the sort represented by the EGP classification. Whether these challenges will seriously undercut the emergent consensus regarding the preferred way to measure occupational position is yet to be seen.

Finally, substantial progress has been made with respect to the far more difficult problem of devising a cross-nationally comparable way to measure educational attainment, notably in the CASMIN scheme proposed by Müller et al. (1990) and used to good effect in the collection of parallel papers on the transition from school to work edited by Shavit and Müller (1997). The basic difficulty is that many educational systems, notably those of European nations, distinguish between

academic and vocational education, so that educational attainment has two dimensions: the amount of schooling and the kind of schooling. Müller and his colleagues confront this problem by devising a typology of categories distinguished on the basis of both dimensions at the secondary school level where the dual track system is most important.

Data Developments

Accompanying the development of new research designs and the application of increasingly sophisticated statistical methods has been a major improvement in the availability of truly comparable cross-national and cross-temporal data. We already have reviewed three recent or on-going multi-national data collection projects specifically devoted to stratification issues (the Wright, Kelley, and Szelényi and Treiman projects). In addition, several other multi-national projects are generating data of considerable interest to researchers in our field.

Perhaps as a consequence of the increasing internationalization of quantitative competence, together with increases in computing power that have made feasible the analysis of large and complex data sets on desktop computers, there has been a shift in focus from the conduct of stand-alone cross-sectional surveys of specific populations to an interest in joining forces to produce comparable data over time or across nations. The initial model for this effort was the U.S. General Social Survey, which began in 1972 and has been repeated thereafter every year or two with careful attention to comparability over time. As the series grew longer, sociologists began to exploit it to do various kinds of trend analysis, including stratification analysis (e.g., the paper by DiPrete and Grusky reviewed above; Hauser and Huang 1997). The success of the GSS inspired two highly salutary developments: (1) the launching of similar repeated-cross-section surveys in other nations; and (2) the creation of the International Social Survey Project (ISSP), in which nations conducting

annual or bi-annual social surveys on the GSS model collectively design a module of some 15 minutes worth of questions on a particular topic, which is then included in each national survey. From its inception in 1985 with five participating nations, the ISSP has grown to a 22 nation survey. Of particular interest to the stratification research community are the two social inequality modules designed by Jonathan Kelley and Mariah Evans, in 1987 (with nine nations participating) and 1992 (with 18 nations participating), which have generated invaluable information on subjective aspects of stratification; a third inequality module is scheduled for 1999. In addition to the ISSP project, the 12-nation "International Social Justice Project," which carried out surveys in 1991 and 1996 (Kluegal et al. 1995), is an important resource for stratification researchers since it contains many items concerned with subjective aspects of stratification.

THE FATE OF "NEW DEVELOPMENTS" BEYOND THE THIRD GENERATION

In the final section of our 1991 paper we identified several areas that we thought showed promise as new directions for research in our field: new data collection, event history models, multiple indicator and sibling models, multivariate models with categorical variables, women and families, and consequences of social mobility. Of these, we have already reviewed at some length developments with respect to data collection, event history models, and multivariate models with categorical data. We conclude the present paper with a brief assessment of progress with respect to the three remaining topics.

Multiple Indicator and Sibling Models

In our 1991 review we noted that earlier work that took seriously the problem of measurement error in status attainment models seemed to have faded into oblivion. Despite well-known problems of unreliability and invalidity with respect to the major variables of stratification

research, virtually no attention has been paid to such issues since the early 1980's, either by those working within a status attainment tradition or by those analyzing mobility tables via log-linear analysis. The situation is no different today; potential bias due to measurement error is simply ignored.¹⁷ One substantively oriented approach to the measurement issue, the use of sibling models to separate unmeasured family effects on stratification outcomes from the effects of individual characteristics, such as education, has continued as a kind of minor industry (e.g. De Graaf and Huinink 1992; Dronkers 1993; Kuo and Hauser 1995; Toka and Dronkers 1996), but has not moved into a central place in the field. In particular, there has been virtually no comparative research in this area. Nonetheless, there are some interesting methodological developments, notably Mare's (1994) proposal of methods for analyzing sibling data within a discrete-time event history context.

Consequences of Social Mobility

Here there seems to have been something of a resurgence of activity, with the consequences of social mobility, and of status position more generally, receiving more attention now than any time since the first generation of research in the 1950's and 1960's. We already have noted the work of Kelley and his colleagues, but there is much other research as well. Both technical and substantive developments have promoted this revival. On the technical side, Sobel's (1981, 1985) diagonal mobility model, which provides a workable solution to the problem of distinguishing effects of mobility *per se* from the separate effects of origins and destinations, has stimulated new research (e.g., De Graaf et al. 1995 and the references cited there). On the substantive side, the collapse of communism in Eastern Europe has focused attention on the relationship between objective status,

¹⁷Work on multiple indicator models and other procedures for dealing with measurement error *has* continued elsewhere in sociology (see, for example, Bollen 1989; Bollen and Long 1993; Hagenaars 1993; Van Eye and Clogg 1994); unfortunately, this work has not been systematically applied to stratification research in recent years.

subjective status, and political attitudes as researchers have tried to understand the vicissitudes of post-communist politics in the region (e.g., Matějů 1996). Melvin Kohn and his group have continued their long-term project to explore the relationship between social class and psychological functioning with new publications comparing the U.S. and Poland (Kohn and Słomczyński 1990); Japan, the U.S., and Poland (Kohn et al. 1990); and Poland and the Ukraine (Kohn et al. 1997).

Women and Families.

Comparisons of the mobility chances, achievements, and careers of men and women, and of the relationship between family and job responsibilities, had already been underway as early as the second generation and continue to have a lively life in our field. Nonetheless, there has been an important recent development: new surveys, including *all* of those discussed above, now routinely collect data on both men and women rather than on men alone, in a sharp departure from earlier practices. This has permitted new analyses of women's class position in different societies, focusing in particular on authority relations on the job (Wright and Baxter 1995); the position of women in the labor market (Rosenfeld and Kalleberg 1990, 1991; Charles 1992; Wong and Hauser 1992; Charles and Grusky 1995; Jacobs and Lim 1995; Rosenfeld and Birkelund 1995; Wong 1995; Semyonov and Jones 1998); and the domestic division of labor (Baxter 1995, 1997). While lip service continues to be paid to the notion that social status is a property of families and not of individuals, there is as yet little comparative research that attempts to articulate the relationship between individuals and families, apart from the question discussed above of how women rate their own and their husbands' objective characteristics in arriving at a subjective assessment of their class position.

CONCLUSION

Research on how systems of social stratification and mobility vary over time and across societies is alive and well in the 1990's. After a long period of technical advances and focus on fairly narrow questions, a broad array of new questions is being posed and old questions revisited, with new techniques, better data, and more appropriate research designs. The core questions of our field regarding to what extent, in what ways, and under what conditions processes of social mobility and status attainment vary in different social contexts are continuing to receive substantial attention, but there is also new and renewed interest in specific aspects of these processes, e.g., what accounts for advancement from one level of schooling to the next, how is the transition from school to work mediated by the articulation of educational institutions with labor allocation processes, and how is career mobility, including mobility between employment and unemployment and in and out of the labor force, affected by economic expansion and contraction. Focus on the role of economic expansion and contraction is but one example of another important development—increased attention to how stratification and mobility outcomes are affected by historical events such as policy interventions and political regime changes. Finally, the old question of the consequences of social status and social mobility has been revived, in part motivated by the need to understand the consequences of the collapse of communism in Eastern Europe, and in part driven by new technical developments. Together these developments identify a fourth generation of comparative stratification research, which has made substantial advances over the previous three generations.

Research in social stratification and social mobility has from its inception been an international enterprise, but never more so than now. There are strong groups of stratification researchers in many nations throughout the world and sustained contact between researchers from

different countries, promoted in large part by the Research Committee on Social Stratification and Mobility (RC 28), which meets regularly twice a year, typically in the spring in Europe and in the late summer in North America. It is notable that every single one of the major comparative research projects reviewed above includes among its core participants researchers from different countries. The active involvement of researchers who were trained in and continue to be influenced by a variety of national traditions has increased both the richness and the rigor of our common enterprise. All in all, these are exciting times for students of social stratification and mobility.

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