

SOCIAL STRATIFICATION:

Research and Theory for the 1970s

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Industrialization and Social Stratification*

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This paper reviews the current state of knowledge about the effects of industrialization upon systems of social stratification. Taking societies as the unit of observation, we consider the relationships between level of industrialization and (1) the distribution of status characteristics in the population (the structure of stratification); (2) the pattern of interrelations among status characteristics (the process of stratification); and (3) the form of linkages between status characteristics and other aspects of social behavior (the consequences of stratification). A set of propositions is specified, a few of which are empirically well established but most of which yet require empirical testing.

Industrialization is perhaps the most pervasive and fundamental trend affecting national societies in the current era. Across the globe countries are industrializing as fast as they can muster the resources to do so. As this transformation takes place it necessarily entails changes in other aspects of social structure, and one of the social institutions most likely to be affected by industrialization is the system of social stratification. In this paper we will examine the interrelations between societal variations in extent of industrialization and societal variations in the nature of social stratification systems, reviewing what is known to date and offering suggestions for future empirical investigation. We will begin our review by considering variations in the *structure* and *process* of stratification and then will take up the *consequences* of these variations both for other social institutions and for the behavior of individuals.

By the *structure* of a stratification system we mean the composition of a population with respect to the possession of socially valued and scarce resources, or, to put it slightly differently, the *shape of the distribution* of these resources in a population. Three central components of stratification systems are education, occupation, and income, and we shall devote most

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of our attention to these dimensions.¹ It is evident that societies vary with respect to the distribution of their populations over categories of educational attainment, occupational status, and income, and we will be concerned with the relation of industrialization to such variations.

By the *process* of stratification, or the *process of status attainment*, we refer to the principles or rules by which individuals are distributed over locations in the stratification structure. This leads directly to a concern with the interrelations among the various dimensions which comprise the structure. For example, the statement that occupational status is largely dependent upon educational attainment and only slightly dependent upon father's occupational status is a rule describing the process of stratification or the process of status attainment. And the assertion that the rate of occupational inheritance decreases as societies industrialize is a statement about a change in the process of stratification.

It is evident that both aspects of stratification systems are intimately interrelated: changes in *structure* necessarily imply changes in *process*, and vice versa. Nonetheless, for convenience of exposition we will attempt to separate this section of our review into the following topics: (A) the effect of industrialization upon the structure of stratification; (B) the effect of structure upon process; and (C) the effect of process upon structure. Then in the second section, we will consider how the relations between stratification and other aspects of social life are affected by variations in the level of industrialization of societies. Our procedure will be to review the principal issues associated with various substantive topics in order to formulate a series of propositions which either have substantial empirical support or which are suggested on theoretical grounds as warranting empirical investigation.

PROCEDURAL AND METHODOLOGICAL CONSIDERATIONS

Before beginning our substantive review we need to make explicit some of the assumptions underlying our approach and to deal with some methodological problems confronting comparative research.

First, we should make it clear that we conceive of the task of comparative analysis as *the discovery of covariation among properties of social systems*. Accordingly, the propositions we will offer have to do with the

¹ It is evident that these are not the only dimensions of stratification systems. A comprehensive exposition would necessarily consider the determinants of the prestige of individuals and groups and the role of ethnic and religious group membership in the process of status attainment, both of which topics we have ignored here. We have restricted our attention to education, occupational status, and income both because of limitations of space and because these dimensions are more amenable to comparative analysis than those we have not considered. Given the current state of the art, it would seem prudent to tackle the less recalcitrant topics first.

interrelations among various characteristics of social systems abstracted from the concrete nexus of traits characterizing any particular society. For example, we will be concerned with such things as the relation between the rate of social mobility and the likelihood of interclass conflict, considered independently of the peculiarities of political structure or local definitions of social class in the particular societies from which data happen to be drawn. While we recognize that most of the evidence we will be able to marshal in support of the propositions we present will in fact come from case studies of single countries or from comparisons of very limited numbers of countries, it is our contention that adequate understanding of intersocietal variations in stratification systems, or for that matter in any other social institutions, will ultimately depend upon the adoption of explicitly comparative approaches which take societies as the unit of observation and which study the covariation among their various characteristics.

The second point which demands comment is the issue of whether inferences about temporal changes in social structure within societies can be drawn from cross-sectional intersocietal comparisons. It is clear that it would be foolhardy to make the simple assumption that the process of societal development which the industrially advanced countries experienced during the nineteenth and early twentieth centuries will be repeated by the currently nonindustrialized countries (see Kuznets, 1954, for an excellent statement on this point). However, many of the concomitants of industrialization of relevance to the nature of a social stratification system may appear regardless of the exact process by which a country industrializes. For example, both cross-sectional and longitudinal data support the contention that as countries industrialize the availability of education increases (see Russett, 1964:283, for cross-sectional data and UNESCO, 1958, for longitudinal data). Thus, an assertion of the form "as educational opportunities increase the influence of social origins on educational attainment decreases" may be equally true as a description of a consequence of a *change* that takes place in a given society over time or of *variation* across societies at a given point in time. Because the phenomena we are concerned with here are the interrelations among various aspects of stratification systems as they appear at any given moment and because we wish simply to relate variations in these phenomena to variations in other aspects of social structure, notably degree of industrialization, it is not necessary to resolve the issue of whether variations in level of industrialization among contemporary societies simply reflect stages in a unilinear process of societal evolution; we contend that the patterns under discussion here would obtain regardless of the exact processes by which countries industrialize. Accordingly, we shall adduce both cross-sectional and longitudinal evidence in support of the propositions we put forth.

Our final task before turning to the substantive review is to define more precisely the variables we shall be considering. Despite variations in exact operational definitions, the meaning of the terms "education" and "income" is fairly straightforward. Education is ordinarily scaled in terms of categories of amount or type of formal schooling completed or attended; and income is usually scaled in terms of amount of money accruing to individuals (or sometimes to families) within a year or other fixed period. With suitable adjustments, both can be represented on interval scales. In contrast to income and education, the terms "industrialization" and "occupation" require some elaboration.

In this paper we accept Davis's definition of industrialization as "the use of mechanical contrivances and inanimate energy (fossil fuels and water power) to replace or augment human power in the extraction, processing, and distribution of natural resources or products derived therefrom" (1955: 255). While this definition refers simply to technological change, it is clear that such change is ordinarily accompanied by radical transformations of social structure, principally as a result of changes in the distribution of the labor force. This has led some authors to measure the level of industrialization by the proportion of the labor force not engaged in agriculture (see, for example, Golden, 1957; and Soares, 1966). However, for our purposes we prefer to stick to the definition of industrialization as the mechanization of production and to treat as problematic the association between industrialization and aspects of social structure, particularly the structure of stratification systems.

The remaining variable requiring definition is occupational status. Viable cross-national comparisons of occupational structures and of the process of status attainment require the utilization of standardized procedures for scaling occupational status. Unlike education and income, occupational categories have no intrinsic interval or even ordinal properties. However, it is possible to scale occupations according to their location in a hierarchy of resources and rewards. Most occupational scales seek to capture either the *prestige* or the *socioeconomic status* of occupations, that is, the average educational and income levels of the incumbents of each occupation. Fortunately, although they are conceptually distinct, the prestige and SES dimensions of occupations are highly correlated. Duncan (1961), for example, was able to account for over eighty percent of the variance in the prestige of forty-five occupations on the basis of the education and income levels of their incumbents ($R_{P(EI)} = .91$). Duncan's result subsequently has been replicated by Hodge and Siegel for all occupations in the United States Census 1960 detailed classification (reported in Treiman, 1968a:120) and extended to Canada by Blishen (1967) and to Great Britain by Treiman (1968a:120); $R_{P(EI)} = .89$ for both the U.S. and Great Britain and .92 for Canada. In work currently underway, Treiman is

attempting to extend these results for a larger number of countries; so far education-by-detailed-occupation tabulations have been located for nearly twenty of the countries for which prestige data are also available, and income-by-detailed-occupation tabulations have been found for half this number. There is also some evidence that occupational status ratings formed on the basis of the impressions of expert judges are highly correlated with ratings derived from popular evaluations (see, for example, Hall and Jones, 1950:42). Hence, we are not likely to go too far wrong if we simply assume that the particular occupational status scales utilized by the various studies we will be reviewing all adequately represent the true occupational hierarchies in the populations referred to (for a discussion of this issue which reaches a similar conclusion see Duncan, 1966b:83-90).

This still leaves us with the question of how comparable occupational hierarchies are across countries. Recent work by Hodge, Siegel, and Rossi (1964) and by Treiman (1968a) indicates that occupational prestige hierarchies are substantially invariant across time and space. Hodge, Siegel, and Rossi found almost perfect agreement in occupational ratings derived from a series of surveys conducted in the United States from 1925 through 1963. Treiman, analysing data from thirty-eight countries varying widely in level of industrialization, found an average intercorrelation of .84 between pairs of countries. Thus, we can have reasonable confidence that intersocietal variations in aspects of the process of stratification which involve occupational structure are not simply artifacts of the way in which occupation is measured.

I. VARIATIONS IN STRATIFICATION SYSTEMS

We now turn to the body of this paper and consider the ways in which systems of stratification vary for countries at different levels of industrialization. We start with a selective review of the research literature on social mobility, since it is under this rubric that most of the work has been done that provides evidence about changes in the structure and process of stratification.

The comparative study of social mobility received its major impetus from the 1951 Conference on Social Mobility and Social Stratification sponsored by the International Sociological Association (ISA, 1951). As a result of that conference, some half dozen studies of social mobility were launched in as many European countries, and in subsequent years the number of national or regional studies of social mobility has grown to more than twenty-five (for reviews of most of these studies, see Miller, 1960:66-80; Lipset and Bendix, 1960:13-38; and Treiman, 1968b). The principal concern of the majority of these studies has been simply to establish rates of mobility in each separate country. Relatively little explicitly comparative

work has been carried out; and until very recently, almost no attempt has been made to go beyond the internal analysis of individual zero-order mobility tables by investigating the complex process by which status is transmitted from one generation to the next.

Much of the comparative work to date has reflected preoccupation with the question of whether and in what way *rates* of social mobility vary across countries. On the basis of an analysis of rates of intergenerational crossing of the manual-nonmanual line in eight relatively industrialized countries, Lipset and Bendix (1960:13) concluded that "*the overall pattern of social mobility appears to be much the same in the industrial societies of various Western countries*" (italics theirs). And a somewhat more recent study by Svalastoga (1965) arrives at a similar conclusion. Comparing data for nine European countries by means of a correlational procedure, Svalastoga found striking similarity from country to country in the degree of correspondence between father's and son's occupational status; he reports correlations on the order of .4 for every country. On the other hand, Cutright (1968), using a procedure which purports to adjust for shifts in occupational distributions over time, found substantial variation in the mobility rates of thirteen nations. He concluded, moreover, that the rate of mobility is positively correlated with the level of industrialization of these countries. Studies by Fox and Miller (1965) and by Marsh (1963) reached substantially the same conclusion.

Unfortunately, each of these studies is technically flawed in some way. All but Svalastoga rely upon a simple manual-nonmanual dichotomy which does not adequately capture variability in patterns of mobility across societies (cf. Duncan, 1966b:86-90; and Lenski, 1966:411-412) and which cannot satisfactorily handle mobility from agricultural occupations. Also, Svalastoga's adjustment of his data to attempt to correct for intercountry variability in the distribution of the labor force was incorrectly carried out (Treiman, 1968b:38). Hence, we are left with no clear idea about the extent of intercountry variability in rates of mobility.

Moreover, even if we could resolve the simple question of *how much* mobility exists in various countries, this still would not take us very far toward an adequate understanding of the *process* of status transmission. For example, it is likely that the role of education as an intervening mechanism in the process of status transmission varies substantially across countries, depending upon the availability of educational opportunity. And, by the same token, the relationships among education, occupation, and income probably vary with the level of industrialization of countries.

Fortunately, however, recent work by Blau and Duncan (1967) has laid the foundation of a new and extremely fruitful approach to the study of social mobility that gives promise of stimulating substantial advances in our understanding of the process of status attainment. By recasting the tradi-

tional question of how much and what sorts of mobility characterize a society as a problem of assessing the role of social origins in the process of status attainment, Blau and Duncan have opened the way for investigation of the complex process by which status is transmitted from one generation to the next.

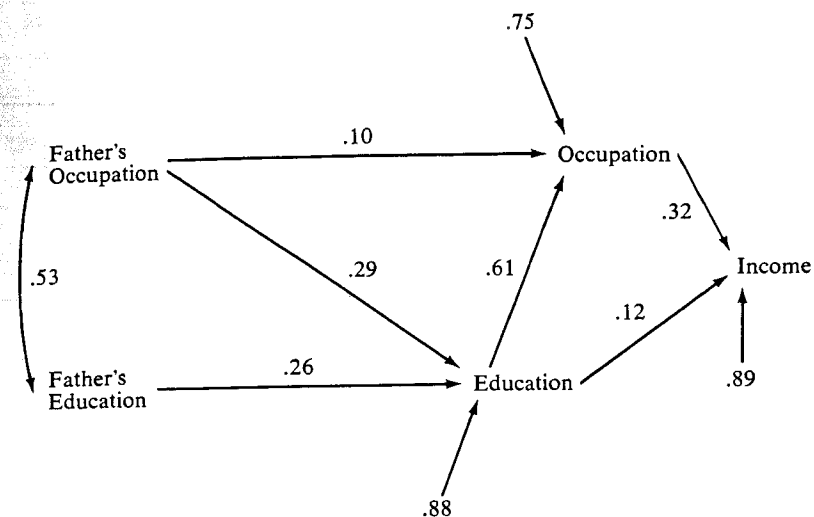


Figure 1. The process of status attainment in the United States, 1962, for non-Negro nonfarm origin males age 35-44 (adapted from Duncan, Featherman, and Duncan, 1968:53).

Of even greater importance than the conceptual breakthrough, however, is the *methodological* innovation represented by the use of path analysis to decompose the correlation between father's and son's occupational status into a set of causal linkages operating, in part, through intervening variables (for an introduction to path analysis, see Duncan 1966a; and the papers in Part I of Borgatta and Bohrnstedt, 1969). A basic model of the process of status attainment in the United States, adapted from Duncan, Featherman, and Duncan's (1968) extension of Blau and Duncan's analysis, is presented in Figure 1. While this model does not specify in full the details of the process studied by Duncan and his associates, it is adequate to represent those parts of the process of special interest here and to provide a base for speculation about the ways in which the process of status attainment is affected by industrialization.

The model indicates that educational attainment depends directly upon both father's educational attainment and father's occupational status; that occupational status depends directly upon educational status and upon father's occupational status, but only indirectly upon father's educational attainment; and that income depends directly upon occupational status and educational attainment, but only indirectly upon father's educational and occupational status. Father's educational attainment and occupational status are represented as simply intercorrelated, rather than as causally connected. Inspection of the size of the coefficients in the model reveals that for non-Negro nonfarm origin United States males age 35-44 in 1962 father's educational and occupational status were about equally important determinants of educational attainment; that education was a substantially more important direct determinant of occupational attainment than was father's occupation; and that occupational status was a substantially more important direct determinant of income than was educational attainment.

For our present purposes, however, the particular coefficients which obtain for the United States are not of primary interest. Rather, we have dwelt upon this model as an illustration of an approach to the study of the process of status attainment which has enormous potential for comparative analysis.

The advantages of path analysis for comparative research are several.

First, as was indicated above, the technique provides a way of precisely assessing the relative importance of various causal chains in a complex system of variables. For example, by invoking the fundamental theorem of path analysis (Duncan, 1966a:5) it can be shown that only about one quarter of the observed association between father's and son's occupational status in the population depicted in Figure 1 can be attributed to the direct intergenerational transmission of father's occupational status, while fully three-fourths of the observed correlation can be attributed to the indirect linkage via education: the sons of higher status fathers go further in school, and those with more schooling obtain higher status occupations.

Second, direct intersocietal comparisons can be made of the sizes of any particular paths in the system, provided the variables are comparably measured. This feature provides a basis for testing propositions about the relations between variations in stratification systems and variations in other aspects of social structure. For example, it would be possible to estimate the parameters of some particular model of the process of status attainment (e.g., the one presented in Figure 1) for a number of societies. Then, assuming data for enough societies were available, the various parameters of the model could be treated as variables and correlated with other societal characteristics, such as the degree of industrialization or urbanization or the availability of education, thus providing precise estimates of the effect of such characteristics on the process of status attainment.

Third, since estimates of the parameters of a model (*path coefficients*) ordinarily are derived from the zero-order correlations among the variables in the model, it is often possible to use data from several sources in a single model. This last feature greatly increases the body of data potentially available for analysis, since for many foreign countries there are several sources of data on social stratification and social mobility, each source containing information on only a relatively small number of variables.

On the other hand, since legitimate comparisons of the parameters of a path model across populations require that the variables which enter the model be measured in comparable ways for each population, somewhat greater than usual demands are placed upon the researcher to insure that his data are indeed comparable. It would be extremely unfortunate if researchers were to rush blithely to the comparison of coefficients of path models, or for that matter any quantitative models, without expending the necessary prior effort to insure the comparability of the coefficients being compared. Fortunately, for the reasons given above, the problem of comparability is not insurmountable, provided appropriate care is taken. Procedures for improving the comparability of comparative data will be suggested in the summary section below. We now turn to the question of how industrialization affects the structure of stratification systems.

A. Industrialization and Structural Variation

Occupational structure

Perhaps the most obvious consequence of industrialization is a shift in the distribution of the labor force. Typically, as countries industrialize the efficiency of agricultural production increases and the proportion of the labor force engaged in agriculture decreases. Kuznets (1957:28-31) presents data for twenty-eight countries showing a decline in the proportion of the labor force in agriculture over approximately the past 100 years, which he attributes to the increasing industrialization of these countries. And among contemporary societies there is a very high negative correlation between the level of industrialization (as measured by per capita energy consumption) and the proportion of the labor force engaged in agriculture ($\rho = -.76$ for 93 countries, computed from Ginsburg, 1961:Tables 10 and 34).

In addition to the shift out of agriculture, there is usually a shift in the occupational distribution of the nonagricultural labor force as well. This comes about in several ways. First, the increased productivity of labor resulting from mechanization allows a shift over time from the production of goods to the production of services (Jaffe and Stewart, 1951:254; Kuznets, 1957:28-31), which has the effect of increasing the ratio of nonmanual to manual workers. Second, technological changes tend to radically transform the nature of specific jobs and to give rise to entirely new occupations as

well. The rationalization of production which accompanies mechanization ordinarily involves a shift from a craft system, in which all the tasks involved in the production of a given article are carried out by the same individual, to an assembly line system in which the manufacturing process is divided into a set of discrete operations, each of which can be carried out in a routine manner by a semiskilled workman or machine attendant. And, of course, mechanization implies the development of new occupations concerned with the design and maintenance of complex machinery (Jaffe and Stewart, 1951:256). What results is an enormous proliferation of occupational specialties such as has accompanied the process of industrialization in the United States (U.S. Department of Labor, 1965:xiii-xiv). Third, there is an increase in the scale of economic activity. Rising capital requirements and economies of scale result in an increase in the size of individual enterprises (Hoselitz, 1961), and improvements in transportation increase the size of the potential market for goods. The development of a complex production and marketing system requires an increase in clerical and administrative personnel, and this, together with increased productivity, results in an increase in the ratio of nonmanual to manual workers. Actually, the form this takes is the more rapid growth of the nonmanual than the manual sector, both of which grow at the expense of the agricultural sector (for cross-sectional evidence based on data from twelve Western Hemisphere nations see Soares, 1966:198; and for longitudinal data for four Anglo countries see Farrag, 1964).

Educational structure

A second concomitant of industrialization is an increase in the level of education in the population (Bowman and Anderson, 1963). Not only does the shifting labor market create increased demand for trained personnel, but educational opportunities tend to be more available in more industrialized countries. Such nations tend to have more extensive educational systems, and are more likely to make education available free of charge to the student. The popular desire for education tends to increase as well, as more and more jobs come to require explicit educational qualifications. And urbanization, which generally accompanies industrialization itself results in increased desire for education. Since an urban labor force has less need of child labor than does an agricultural labor force, urban parents are more likely to encourage their children to take advantage of educational opportunities—or, to put it in the opposite way, are less likely to prevent them from doing so. Also, with a shift from craft to factory modes of production, parents are no longer able to train their children directly for occupational roles and are less able to teach them the particular skills demanded by a fluid industrial labor market, notably literacy (Golden, 1957); hence, they are more likely to send them to school.

Income structure

Finally, industrialization results in increased per capita wealth. This is well known and in itself not very interesting. Of greater interest is the tendency for income inequality to be reduced as a consequence of industrialization. Kuznets (1963) presents both longitudinal and cross-sectional data showing a reduction in the inequality of family income as countries develop economically. This trend is probably due primarily to the shift of the labor force out of agriculture—traditional agriculture typically returns very low income, which reflects its extremely low productivity—and rising productivity of the remaining agricultural labor force. A second factor is the increase in education which accompanies industrialization. Rising educational levels tend to increase the supply of labor aspiring to nonmanual jobs and to reduce the supply of labor willing to accept manual jobs. To the extent that this shift is not matched by corresponding shifts in the demand for labor, differences in the wage scales of nonmanual and manual workers will be reduced (Reynolds, 1964:473-474). We shall have more to say about this point below.

We can summarize our conclusions about the relations between industrialization and the structure of stratification by stating them in propositional form. The following propositions are fairly well supported by both cross-sectional and longitudinal evidence, although more complete data will be required for them to be accepted unequivocally:

- I.A.1. The more industrialized a society, the smaller the proportion of the labor force engaged in agriculture.
- I.A.2. The more industrialized a society, the greater the number of different jobs in the occupational structure.
- I.A.3. The more industrialized a society, the higher the ratio of nonmanual to manual workers in the nonagricultural labor force.
- I.A.4. The more industrialized a society, the higher the proportion of children attending school.
- I.A.5. The more industrialized a society, the higher the per capita income.
- I.A.6. The more industrialized a society, the greater the equality of income.

B. Variations in the Process of Status Attainment

Having considered the ways in which the distribution of status variables vary with industrialization, we now turn to the question of the relation between industrialization and intercountry variations in the process of status attainment. It will be evident as we proceed through this section that most of the shifts in the process of status attainment we postulate are in fact consequences of shifts in the distributions of the three status attributes we

have just considered. It is convenient to think of the model presented in Figure 1 (ignoring the coefficients) as a generic representation of the basic process of status attainment, even though we recognize that for particular societies the process might well vary somewhat. By restricting our attention to a single generic model, we can suggest some propositions about the ways in which various aspects of the process represented in the model can be expected to vary for societies at different levels of industrialization.

1. The direct (or net) influence of father's on son's occupational status should be weaker the more industrialized a society. The changes in labor force structure we have discussed above make direct occupational inheritance less likely in more industrialized countries. In particular, the greater bureaucratization of work (Moore, 1966) makes it more difficult for fathers to pass their own positions directly on to their sons or even to arrange for their sons to work at the same jobs they do. Also, in more industrialized economies the sheer number of jobs is greater, as we have indicated, and the labor market more complex, making it less likely on the basis of chance alone that a given individual will work at a job similar to that of his father.

2. The direct influence of education on occupational attainment should be stronger in more industrialized societies (cf. Anderson, 1958; and Hurd and Johnson, 1967:60). With the increased specialization of labor which characterizes industrialization, and the concomitant increase in the proportion of professional, technical, administrative, and clerical jobs, formal education probably becomes more important as a mechanism for the learning of occupationally relevant skills, and an increasingly important resource in job competition. This is particularly true of positions in public bureaucracies (Hurd and Johnson, 1967:60-61). Moreover, the demand of highly industrialized societies for a mobile and adaptable labor force likely results in a shift from ascriptive to universalistic achievement criteria as a basis for occupational role allocation.

3. In more industrialized societies parental status should play a less important role in educational attainment than in less industrialized places. Industrialized countries are more likely to have free mass educational systems; and where education is free the opportunity to continue with schooling tends to depend mainly upon academic success at the previous level of schooling, rather than upon financial capability. In addition, the greater degree of urbanization of industrialized countries should reduce the dependence of educational attainment upon social origins, since educational opportunities are more readily available to urban children and since there is less pressure upon the children of urban industrial workers to leave school at an early age to go to work.

Note that these three propositions taken together imply nothing about the effect of industrialization upon the gross association between father's

and son's occupational status. The reason for this is that the three net effects are such as to potentially cancel each other out: while the direct intergenerational transmission of occupational status should decrease with industrialization, the indirect linkage through education may either increase or decrease depending upon whether the increase in the importance of education for occupational attainment is stronger or weaker than the reduction of the influence of parental status on educational attainment.

4. However, while we cannot *deduce* the effect of industrialization upon gross occupational mobility rates from our previous propositions, there are theoretical grounds for expecting the rate of gross mobility to increase with industrialization. In the first place, the upward shift in the distribution of the labor force that occurs over time as countries industrialize, taken together with a negative association between occupational status and fertility (Wrong, 1958), necessarily requires that some sons have occupations different from those of their fathers. But even if the mobility implied by the shift in the occupational distribution across generations (sometimes called "structural" mobility; see, e.g., Hutchinson, 1958) is subtracted, we could still expect higher rates of net mobility (also known as "exchange" mobility) in more industrialized societies as a consequence of (a) more extensive education, (b) more pervasive mass communications, (c) greater urbanization, and (d) increased geographical mobility in such places as contrasted with less industrialized countries. Each of these factors operates to break down the rigidity of the class structure of traditional society, and thus to increase the ease of mobility; the following paragraphs elaborate this assertion.

(a) In addition to imparting skills with specific occupational payoffs, education serves to broaden individuals' acquaintance with alternative possibilities and to inculcate social skills which will enable them to take advantage of such opportunities. As Anderson (1958:4) points out:

One must recognize that schools are acculturating as well as intellectual agencies. Individuals from the lower strata have an opportunity by association to learn the dialect, the social habits, the etiquette, etc., of the upper classes. . . . In some situations this result of schooling may be more important for mobility than the formal training. This is one reason why education could facilitate mobility even if every individual were to receive the same amount of schooling.

(b) The main consequence of the ubiquitous exposure of the population to mass media characteristic of industrial societies (Russett, 1964: 272, 274) is the development of a common culture and the diminution of regional, ethnic, and class differences in attitudes and behavior. Thus, in such societies occupational mobility is not likely to require acculturation to as radically different a style of life as would be the case in traditional societies.

(c, d) The increased urbanization and increased geographical mobility of industrial society should have the effect of reducing the ascriptive component in status attainment. Individuals migrating to new places or living in large urban centers must achieve success on the basis of their own talent, without either the help or the hindrance they would derive from the status of their parents in the smaller communities in which everyone knows everyone else.

We now turn to consideration of the effect of industrialization on the determinants of income and suggest three additional propositions.

5. The more industrialized a society, the stronger should be the direct effect of occupational status on income. The increased bureaucratization of work and the attendant increase in the specificity of job definitions and of occupational qualifications and perquisites probably results in a decrease in within-occupation variation and an increase in between-occupation variation in income (and, as noted above, education).

6. Following Smelser and Lipset (1966:35) and Anderson (1958:3), we would expect the direct effect of education on income to decrease with industrialization. Smelser and Lipset suggest that "the increase in the number of educated people in a developing economy necessarily means that as education becomes less scarce it should command less status and income." Actually, this assertion is only plausible on the assumption that the demand for educated personnel remains constant or at least does not increase as rapidly as the supply, for this is the circumstance that should reduce the increment in income expected from additional schooling.

7. The gross association between education and income should be smaller for more industrialized countries. As Anderson (1958:7) points out, while the effect of parental status on educational attainment should diminish with industrialization, the intergenerational inheritance of wealth should be largely unaffected by industrialization; hence, other things equal, the association between education and income would be expected to decrease with industrialization.

Evidence regarding the seven propositions we have specified here is extremely sparse. With the exception of the inconclusive studies of variation in gross mobility rates which we reviewed above, there have been no systematic cross-national investigations of any of these propositions. Hence, we are limited to the few specific results which can be pieced together from studies conducted in single countries. Duncan and Hodge (1963) present data for four cohorts of nonfarm origin Chicago men which show that both the gross association and the direct effect of father's on son's occupational status declined between 1940 and 1950, while the importance of education as an intervening mechanism in status transmission increased (on this point see also Blau and Duncan, 1967:180). This is the only investigation known to us which speaks *directly* to any of the first three propositions;

while relevant findings exist for a number of countries, incomparabilities in analytic procedures make direct intercountry comparisons impossible (see, for example, Duncan and Hodge, 1963; Carlsson, 1958:123-137; and Rocha, 1968, on the role of education in occupational attainment).

In support of the role of urbanization in facilitating mobility, we have two pieces of evidence. First, Ramsøy (1966:229) found the rate of "exchange" mobility of a cohort of young Norwegian males to increase sharply with the level of urbanization of community of residence. Second, Davis (1955:311) suggested that the association between caste and occupational status is breaking down in the urban areas of India, and specifically that urban factory work serves as a means of escape from the disability of low caste status which persists in the villages.

No evidence is available regarding any of the remaining propositions. Research currently underway by Treiman (1968b), which involves comparisons of the process of status attainment in approximately twenty countries by means of path analytic procedures, will hopefully supply some of the needed answers.

Again we summarize this section by stating our assertions in propositional form. None of the following can be taken as established; all require empirical verification.

- I.B.1. The more industrialized a society, the smaller the direct influence of father's occupational status on son's occupational status.
- I.B.2. The more industrialized a society, the greater the direct influence of educational attainment on occupational status.
- I.B.3. The more industrialized a society, the smaller the influence of parental status on educational attainment.
- I.B.4. The more industrialized a society, the higher the rate of "exchange" mobility. In particular,
 - a) The higher the level of education in a society, the higher the rate of exchange mobility.
 - b) The wider the distribution of mass communications in a society, the higher the rate of exchange mobility.
 - c) The higher the level of urbanization of a society, the higher the rate of exchange mobility.
 - d) The higher the rate of geographical mobility in a society, the higher the rate of exchange mobility.
- I.B.5. The more industrialized a society, the stronger the direct influence of occupational status on income.
- I.B.6. The more industrialized a society, the smaller the direct influence of education on income.
- I.B.7. The more industrialized a society, the smaller the correlation between education and income.

C. Implications of the Process of Status Attainment for Occupational Structure²

Thus far we have considered changes in educational, occupational, and income structures resulting from industrialization, and the implications these *structural* changes have for the *process* of stratification. In doing this we attributed changes in occupational structure to shifts in the demand for various kinds of labor which result from the increasing mechanization of production. That is, we accepted the common assumption that changes in occupational structure over time are due to forces exogenous to the stratification process and that these changes condition the process of individual status attainment. However, it is possible to think of these relationships in an alternative way. Matras (1967; 1970) argues that shifts in occupational distributions can be viewed as *resulting from* the operation of a particular mobility process upon an initial occupational distribution. In such a formulation, what accounts for changes in occupational structure is not exogenous *demand* factors but pressures generated by changes in the *supply* of various kinds of labor. In this section we suggest some ways in which rising levels of education may generate pressures for change in the occupational structure by altering the supply of various types of labor.

There are two principal sources of pressure for expansion of educational opportunities in industrializing nations. First, as was mentioned above, the mechanization of production and concomitant shift in the organization of work require increased numbers of formally trained personnel. Second, because jobs in the modern sector, and particularly the highest status and best-paying jobs, tend to require formal education, education comes to be defined as the prime route to occupational success, and the demand on the part of the public for education increases. In response to political pressures brought to bear by those eager for education, many newly industrializing countries have expanded their educational systems more rapidly than is warranted by the ability of the economy to absorb trained labor. One well-known result is the underemployment of highly educated labor which is common in developing countries (Williams, 1965; Myint, 1965). We suggest that insofar as the supply of educated personnel entering the labor force exceeds the demand for individuals with such qualifications, the following kinds of pressures for change will be generated in the occupational structure:

Pressures for expansion of the nonmanual sector. As the supply of individuals trained for and eager to obtain professional, technical, managerial, and clerical positions increases relative to demand, the price of such labor

² This section owes its existence to Judah Matras's presence at Wisconsin during 1968-69.

presumably drops (Reynolds, 1964:473-74). This is particularly true because of the reluctance of educated persons in newly industrializing countries to accept jobs which are not commensurate with their level of training. The falling price of white collar labor should, all else equal, provide an incentive for employers to expand the number of such positions. Also, the prospect of large numbers of unemployed educated persons may induce governments to expand the number of positions in the public bureaucracy as a way of gaining the support of such individuals and of reducing the potential for social unrest which is inherent in the existence of a discontented, educated population (Tangri, 1962). It has been suggested that India has increased the size of its governmental bureaucracy for exactly this reason. As Davis (1955:282) points out, "the effort to avoid straight unemployment may lead in directions antithetical to efficient utilization. The 'make-work' attitude which emphasizes the 'necessity of a job' rather than the 'job to be done' is prominent in Indian thinking. . . ."

Pressures for contraction of the manual sector. As the educational level of the labor force increases, the supply of persons willing to do tedious and routine work tends to decrease. For example, in the West Indies the fact that so many young people have acquired a primary education has drastically reduced the supply of labor willing to cut sugar cane (Myint, 1965: 19). The reduction in the supply of manual labor should force wages up. Or, to find individuals willing to work for low wages, the employer must accept inferior personnel who may not be able to perform even routine tasks competently. Both alternatives provide incentives to reduce dependence upon labor by automating production as much as possible (Ross, 1967). Hence, it may well be the case that technological and organizational innovations which reduce the need for unskilled and semiskilled labor are as much a *consequence* as a cause of upward mobility.

It should be pointed out that just as increases in educational opportunity create pressures for an upward shift in the labor force by increasing the supply of educated labor relative to the demand, restrictions in educational opportunity may inhibit shifts in labor force distribution. Even if there is a demand for highly skilled workers, there can be no increase in the proportion of skilled workers in the labor force unless a supply of appropriately trained personnel can be found. This, of course, is why expansion of educational opportunity is often considered a fundamental prerequisite to economic development.

This section is not easily summarized in propositional form. Much of what we have presented refers to contingent responses to maladjustments of the labor market rather than to generic concomitants of industrialization. Moreover the empirical support for these ideas is at best scanty and impressionistic. Nonetheless we present the following as a guide to future investigation.

I.C.1. If the educational level of labor force entrants increases more rapidly than the demand for educated labor, the following kinds of pressures for an upward shift in the labor force distribution may be generated:

- a) The cost of nonmanual labor should drop, allowing low cost expansion of the white collar sector.
- b) Governments may enlarge the governmental bureaucracy to reduce the threat inherent in an unemployed, highly educated labor force.
- c) The cost of manual labor should increase, providing an incentive to replace labor with mechanical means of production.
- d) Alternatively, the quality of available manual labor should decrease, again providing an incentive to automation of production.

II. THE CONSEQUENCES OF STRATIFICATION

Having considered how industrialization affects the *structure* and *process* of stratification, we now turn to consideration of the impact of industrialization on the *consequences* of stratification. We will be concerned mainly with variations in the effect of social status on individual behavior, but also with consequences of the distribution of status characteristics in a society for other aspects of social organization, in particular the likelihood of political stability.

Probably more work has been done on the consequences of status for individual behavior than in any other area of research on stratification, but unfortunately, probably with less impact. What we have to date is an amorphous mass of findings that has not been integrated in any cogent way. These results tend to show that however status is measured, high status persons are more socially and politically involved, more tolerant of others and the views of others, enjoy better health, and show less evidence of social disorganization than lower status persons. In short, high status persons appear better able to cope with the exigencies of life and to have a broader perspective regarding their social world. (For a review of some of this literature see Bendix and Lipset, 1966:Part IV).

Wherever evidence exists, this general pattern seems to hold; and there is no reason to expect it to change as countries industrialize except that it is probable that status differences in behavior decrease with industrialization as a result of the increased interclass exposure which likely results from increased urbanization, extension of education to the general public, expansion of the coverage of mass media, and increased social mobility.

Of substantially greater interest than the analysis of individual status

attributes is consideration of the behavioral entailments of simultaneous occupancy of particular combinations of statuses. A rather large literature has accumulated to date which posits a variety of consequences of social mobility on the one hand, and status discrepancy on the other, for the behavior of individuals. Essentially the same argument applies in both cases. Since particular behaviors are considered appropriate to any given position in a status hierarchy, individuals who are either socially mobile or who are "status discrepant" risk the possibility that their various statuses may require diverse behaviors. Two alternative theories of how people react to such situations have been posited:

(1) What we might call the "mean value theorem in sociology"³ posits that, at the aggregate level at least, the behavior associated with any given *status configuration* will be a weighted average of the behaviors associated with each of the *component statuses* in the configuration.⁴ For example, if in some sample the mean on a tolerance scale for those whose fathers are skilled workers is 5.0 and the mean on the scale for those who are themselves managers is 7.0, we would expect managers who are the sons of skilled workers to have a tolerance score somewhere between 5.0 and 7.0 (exactly where depends upon the weights for father's and son's status, which we will comment upon below). Or similarly, if sixty percent of Catholics and thirty percent of salesmen vote Democratic, the theorem posits that somewhere between thirty and sixty percent of Catholic salesmen will vote Democratic.

(2) In contrast to the notion that behavior is some additive function of component status variables is the popular theory that the effect of mobility *per se* or of status discrepancy *per se* has a disorganizing effect on individuals, engendering various pathological modifications in behavior. For example, it has been asserted that social mobility results in abnormally high rates of racial prejudice (for a review of this literature see Hodge and Treiman, 1966), suicide (Breed, 1963), mental disorder (Kleiner and Parker, 1963), political radicalism (Germani, 1966), etc. By the same token, status discrepancy is held to give rise to pathological behaviors, as a response to the abnormally great strain created by conflicts in the behavior appropriate to the various statuses occupied by discrepant individuals (see Treiman, 1966, for a review of status discrepancy theory). It is im-

³ This phrase is due either to Robert W. Hodge or to Paul M. Siegel, and dates from the NORC occupational prestige project, around 1965.

⁴ Individuals may strike a balance between the behaviors appropriate to each status; or may choose to act in terms of one status on some occasions and in terms of the other on other occasions, depending upon which status is more salient at the time; or may permanently resolve any conflict by always acting in a manner appropriate to whatever status is most salient in general. All of these alternatives imply an additive effect of status variables on behavior *at the aggregate level*. See Treiman (1966:653) for a more extended discussion of this point.

portant to note that the two alternatives are not contradictory, but that the social pathology theory requires that in addition to *additive* effects of the status variables on the behavior of interest there be *interaction* effects as well.

While virtually all the evidence to date which is based on methodologically adequate analysis is supportive of the mean value theorem but not of the social pathology hypothesis, this evidence is restricted to the United States. Moreover, there are theoretical reasons to expect the consequences of social mobility and of status discrepancy to vary for societies at different levels of industrialization. Starting with the consequences of social mobility, we can make several suggestions.

First, recognizing that the mean value theorem does not imply anything about the relative weight of parental status as against respondent's own status in determining behavior, we would expect the relative importance of parental status to vary inversely with the level of industrialization of societies. The increased neo-locality of young couples and increased likelihood of children living a considerable distance from their parents and seeing them infrequently which are characteristic of industrial society should reduce the strength of intergenerational ties and the influence that parents have on their adult offspring (but see Litwak and Szelenyi, 1969).

Second, it is probable that the disruptive effect of social mobility for individuals posited by the social pathology hypothesis varies inversely with the rate of social mobility in a society, and is thus more characteristic of less industrialized societies. Germani (1966:369-71) argues cogently that the strain induced by social mobility tends to be greatest in "traditional"—i.e., nonurbanized, nonindustrialized—societies, in which, he assumes (as we do—see proposition I.B.4), mobility rates tend to be low. In such societies, he suggests, mechanisms for mobility tend not to be institutionalized, thus providing no social support for the socially mobile individual. Moreover, one of the consequences of a high rate of social mobility in a society is a reduction of between-status differences in behavior and increasing heterogeneity within status categories. This follows directly from the mean value theorem: if behavior is a function of social origins as well as of current status, and if the social origins of members of a given status category vary widely, as would be expected in a highly mobile society, then the behavior of members of that status category should also vary widely. In consequence, definitions of appropriate behavior should be less rigid, reducing pressures for conformity on the part of each individual.

Third, as countries industrialize there should be a shift in emphasis from group to individual modes of mobility and hence a decline in support for leftist political organizations. Following Matras (1970:chap. 12) and Ramsøy (1969), we suggest that as educational opportunities become less dependent upon social origins and occupational attainment becomes

more closely dependent upon educational attainment, both of which trends are presumably associated with industrialization (see propositions I.B.2 and I.B.3), success or failure comes to be defined as an individual matter rather than as a manifestation of a collective fate. Hence, leftist political groups which are oriented toward fundamentally changing the distribution of wealth and power should find it harder to gain support in industrialized countries (Lipset, 1960:45-47).

Turning to consideration of the consequences of status discrepancy, we can offer the following proposition, which is analogous to one of those suggested above: the greater the degree of status crystallization in societies, the greater the likelihood that status discrepant individuals will experience strain which manifests itself in pathological responses. In a highly crystallized society status categories are likely to be more homogeneous than in less crystallized societies and hence the range of appropriate behavior will be more narrowly circumscribed.

It should be noted that it is not possible to make an unambiguous prediction regarding the relationship between industrialization and the probability that status discrepancy will have disruptive consequences for individuals. The reason for this is that it is not clear whether the status structures of industrialized societies should be more or less crystallized than those of nonindustrialized societies; on the one hand, we expect the effect of education on occupation and of occupation on income to increase with industrialization (see propositions I.B.2 and I.B.5), but on the other hand, the association between education and income should decrease (see proposition I.B.7).

Turning from consideration of status discrepancy as a generic phenomenon to particular patterns of discrepancy, we can predict that in societies in which income and education are *perceived* to be highly correlated, those individuals with low income but high education will tend to feel frustrated by their lack of success, will blame the system for their failure, and will be drawn toward radical political organizations. Actually, this assertion makes a good deal more sense at the aggregate than at the individual level, since there is no particular reason to believe that an individual sense of failure will vent itself in radical political activity more than in other ways, such as withdrawal, self-blame, or passive acceptance. But at the aggregate level, it is not at all implausible to suspect that those groups which are composed of highly educated, poorly rewarded individuals will attempt to organize activity to change their situations. An example can be found in the role of intellectuals in radical political movements in Latin America (Germani, 1966:373) and in other underdeveloped areas; and Levy (1955) argues that "partially deprived" individuals are a major force for social change in developing nations. Finally, we can follow the discussion in Section I.C. about the pressures for social change inherent in

rising education levels by noting that if governments are not responsive to the needs of unemployed intellectuals political stability is threatened (Smelser and Lipset, 1967:17).

There is one additional consequence of variation in the level of status crystallization which is worthy of note. It is likely that the strength of the association between "objective" status characteristics and subjective class identification depends upon the degree of crystallization of objective characteristics in a society—the more crystallized statuses are, the more likely subjective identification will depend upon objective characteristics, since the more consistently will objective characteristics be perceived by individuals. And, as a corollary of this, the degree of status crystallization of a society should determine the degree of class cleavage of the society, a point which has been recognized from de Tocqueville on but has never been empirically validated.

Once again we summarize our discussion by stating our assertions in propositional form. And once again the propositions we offer have virtually no empirical support to date aside from fragments of impressionistic evidence.

- II.1. The more industrialized a society, the less marked will be status differences in behavior.
- II.2. The more industrialized a society, the greater will be the effect of current status on behavior relative to the effect of parental status.
- II.3. The higher the rate of social mobility of a society, the smaller will be *inter-status* differences in behavior and the greater will be *intra-status* heterogeneity in behavior.
- II.4. Hence, the higher the rate of social mobility of a society, the smaller the likelihood that socially mobile individuals will experience disruptive strain resulting in pathological responses; that is, the smaller the likelihood of interaction effects consistent with a hypothesis of strain-induced behavior.
- II.5. The more industrialized a society, the greater the importance of individual as against group modes of mobility.
- II.6. Hence, the more industrialized a society, the less the support for leftist political organizations.
- II.7. The greater the degree of crystallization of statuses in a society, the greater the likelihood that status-discrepant individuals will experience disruptive strain resulting in pathological responses; that is, the greater the likelihood of interaction effects consistent with a hypothesis of strain-induced behavior.
- II.8. The greater the degree of crystallization of statuses in a society, the greater the likelihood that groups whose income is inferior to

that commensurate with their level of education will be involved in radical political activity.

- II.9. The greater the degree of crystallization of statuses in a society, the greater the dependence of subjective class identification on objective status characteristics.
- II.10. The greater the degree of status crystallization in a society, the greater the degree of class cleavage.

SUMMARY AND CONCLUSIONS

This paper has constituted a review of what is known and what can be reasonably hypothesized about the relation between levels of industrialization and variations in systems of social stratification across societies. We have been concerned to specify the ways in which industrialization affects both the distribution of status attributes (which we termed the *structure* of stratification) and the *process* of status attainment, and the ways in which changes in the structure and process of stratification are interrelated. In addition, we have considered some ways in which industrialization alters the impact of status configurations on other aspects of social life.

If we can conclude anything at all from this review, it is that we actually know very little about the relation between industrialization and social stratification. Most of the propositions we have presented are simply hypotheses which as yet have almost no empirical support. The task before us is clear. If we are to move from a parochial concern with the structure and processes characteristic of a single society, the United States, to a concern with understanding the nature of social systems in general, we shall have to concentrate our energies on collecting comparable data from a large number of societies so that we can focus our attention upon covariations among characteristics of societies rather than upon characteristics of people or groups within societies.

Such a focus demands that we devote substantial effort to insuring that data collected in any given country are comparable to data already collected in other places. Since resources are currently not available, and are not likely to become available in the near future, to enable massive cross-national studies to be conducted by any given organization or individual, the best available substitute is for each researcher to make a concerted effort to design his study to enable the widest possible utilization of it. There are a number of specific things that can be done: (1) Whenever possible, data should be coded according to standard coding schemes. Occupations should be coded according to the International Standard Classification of Occupations (International Labor Office, 1969) and scaled according to the standard set of occupational prestige scores developed by Treiman (1968a)⁵,

thereby insuring inter-country comparability and facilitating comparison with census distributions in each country. (2) Data should be coded in as much detail as possible to provide the greatest flexibility to researchers wishing to recode the data for specific purposes. This is particularly true for education measures, which must reflect quite disparate educational systems. (3) Researchers planning studies should attempt to communicate with others sharing the same interests, and should attempt to include in their surveys data of interest to other researchers. While it is financially infeasible for any given individual to initiate data collection in a large number of countries, it is well within the realm of possibility to buy a few questions on a large number of surveys being conducted in various countries. In short, by making a concerted attempt to cooperate with one another, researchers with comparative interests can all gain substantially in their ability to carry out rigorous comparative analysis, to the great benefit of the field of stratification in general. For, as Duncan (1966b:83) points out, "until . . . *literal replication* can be applied to international studies, juxtaposition of data from various countries will require of the analyst as much skill in effecting comparability as in making comparisons." This circumstance probably accounts in large part for the relative paucity of systematic cross-national comparative stratification research, and must be modified if we are to have much hope of progress.

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⁵ Because intercountry correlations in occupational prestige evaluations are so high, it is feasible to construct a standard international occupational prestige scale by combining data from a number of countries. Such a scale will be available in the expanded version of Treiman (1968a) to be published in 1970. By combining data from a variety of sources it has been possible to assign a prestige score to nearly every occupation listed in the International Standard Classification of Occupations (1969) and to include prestige scores for a variety of specific occupations commonly found only in nonindustrialized countries. Thus, it will be possible for researchers conducting studies in any country to collect detailed occupational data and to scale it easily into status categories by reference to explicit and precise criteria. While some error undoubtedly will be introduced, simply because the prestige of occupations is not precisely identical throughout the world, such error in all likelihood would be smaller than that generated by coding occupations into gross categories which are arbitrarily assumed to form a status hierarchy or by utilizing existing prestige scales and guessing at the status of occupations which do not appear on the scales, both of which are common current practices. Moreover, for the researcher engaged in cross-national comparisons, utilization of a standard occupational status scale insures that results are not contaminated by differences in coding procedures.

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