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PAPERS

176-73

ATTAINMENT AND OPPORTUNITY

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October 1973

The research reported here was supported in part by funds granted to the Institute for Research on Poverty at the University of Wisconsin by the Office of Economic Opportunity pursuant to the provisions of the Economic Opportunity Act of 1964. The conclusions expressed herein are those of the author.

Abstract

This paper discusses some of the limitations of status attainment research when used to make inferences on the sources of inequality in society and as a model for the allocation of persons to unequal positions. The structure of inequality in society is argued to be largely determined by variables other than the personal characteristics, education, and family background that form the independent variables in status attainment research. Hence, the explanatory power of the status attainment models does not indicate the efficacy of such personal variables in changing inequality. Furthermore, the allocation of persons to unequal positions must be assumed dependent on structural characteristics such as the availability of jobs at different status levels. By ignoring the interplay between structural and individual characteristics, status attainment research fails to give an accurate picture of the role of education in the allocation of persons to various status levels. An outline of how this interplay may be specified is presented and some consequences of this theory of occupational achievement for the uses of status attainment research is discussed.

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The analysis of the effects of education on inequality by Jencks and others (1972) would have been a very different one had it not been for the availability of the considerable body of research on the relation between social origin, education, and occupational achievement that has accumulated in the sixties, research that is identified especially with O.D. Duncan¹ and William Sewell.² This so-called status attainment research is perhaps the closest sociologists have come to a well-founded model for the interrelation between a set of variables. Complex causal relationships have been established using linear (path) models and estimates of the size of coefficients obtained for large population groups. Research has been cumulative and replications and extensions of the basic findings have been carried out or are planned for the near future (for example, Featherman and Hauser, 1972).

Research of this nature is, of course, needed if sociological research will ever be of value for those who formulate and carry out social policy. Jencks uses (and some argue misuses) extensively the findings of this research to illustrate his main point--that equalizing educational opportunity may not bring about a more equal society. He not only refers to results obtained by others but uses the model for status attainment to carry out extensive calculations in support of his argument even when no direct evidence is available. These calculations may involve questionable assumptions and be technically dubious as some reviewers have pointed out. The purpose of this paper is not to analyze the manipulations of the models carried out in the

appendices of Jenck's book, nor to question the validity of his general argument. Rather, we shall attempt to point to some limitations of status attainment research that we believe are important to take into account when this research is used to bolster arguments on the causes of inequality as Jencks does and others probably will do. These limitations are easily ignored in the face of the impressive models and precise estimates that are found in status attainment research. However status attainment research was never really intended to answer the type of question Jencks poses about the general processes that bring about status and income for persons. Status attainment research has been designed to answer more limited questions of how a person's background, early socialization, and education interrelate and affect occupational achievement.

The nature of status attainment research reflects its origin in research on social mobility. Status attainment research overcame some serious problems in analyzing social mobility having to do with how one should assess the importance of an individual attribute like education for social mobility. The solution provided was not only a technical one but involved a whole new conception of the process through which a person's origin affects his later status. However, this solution was obtained at the expense of some valid notions in the old conception of mobility about the importance of characteristics of the occupational structure for mobility. We shall argue that only if these notions are re-introduced in the conception of the occupational achievement process will the limitations of status attainment research be overcome for some of the arguments that Jencks wants to bolster, and the main part of the paper will argue how this may be done. We shall also argue that for Jenck's main argument on the causes of inequality, status

attainment research is quite irrelevant. We do not want to argue that status attainment research is somehow invalid or useless, only that it has limitations that when ignored may result in misleading inferences when the research is used to answer questions it was not designed to answer.

A brief review of the origin and nature of status attainment research seems useful in order to demonstrate our main points. Then follows an attempt to show how a more comprehensive notion of the occupational achievement process may be obtained and finally, we shall demonstrate how the results of status attainment research must be qualified in light of this more comprehensive conception of the process.

From Social Mobility to Status Attainment Research

Stratification systems are systems of unequal positions in society. The major dimensions of inequality traditionally have been seen as power, wealth, and prestige. Considerable controversy exists regarding the nature and sources of inequality, with both ideological and conceptual issues being of major importance. Empirical research has shunned away from these issues and most research has concentrated on the problem of how individuals come to occupy unequal positions, rather than how positions come to be unequal. Furthermore, most research has restricted the problem to a concern for how a person's social origin affects the position he occupies in society, in particular social mobility research has been almost exclusively concerned with the relation between father's status and son's status. This is so because the degree of association between father's and son's status traditionally has been held to be an important characteristic of society. It measures the degree of openness or permeability (Svalastoga, 1965) of a society, a very old concern for sociologists,

and most often is ascertained from cross-classifications of father's and son's occupation with off diagonal cells that give the number of sons that moved to a different occupational category from their fathers'.

Father-son, or intergenerational mobility is not the only form of mobility that has been of interest to sociologists; intragenerational or career mobility have been studied although much less extensively than father-son mobility. Regardless of what type of mobility is studied, its frequency and direction often have been seen as an interplay between two sets of characteristics (cf. Sorokin, 1927)---on the one hand, characteristics of the occupational structure, on the other, characteristics of individuals. Structural characteristics that influence mobility, that is the probability that a person will undertake a move from one occupational group to another, are those forces that determine (1) the structural pressure to leave the origin occupation, (2) the availability of jobs in the destination occupation, and (3) the distance or affinity between the two occupations focussed upon. The pressure to leave and in turn the availability of jobs may be seen as determined by the relation between vacant jobs and job-seeking individuals in different occupational groups. Given these structural characteristics, the likelihood that a particular person will undertake a move will be determined by such individual characteristics as the education, ability, and ambition that constitute what may be called a person's level of resources, which are important for the direction of move (up or down), and characteristics such as age that will influence the likelihood of moving at all.

At least the major notions in this conceptualization of mobility seem to be agreed on by most who have worked in the field. The conceptualization can be further specified and elaborated, and a number

of models and measures of mobility exist that attempt to enable analysis of mobility in light of the various forces mentioned above (see Sørensen, 1971 for a discussion). However, analysis has run into a number of difficulties and a large portion of studies remains mostly descriptive. They are mainly attempts to assess the amount of mobility in a society at a point in time in order to carry out comparisons among societies or over time, with little emphasis on explaining the sources of variation.

The difficulties stem from a number of sources. Attempts to measure the influence of structural characteristics have been hindered both by properties of the data used and by inadequate measures and models. As argued by Duncan (1966) intergenerational mobility data cannot be used to characterize the occupational structure at two points in time, since even if the generation of sons is a well-defined cohort, the generation of fathers to these sons will not constitute a well-defined cohort nor represent the occupational structure at a point in time. Commonly used measures of mobility, such as the mobility-index (Rogoff, 1953; Glass, 1954) and models of mobility, such as the Markov chain, do not adequately separate out the amount of mobility due to individual and to structural sources (see Duncan, 1966 and Sørensen, 1971, for a discussion).

Attempts to analyze the importance of an individual attribute such as education for mobility have been hindered especially by difficulties created by the use of mobility as the dependent variable, since mobility represents the difference between two statuses. The variation possible in such a variable is obviously determined by the value of the origin status, that is the status of fathers. Sons of high status fathers cannot become upwardly mobile, sons of low status fathers cannot become downwardly mobile. Since education of sons is correlated quite strongly with fathers' status,

the results of an analysis of the relation between education and mobility becomes very difficult to interpret and may easily lead to erroneous inferences concerning the importance of education.

These points have been clearly demonstrated in Blau and Duncan (1967), the major reference for the solution to the problem: status attainment research. Rather than focussing on mobility as the dependent variable, the dependent variable in status attainment research becomes simply the status obtained by sons. Father's status becomes one of several independent variables and the overall concern becomes one of trying to establish the influence of individual characteristics, in particular trying to establish the influence of these characteristics on mobility.

Education is partly determined by a person's background, and at the same time assumed of great importance for the occupational status he obtains. The solution to this problem is the use of recursive models (in this case path models) that specify the interrelationship between the various variables using a set of simultaneous equations.

There are important differences in the conceptions of the process. In mobility research, father's status represents the point of origin of the move, and the direction and distance of move is conceived to be influenced by structural characteristics of this origin, such as the availability of jobs in the father's occupational group. In status attainment research father's status is conceived of as an individual characteristic with an effect that is interpreted to reflect psychological characteristics of sons that are indirectly measured by father's status, such as aspirations, abilities, and motivations. The basic question in attainment research is how do occupational resources get transmitted from one generation to another. In mobility research the basic question is how much mobility is generated by structural, and how much by individual factors.

The conception of status attainment research overcame the difficulties created by using mobility as a dependent variable and opened up a new and very productive line of research. However, this was obtained at a price---- a neglect of structural variations in mobility and therefore also in the status a person obtains, for clearly a person's status depends not only on who he is but also on how many places are available in different social strata. Only if we are willing to make the assumption, to be discussed further in the next section, that the occupational structure is determined completely by the family background and education of the population, will this not be the case. This neglect of structural sources of variation in the occupational achievement process has important consequences if status attainment research is used to answer questions about the achievement process that goes outside the problem status attainment research originally posed--- how occupational resources get transmitted from one generation to the next.

Occupational Structure and Status Attainment

The occupational structure may influence the status attainment process in two ways. First, the distribution of occupations in terms of status (and income) forms the dependent variable for an analysis of this process. This poses the problem as to whether the structure of inequality created by the occupational structure should be seen as a consequence of the distribution of the personal resources that form the independent variables in status attainment analysis, or whether it should be seen as (at least partly) determined by variables exogenous to the status attainment processes. If the structure of inequality is exogenously determined, then it follows that the mechanisms for access to jobs and the opportunity structure associated with an occupational

structure will determine the process through which status is achieved, more specifically, the effect parameters we obtain for measures of personal resources. The impact of the occupational structure on the process is the second way in which the occupational structure is relevant for the status attainment process.

The first problem boils down to a question of whether among the independent variables treated in status attainment research, the distribution of education should be seen as determining the structure of inequality or not. Differences in family background clearly are a consequence of the structure of inequality, and therefore could not be a fundamental cause of inequality. On both theoretical and empirical grounds one is led to conclude the distribution of education cannot be the sole determinant of the structure of inequality. Although theories of inequality are widely disagreed upon and conflicting, none of the major schools of thought--so-called conflict or power theories of inequality (Marx; Dahrendorf, 1959; Lenski, 1966) and the functional theories (Davis and Moore, 1945; Parsons, 1940)--lend support to a contention that personal resources, in particular education, exclusively determine inequality.³

Systematic empirical research on the relation between the distribution of education and the occupational structure is scarce, but it seems safe to assert that the two quantities may vary quite independently of each other across different societies and over time, and that the direction of causality is complex, but certainly not uni-directional with the distribution of education causing the occupational structure and the degree of inequality. The distribution of education has changed markedly in the American population in this century and so has the occupational structure, but there is no evidence that major shifts in the occupational

structure are caused by changes in the educational distribution, although some minor adjustments may have been, as argued by Treiman (1970).

All this supports Jencks et. al.'s conclusion that equalizing opportunities does not equalize positions. Their conclusion is, however, not drawn from the kind of macro-sociological considerations mentioned above. They draw their conclusion from the magnitude of the variances explained in the status attainment models, which ultimately become a question of whether a R^2 of a given size (say .40) is "large" or "small". But if it is true that the structure of inequality is not explained by the distribution of education and other personal resources, then these quantities are quite irrelevant evidence for their conclusion. The amount of variance can be anywhere from 0 to 100 percent and the amount of inequality could be the same. The amount of variance explained reflects the importance of the variables entering the status attainment model for the allocation of persons to unequal positions, not the efficacy of these variables in changing the inequality of positions.

This does not mean that analysis of the allocation process is irrelevant to all questions of inequality. If our concern is the unequal position of a certain population group (say an ethnic minority) relative to the population as a whole, then analysis of the allocation process will be highly relevant. The problem for such analysis is not why inequality exists to begin with, but why a certain group of persons are distributed in a certain way along one of the major dimensions of inequality. Such a distribution is the outcome of the process by which persons are allocated to unequal positions, and an understanding of this outcome must be derived from an analysis of the process. Status attainment research as

it traditionally has been carried out only gives a partial picture of the process. The exclusive concern with the effect of background characteristics and education on the level of status (or income) achieved ignores other sources of variation in status and income, and it does not provide us with an understanding of why and how the parameters of the models will vary among different subgroups of the population or vary over time.

Knowledge of other variables that affect attainment of status and income, and knowledge about how the magnitude of the effect of independent variables is determined is needed not only for academic reasons, but also because the formulation of policy could be strongly influenced by such knowledge. It may not help us in our understanding of the fundamental sources of inequality to know that education explains a certain amount of variance in status at a point in time, but it could be very important to know how and why this effect of education varies between groups and over time, because such knowledge is what we need to formulate a policy about the use of education in changing the distribution of subgroups in the occupational structure.

By determining the availability of unequal positions, the occupational structure obviously has a major role in determining how personal characteristics are converted into status and income. In turn, this conversion process is what determines the observed effect of personal characteristics on status and income. A more comprehensive picture of the process of allocation of persons to unequal positions than the one provided by the status attainment models therefore must specify the interplay between individual and structural characteristics in producing occupational status.

In sum, we argue that the structure of inequality is determined by forces largely exogenous to the status attainment process, and analysis

of this process therefore cannot give information on the fundamental sources of inequality in social structure. But analysis of the process by which persons are allocated to unequal positions is indeed crucial for our understanding of the sources of differential distribution of population groups with respect to status and income and for the formulation of policies regarding this distribution. Research on status attainment, as it traditionally has been carried out, only gives a limited picture of this process, and a more comprehensive picture, that not only will tell which variables are important, but how the effect of variables is determined, is needed to specify the interplay between structural and individual characteristics in producing occupational achievement, since it is this interplay that results in the observed effect of an individual attribute, say education, on a person's status. An outline of how this may be done is given in the next section.

Attainment and Opportunity

The allocation of persons to unequal positions in society is a process that is going on for a major part of a person's working life. The status (and income) of a person may show considerable variation over time. It is the study of this variation rather than the study of the level of status at a point in time that will enable us to form a more comprehensive model of the allocation process. As we shall demonstrate in this section, a variation over time in status may be attributed to an interplay between structural and individual characteristics, for it reflects a person's mobility between status levels in the occupational structure. Through direct study of this variation we may identify the role played by structural and individual characteristics in determining the status of a person and, in turn, evaluate the consequences of this

process, for example, for the observed relation between education and status. A study of only the outcome of the process, that is the level of status at a point in time, will not give sufficient information for such a determination.

Mobility is generated by structural forces when jobs get eliminated or people vacate jobs that, in turn, must be filled. Such mobility may produce change in the status of a person that will result in a change in the relation between a person's status and the occupational resources (education, ability, background) that he possesses. A person with low education may, for example, obtain a high status job if no one else is available to fill a vacant high status job. Or, a highly educated person may be forced to take a low status job if no other job is available. If there is systematic variation in such occurrences over time or between places, we will find a corresponding systematic variation in the relation between personal characteristics and status attained, a variation produced by structural characteristics.

Mobility may be generated also by change in an individual's occupational resources. Through training and experience a person may become qualified for a higher level job than he currently has and move to this better job if one is available. Such a move, since it is caused by a change in an individual's level of resources, obviously need not change the observed relation between the individual attributes that constitute a person's resources and his occupational status if we have a sufficiently comprehensive and accurate measure of these resources at any point in time. If we do not have such a measure and instead rely on, for example, the traditional status attainment variables--education and measures of family background--the observed relation between such variables and status is likely to change, however. We shall return to this problem in the sequel, but

mainly concentrate on the situation where mobility is structurally generated in presenting our argument.

We need to specify these ideas further in order to outline their consequences more clearly. This can be done by focussing on mechanisms for job-shifts; for job-shifts clearly are necessary for producing change in the major component of a person's status, that is, his occupational prestige. We do believe that our analysis is equally valid as an analysis of the process of income determination. However, it might be argued that income from jobs may change without a corresponding job-shift. This is certainly true with respect to changes due to inflation and a secular trend in real wages. However, these two sources of change are of little interest in the present context. Remaining major changes in income for a person over time may reasonably be held to involve job-shifts in most instances, and we therefore believe that the argument to be presented below is also of importance for the analysis of income attainment.

Consider then a person with a set of attributes that are important for his value in the job market. These are characteristics such as his motivation, ability, education, training, and experience acquired in earlier jobs. These characteristics may be measured directly or indirectly by characteristics of his family background assumed to correlate with the relevant socio-psychological attributes. They constitute what we thus far have called a person's occupational resources.

We shall make the simplifying assumption that persons maximize their income and status. Obviously there are other characteristics of jobs that persons seek out, such as job-security, cleanliness, interesting work, etc., and it is an interesting problem how these various characteristics are balanced out in the actual job-searches people undertake. A discussion of these trade-offs would fall outside the scope of the present paper,

however, and introduction of characteristics other than status and income in the analysis would just complicate the argument without altering its main thrust.

Consider now a person who after completion of schooling obtains a first job. We shall not analyze the process through which this first job is obtained in detail here, but only note that this first job will result in an initial relation between the status and income of a person and his background, education, and other resources. This relation will be a function of such variables as the availability of jobs at different occupational levels, the nature of information persons have on openings, and the preferences employers have for various personal attributes.

The relation between the status and income of a job and the attributes of the person result in the parameters of effect estimated in status attainment models. We shall often in the sequel refer to these parameters of effect of resource variables (as estimated in regression analysis) as measures of the returns persons obtain on their occupational resources, for they will give the increase in status and income produced by a units increase in measures of resources (family background, education, etc.). A resource variable with a high effect on status and income will in this sense be said to yield a high return, and the overall return on measures of personal resources will refer to their combined explanatory power for status and income, as measured, for example, by the amount of variance explained.

If everyone kept their first job until retirement the parameters of effect of resource variables or the occupational returns on resources will remain constant over time. But no one keeps their first job forever in industrial society, so our problem is how subsequent job-changes affect the relation between occupational achievement and a person's occupational

resources, for it is the outcome of this process of job-changes that will determine what will be the overall effect of education and family background on status and income.

A person would keep his first job forever if there were no possibilities for an additional gain in status and income (under the assumption that persons are indeed maximizing their occupational achievement) and if the job was not eliminated in response to the employment situation. If there are opportunities for gain, then a person should leave his job when a better job becomes available. Alternatively he may be forced to leave if he is laid off or the activity that he is engaged in otherwise is eliminated. Both conditions are governed by the general level of employment and the distribution of job-opportunities. More specifically, the relation between vacant jobs and persons demanding these jobs will determine the availability of jobs in job-categories outside the one an individual is in, and the pressure to leave the job within the category he currently is in. The fewer vacant jobs there are in a job-category, relative to the number of persons demanding these jobs, the greater the likelihood that a person may have to leave a job in that category involuntarily. The larger the number of vacancies relative to individuals demanding them in jobs with higher status and income, the greater the likelihood that a better job will be available, and a voluntary shift will ensue. We shall assume that job-opportunities as given by the relation between vacancies and people demanding them is negatively related to the status and income of jobs, but over and above this relationship there will be a variation at each job level in the number of opportunities in response to the general employment situation.

The structural characteristics described above will determine how long the first job will be kept and under which circumstances this

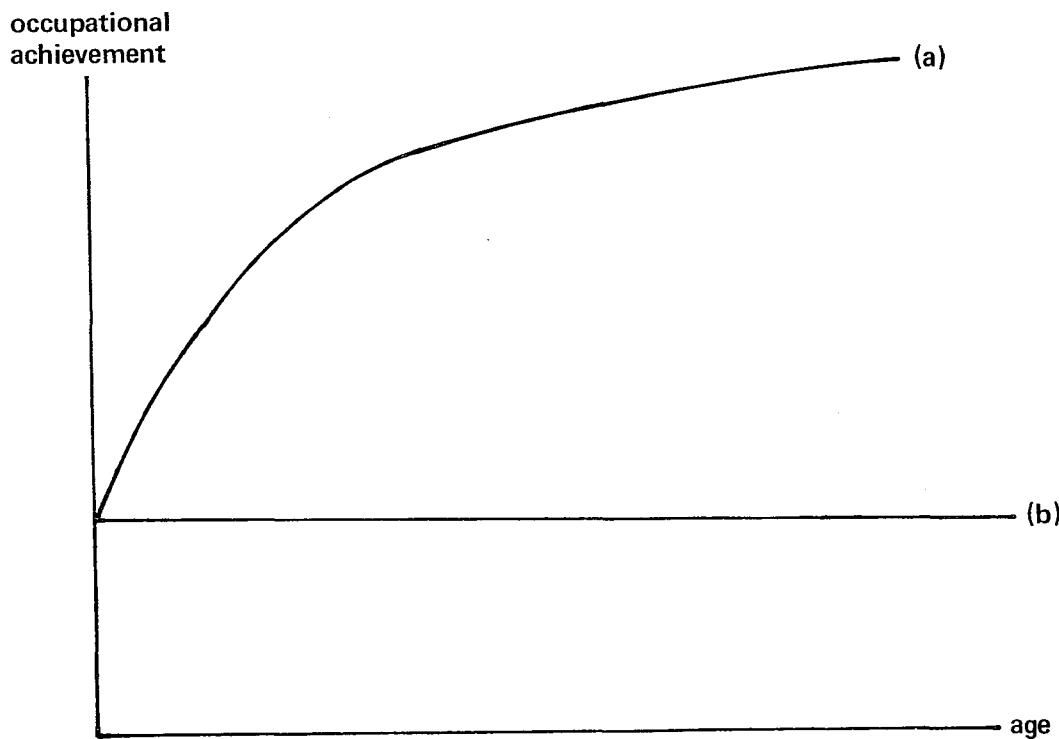
(and any subsequent) job will be left. In order to specify the consequences of the job-shift for the relation between a person's occupational resources and his occupational achievement, we shall analyze the various outcomes of the shift in more detail.⁴

Consider first a voluntary job-shift. This should only occur if a better job becomes available, and should result in a gain in status and/or income. The magnitude of this gain will depend on several factors. First, the higher the person's level of resources, the larger a gain he should be able to realize, other things equal. Second, the higher the status and income already achieved, the smaller the gain. This follows from the distribution of vacancies in relation to people demanding them according to job level which will be negative so that high status jobs are less available than low status jobs. Third, the overall level of employment will interact with both the positive effect of resources on the gain and the negative effect of the status already obtained on the gain. The more opportunities there are overall, the smaller the ceiling effect of the distribution of job-opportunities with status on the gain, and therefore the smaller will be the negative effect of the status already obtained on the gain. Similarly the more opportunities for job-shift there are overall, the greater the likelihood that a person will be able to maximize the occupational return on his resources, and hence the greater the positive effect of his resources on the gain. The overall level of job-opportunities may be seen to determine a person's control over his mobility situation so that the more opportunities there are the greater control a person has. This level of control in turn determines how strongly a person is dependent on the skew distribution of available jobs, and how successful he will be in his search for jobs that will increase his return on occupational resources.

After the first job people move from job to job in succession. If the opportunity structure is such that job-shifts are voluntary then a person's status and income should increase over time with a rate of increase dependent both on his level of resources and on the overall level of opportunities. It will depend on a person's level of resources because every gain in a job-shift, if shifts are voluntary, will be correlated with his resources. It will depend on the opportunity structure because the more opportunities for shift there are, the further up the occupational ladder a person will be able to go and the more strongly will a person's resources influence the gains realized in job-shift. The increase in the level of achievement will not go on forever, even if persons have a high degree of control over their mobility situation, because there will always come a point where the negative effect on the gain of the status and income already obtained will outweigh the positive effect of resources on the gain. The closer a person comes to this equilibrium level of achievement the more unlikely it is that a better job is available, given his resources, and hence the longer a person will have to wait in between job-shifts. The approach to this equilibrium level will therefore be gradual, and the career line look like Figure 1a.

Involuntary job-shifts, of course, mean that persons have little or no control over their mobility situation, for if they had some degree of control they should have left for a better job if such were available and the fact that they did get laid off will therefore result in no gain and likely a loss in occupational achievement. A loss will not only mean a lower status and income, but also a decrease in return on occupational resources, for a person will be forced to take whatever job is available and therefore cannot maximize the return on his resources. Hence a succession of involuntary job-shifts is likely not only to produce a

Figure 1



(a) Hypothetical occupational career in a labor-market that permits voluntary job-shifts.

(b) Hypothetical occupational career in efficient labor-market.

low level of status and income, but also to produce a low degree of association between a person's level of resources and his occupational achievement. Because a person will be completely dependent on the job opportunities that prevail when the lay-off occurs, his personal qualifications will matter less for the job he obtains.

An important special case is the one where the opportunity structure is such that no lay-offs occur but opportunities for better jobs are not available either. In that case we may expect, as mentioned before, that the first job will be kept forever and the occupational return on personal resources will remain constant over time. This situation corresponds to the one economists assume when they assume a completely efficient labor market--(see Figure 1b.) everybody has the best possible job given their level of resources. In that situation gains in achievement can only occur through increases in a person's level of resources, increases that reflect additional investments in human capital and a rather extensive literature exists on such investments (see for example, Becker, 1964; Mincer, 1970). It is an implicit assumption in the argument presented above that occupational resources are constant over time, but that the opportunity structure does not correspond to the efficient labor market model. Thus our assumptions and the ones made by Human Capital Theory are exactly opposite. Reality has elements of both, that is, persons do get laid off or obtain better jobs, because such jobs become available without the corresponding job-shift, necessarily being preceded by an increase in qualifications; but obviously there are also situations where people do undertake additional training after entry into the labor force and increase their status and income correspondingly.

The impact of the opportunity structure on job-shifts changes the relation between personal resources and occupational achievement in the way argued above. Human Capital Theory does not necessarily lead to the same conclusion, since every gain is preceded by an increase in level of resources. However, if we only measure personal resources by a person's education and family background, the observed relation between these variables and achievement behavior according to Becker (1964) will be correlated with ability, presumably indexed by education and family background. Persons with high education and favorable family background will be more likely to increase their occupational resources than persons with less education and more unfavorable background, increasing the observed effect of education and background on achievement over time. One of our main conclusions regarding the variation over time in the effect of education and background on occupational achievement, to be discussed below, therefore, could be derived from either argument. Our second major conclusion regarding the effect of the overall opportunity structure in observed effect parameters cannot be derived from Human Capital Theory, but does not necessarily contradict this theory either, if the assumption of efficient labor markets is relaxed. (See Sørensen, 1973 for further discussion.)

Empirical evidence has been obtained for the above assertions from analysis of life-history data (Sørensen, 1972, 1973) that give job histories of individuals over extended periods of time. It can be demonstrated with these data that the outcome of job-shifts are indeed determined by the status and income already obtained and a person's level of resources as measured by education and family background. Furthermore, the opportunity structure interacts with the effect of status and resources in the way argued above, that is, the more opportunities for job-shift there are, the higher the impact of resources

on gains and the lower the negative impact of status already obtained. This result has been shown in two ways. Persons' subjective sense of control over their mobility situation derived from statements on whether they left their jobs voluntarily or not had the predicted impact both on the magnitude of the gain and on the effect of resources on the gain. Also, the association between resource variables and the outcome of the job-shift was shown to vary with the employment levels in different industries, as predicted above. Thus the higher the employment level the higher the effect of education and family background on the outcome of the job-shift, presumably because the more control persons have over their mobility situation, the better they are able to maximize the return on their resources. Finally it can be demonstrated that on the sample studied most job-shifts are voluntary and therefore, as a consequence of the above described mechanisms, the returns on resource variables increase with job-number and age.

Two important conclusions follow from the theory of the impact of the occupational structure on the occupational achievement process outlined above. First, the relation between a person's resources and his occupational achievement will vary over time (age) as a function of the job-shifts he is engaged in or is forced to undertake. The impact of the opportunity structure is not random; for if the resultant job-shifts are mostly voluntary, we will observe a systematic increase over age not only in the level of achievement, but also in the magnitude of effect of education and measures of family background on achievement. Second, for persons in the same stage of their career there will be systematic variations in the association between their personal characteristics and the status and income they obtain, as a function of the distribution of opportunities

and the overall level of employment. Persons for whom many job-openings are available will be better able to control their mobility situation and realize a higher return on their resources. Persons for whom few openings are available and who often are laid off will engage in fewer voluntary shifts and must depend on available (often lower level) jobs that cannot be expected to yield a maximum return on their resources.

The consequences of these two conclusions for the type of inferences that may be made from status attainment research on the sources of inequality between persons shall be discussed in the next section.

Discussion

Status attainment research takes as the dependent variable the level of occupational achievement at the point in time at which respondents are interviewed. The Blau and Duncan (1967) study uses cross-sectional data with a wide age variation among respondents. The Wisconsin studies (e.g., Sewell, Haller and Ohlendorf, 1970) do analyze a cohort but have taken the level of achievement only at one point in time as the dependent variable so far, although their data obviously eventually will permit analysis of changes in achievement, the most appropriate analysis according to the argument presented above. What inferences do research on the allocation process with these properties permit us to make regarding the process?

There is nothing in our argument that precludes the comparison of relative effects of several resource variables for occupational status and income. Our argument deals with the impact of the opportunity structure on the overall return to persons' resources, not with the assessment of the relative impact of say education and family background for occupational achievement. Comparisons of relative effects of personal characteristics

is precisely the objective for most status attainment research and we therefore do not have any objections, based on our theory of the allocation process, against this research in light of its objective.

However, when status attainment research is used for other objectives our argument becomes relevant.

We have argued that the occupational returns on personal resources will vary with age as a function of the job-shifts a person undertakes. Furthermore, if most job-shifts are voluntary, as they seem to be, the returns will increase with age. The use of cross-sectional data or the use of only status at one point in time as the dependent variable clearly therefore cannot give an accurate picture of the overall effect of personal resources on occupational achievement, for the observed effect will be some average over all ages represented in the sample or (in the Wisconsin studies) it will only be the effect at one (young) age. Clearly, therefore, it is inappropriate to draw strong inferences as Jencks and others (1972) do from the magnitude of the absolute effects. When most job-shifts are voluntary, cross-sectional data will underestimate the absolute effect of a variable like education, since the presence of younger respondents will tend to depress observed effects relative to what they would have been had they been assessed with over-time data. Estimates of the amount of variance explained by education not only cannot be used to make inferences on the sources of inequality as such, as we argued earlier; but also when these estimates are based on data with only one observation on occupational achievement for each individual, they fail to give an accurate picture of the importance of education for the allocation process. Accurate estimates of the importance of education for the allocation process can only be obtained by studying the process directly, and that demands the use of over-time data.

Blau and Duncan (1967) are well aware of the difficulties presented by cross-sectional data and they therefore carry out estimation of their model in several age groups, estimates that Jencks and others choose to ignore. However, this attempt to construct synthetic cohorts is confronted with other difficulties that follow from our argument. Different age groups have had their careers in different historical periods and most likely in different opportunity structures. There is no way of separating the age or career effect from the effect of different opportunity structures. It would demand a comparison of individuals of the same stage of their careers in different opportunity structures and a comparison of individuals at different career stages in the same opportunity structure. Trends in the observed absolute effect of education based on synthetic cohorts are therefore extremely difficult to interpret. Such trends may be due to changes in the opportunity structure, to age differences, and to changes in the relative importance of education among the variables that constitute a person's occupational resources.

We argued that for the purpose of explaining differential distributions of population groups studies of the allocation process are appropriate. The shortcomings of status attainment research as a model of the allocation process for this purpose again resides in the failure of this research to explicitly take into account the impact of the structure of opportunities on the returns persons obtain on their resources. Differential distribution of two population groups, say Blacks and Whites, may be due to differences in levels of resources and to differences in opportunity structure caused by discrimination. Differences in achievement levels due to a difference in opportunity structure may be inferred from differences in the return to occupational resources between the two groups, and analyses attempting to separate out this component have been carried out by several researchers

(for example, Siegel, 1965; Duncan, 1968). Because, however, there is no explicit model for how the opportunity structure affects returns on resources in status attainment research, these attempts lead to inconclusive findings. A difference in the effect of education on status between Blacks and Whites may be due to either a difference in the quality of education for these two groups or to a difference in the amount of control the two groups have over their mobility situation and in turn in their opportunities for maximizing their return on education. Status attainment research cannot separate out the two sources of difference in returns to education, for only by studying changes in status and income will this be possible. But it is important to do so, for the two sources of difference in returns point to two very different instruments of policy. If the problem lies mainly in the quality of education Blacks receive, then concentration on improving the quality of education is appropriate; if the problem lies primarily in the differential opportunity structure then labor-force intervention is called for.

In conclusion, direct study of the allocation process based on overtime data is called for if research on this process shall be of use for other objectives than the ones status attainment research originally set out to implement. An effect of a variable on another variable is commonly interpreted to reflect the amount of change produced in the dependent variable by a unit variation in the independent variable. The opportunity structure in society in terms of status and income have been argued to be determined by forces other than characteristics of individuals. This means that the amount of change possible in status and income will be constrained by variables that are exogenous to the individual characteristics that form the independent variables in status attainment research. But the observed effect of those variables is determined by the distribution of opportunities and the overall level of employment. Only direct study

of change in status and income for persons over time, therefore, can enable us to analyze how the opportunity structure affects observed relations between variables like education and family background on the one hand, and the status and income persons obtain on the other.

Notes

- (1) See, for example, Blau and Duncan (1967); Duncan, Featherman and Duncan (1972).
- (2) See, for example, Sewell, Haller and Portes (1969); Sewell, Haller and Ohlendorf (1970); Sewell and Shah (1968).
- (3) In Davis and Moore's formulation inequality is created by the interplay between the functional importance of positions and the scarcity of talent in society. While a change in the distribution of education presumably would change the distribution of talent, inequality would still persist due to differences in functional importance of position.
- (4) A mathematical formulation of the following ideas is given in another paper (Sørensen, 1974).

References

- Becker, Gary S. Human Capital. New York: National Bureau of Economic Research, 1964.
- Blau, Peter M. and Otis Dudley Duncan. The American Occupational Structure. New York: John Wiley & Sons, 1967.
- Dahrendorf, Ralf. Class and Class Conflict in Industrial Society. Stanford: Stanford University Press, 1959.
- Davis, Kingsley and Wilbert E. Moore. "Some Principles of Stratification," 10 American Sociological Review 2 (1945): 242-249, also in Bendix & Lipset (1966) pp. 47-53.
- Duncan, Otis Dudley. "Methodological Issues in the Analysis of Social Mobility," in Smelser, Neil J. and Seymour Martin Lipset, eds., Social Structure and Mobility in Economic Development. Chicago: Aldine Publishing Company, 1966.
- Duncan, Otis Dudley, "Inheritance of Poverty or Inheritance of Race?" in Daniel P. Moynihan ed., On Understanding Poverty. New York: Basic Books, Inc.
- Duncan, Otis Dudley, David L. Featherman and Beverly Duncan. Socioeconomic Background and Achievement. New York: Seminar Press, 1972.
- Featherman, David L. and Robert M. Hauser. "Design for a Replicate Study of Social Mobility in the United States." Paper presented at the Conference on Social Indicator Models, Russell Sage Foundation, New York, July 12-15, 1972.
- Glass, David V. (Ed.) Social Mobility in Britain. London: Routledge & Kegan Paul Ltd., 1954.
- Jencks, Christopher, Marshall Smith, Henry Acland, Mary Jo Bane, David Cohen, Herbert Gintis, Barbara Heyns and Stephan Michelson. Inequality: A Reassessment of the Effect of Family and Schooling in America. New York: Basic Books, 1972.
- Lenski, Gerhard. Power and Privilege. New York: McGraw-Hill, 1966.
- Mincer, J. "Distribution of Labor Incomes: A Survey," Journal of Economic Literature 8(1970): 1-26.
- Parsons, Talcott. "An Analytical Approach to the Theory of Social Stratification," American Journal of Sociology (May 1940).
- Rogoff, Natalie. Recent Trends in Occupational Mobility. New York: Free Press, 1953.

- Sewell, W.H. and V.P. Shah. "Socioeconomic Status, Intelligence and the Attainment of Higher Education," Sociology of Education 40(1964): 1-23.
- Sewell, W.H., A.O. Haller and A. Portes. "The Educational and Early Occupational Attainment Process," American Sociological Review 34(1969): 82-92.
- Sewell, William H., Archibald O. Haller and George W. Ohlendorf. "The Educational and Early Occupational Status Attainment Process: Replication and Revision," American Sociological Review 35(1970): 1014-1027.
- Siegel, Paul M. "On the Cost of Being a Negro," Sociological Inquiry 35(1965).
- Sørensen, Aage B. "Models of Social Mobility." Baltimore, Maryland: Center for Social Organization of Schools, The Johns Hopkins University, Report No. 98, 1971.
- Sørensen, Aage B. "The Occupational Mobility Process: An Analysis of Occupational Careers." Unpublished Ph.D. Dissertation, The Johns Hopkins University, Baltimore, Maryland, 1972.
- Sørensen, Aage B. "Growth in Occupational Achievement: Investment in Human Capital or Social Mobility," in Land, Kenneth C. and Seymour Spilerman, eds., Social Indicator Models. New York: Russell Sage Foundation, 1973 (In Press).
- Sørensen, Aage B. "A Model for Occupational Careers," American Journal of Sociology. March, 1974 (In Press).
- Sorokin, Pitrim A. Social and Cultural Mobility. New York: Free Press, 1964.
- Svalastoga, Kaare. Social Differentiation. New York: David McKay Company, Inc., 1965.
- Treiman, Donald J. "Industrialization and Social Stratification," Sociological Inquiry (Spring, 1970).