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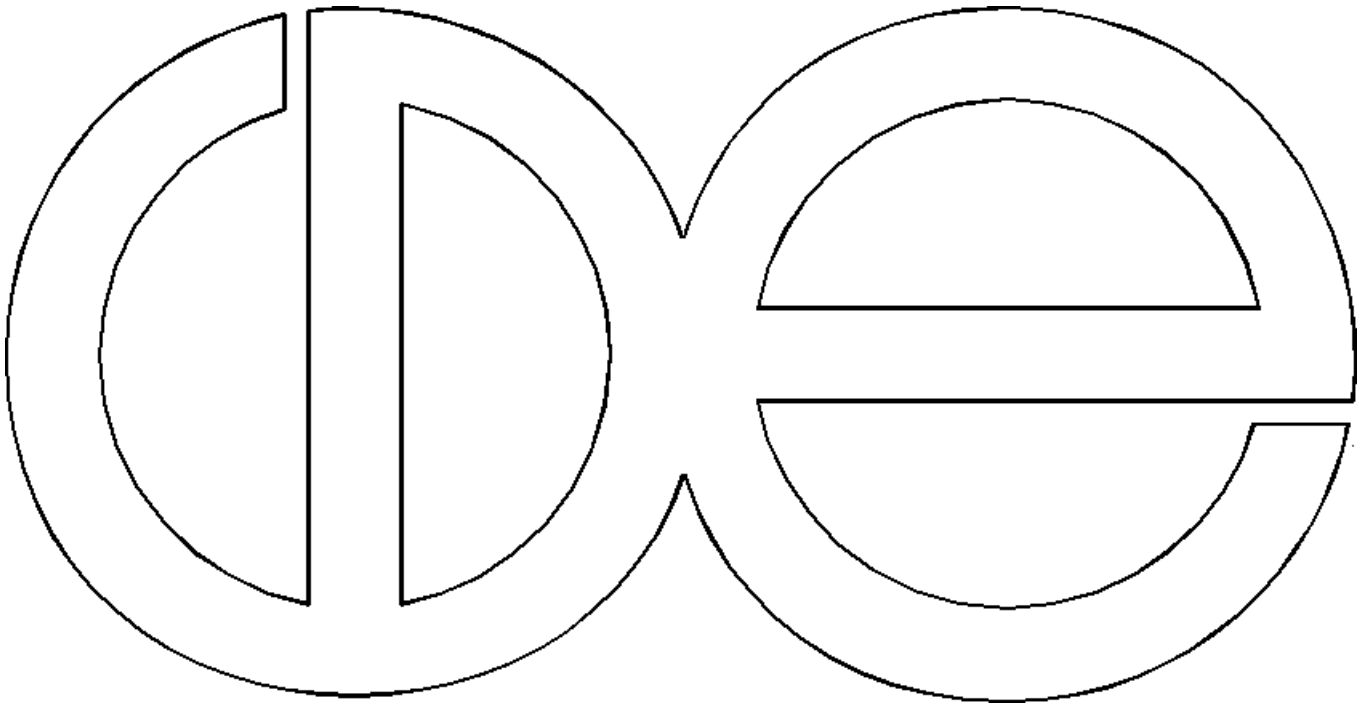

Occupational Status, Education, and Social Mobility in the Meritocracy[1]

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ABSTRACT

Following a brief review of the concept of occupational status, we review trends in occupational standing, using data from the 1962 and 1973 Occupational Changes in a Generation Surveys (OCG), the 1986-88 Survey of Income and Program Participation (SIPP), and the 1972 to 1990 NORC General Social Surveys (GSS). Next, we examine trends and differentials in the effects of family origins, measured social background, and schooling on occupational standing. Finally, using data from the Wisconsin Longitudinal Study (WLS) and the National Longitudinal Study of Youth (NLSY), we explore relationships among social background, measured mental ability, and occupational status in youth and adulthood.

In this paper, we use indexes of the socioeconomic standing of occupations to measure trends and differentials in intergenerational social mobility and in the effects of social background, educational attainment, and measured mental ability on occupational standing. We begin with an overview of the measurement of occupational status. This concept may be unfamiliar to some readers, and comparability among later findings depends on some of the details of index construction. We turn next to an examination of trends in aggregate intergenerational mobility, trends in occupational social standing, and trends in the effects of social background and educational attainment on occupational standing. In these analyses, we use several sets of national survey data that contain appropriate measurements: the 1962 and 1973 Occupational Changes in a Generation Surveys (OCG), the 1986-88 Surveys of Income and Program Participation (SIPP), and the 1972 to 1990 General Social Survey of the National Opinion Research Center (GSS). These surveys are each sufficiently large to permit some level of disaggregation by race, age, and sex, but only one of them, the GSS, contains even a crude, direct measure of mental ability. Thus, there is a tradeoff between national and temporal scope, on the one hand, and examination of the role of mental ability in the stratification process. Finally, using data from the National Longitudinal Survey of Youth (NLSY) and from the Wisconsin Longitudinal Survey (WLS), we focus on the role of measured mental ability in occupational standing. The NLSY is a high-quality national survey, but its population coverage is limited to cohorts aged 14 to 21 in 1979, who have been followed through 1993. The WLS is a regional sample of men and women who have been followed from their high school graduation in 1957 to ages 53 and 54 in 1992-93.

Socioeconomic Status

Socioeconomic status is typically used as a shorthand expression for variables that characterize the placement of persons, families, households, census tracts, or other aggregates with respect to the capacity to create or consume goods that are valued in our society. Thus,

socioeconomic status may be indicated by educational attainment, by occupational standing, by social class, by income (or poverty), by wealth, by tangible possessions—such as home appliances or libraries, houses, cars, boats, or by degrees from elite colleges and universities. At some times, it has also been taken to include measures of participation in social, cultural, or political life.

Job-holding is the most important social and economic role held by most adults outside their immediate family or household. When we meet someone new, our first question is often, "What do you do?" and that is a very good question. Job-holding defines how we spend much of our time, and it provides strong clues about the activities and circumstances in which that time is spent. Job-holding tells us about the technical and social skills that we bring to the labor market, and for most people job-holding delimits current and future economic prospects. Thus, even for persons who are not attached to the labor market, past jobs or the jobs held by other members of the same family or household provide information about economic and social standing. As market labor has become nearly universal among adult women as well as men, it is increasingly possible to characterize individuals in terms of their own current or past jobs.

There is a long standing and well-developed methodology for measuring one aspect of socioeconomic status using characteristics of job-holders.[2] The procedure is to link Census occupation lines to a weighted average of occupational educational attainment and occupational income or earnings, thus providing a scalar measure of occupational status. Beginning with Duncan (1961), the weights of occupational education and income have usually been chosen by regressing popular ratings of occupational prestige on these occupational characteristics.

Occupational status appears to indicate a reliable and powerful characteristic of persons or households by dint of its temporal stability and substantial correlation with other social and

[2] Hauser and Warren (1996) have comprehensively reviewed the history and methodology of occupational status measurement in the U.S.

economic variables. Some economists have suggested that occupational status may be a better indicator of long-term or permanent income than is income at a single point in time (Goldberger 1989; Zimmerman 1992). However, unlike permanent income, occupational status can be measured well at a single point in time, and occupational education, rather than income, appears to account for the persistence of occupational standing (Hauser and Warren 1996).[3] Because past as well as current occupations can be ascertained reliably, even by proxy or retrospectively, status indexes can be used to measure persistence and change in occupational standing across generations and within the career.

Occupational status indexes have disadvantages as well as advantages. A scalar measure of occupational standing obviously cannot reflect everything about a job that might be relevant to other social, economic, or psychological variables (Jencks, et al. 1988; Rytina 1992; Hauser and Logan 1992), nor is there a strong theoretical basis for the concept of occupational socioeconomic status (Hodge 1981). Moreover, some common occupations do not fit typical relationships among socioeconomic characteristics and occupational prestige (Hauser and Warren 1996); in particular, farm occupations are often given special treatment. Because the occupational education of women typically exceeds that of men, while the occupation earnings or income of men typically exceeds that of women, composite indexes of occupational status do not provide an accurate account of gender differences in occupational standing (Boyd 1986; Warren, et al. 1996). Measures of occupational status do not tell us everything about social standing, and they should be used in combination with other socioeconomic variables, e.g., educational attainment, income, earnings, and wealth.

[3] That is, correlations of occupational income across generations or within the career are much smaller than correlations of occupational education (Hauser and Warren 1996; Warren, et al. 1996).

In our analyses of occupational standing, we use survey data that have been classified into Census occupational systems from the 1960s to the 1980s. This creates a problem of comparability. The Duncan SEI was constructed by regressing occupational prestige for 45 occupations in a 1947 NORC survey on the characteristics of male workers in 1950 (Duncan 1961). It was subsequently updated for use with the 1960- and 1970-basis Census occupational classifications (Hauser and Featherman 1977). Prestige ratings of all occupations were obtained in the 1960s (Siegel 1971), and Stevens and Featherman (1981) constructed a new socioeconomic index for men (MSEI2), based upon characteristics of male workers in 1970. This was subsequently updated for use with the 1980 Census classification (Stevens and Cho 1985).

We use the Duncan SEI in analyses of the 1962 and 1973 OCG data, when the occupations in each survey have been coded into the 1960 Census occupational classification and, also, in analyses of the WLS data. The 1973 OCG data were doubly coded, both into the 1960 and 1970 Census classifications. We use MSEI2 in analyses of the 1973 OCG data, when they have been coded into the 1970 Census occupational classification, thus providing a bridge between analyses using the Duncan SEI and those using MSEI2. We also use MSEI2 in analyses of the 1972-1990 GSS, the NLSY, and the 1986-88 SIPP.[4]

Trends in Aggregate Status Mobility

For much of this century, interest in social mobility focused on the question of whether "America was still the land of opportunity," that is, whether children were able to move up in the social structure relative to their parents. Reliable national data on mobility became available only in the 1960s, with the first Occupational Changes in a Generation Survey, which was carried out

[4] The GSS and NLSY data were coded into the 1970 system, and SIPP data were coded into the 1980 system.

as a supplement to the March 1962 Current Population Survey.[5] Contrary to many suppositions, the 1962 OCG data showed a predominant flow of upward mobility from one generation of men to the next, which had been fed in large part by the movement from farm to city (Duncan 1965; Blau and Duncan 1967). The second OCG survey, which Featherman and Hauser directed as a supplement to the March 1973 CPS, continued to show a predominant flow of upward mobility among U.S. men (Featherman and Hauser 1978).[6]

It is now much less clear whether the predominance of upward mobility will continue, even though one might well argue that future upward mobility will be spurred by the large flow of foreign migrants to the U.S. For example, Figure 1 shows a time series of trends in mean father-to-son status mobility for cohorts of white, U.S. men born between the beginning of World War I and the late 1950s. The data are from the annual series of General Social Surveys carried out between 1972 and 1990, along with the 1973 OCG survey and the 1986-88 SIPP supplements. For obvious reasons, each age grouping or survey covers a different, but overlapping set of cohorts. While the data are somewhat irregular, at least in part because the average cell size is well under 200, the GSS series suggests that a plateau of aggregate upward mobility was reached in birth cohorts of the late 1920s to the early 1940s. Fortunately, the data points from the much larger 10-year age groups in the 1973 OCG and 1986-88 SIPP fall neatly into the pattern of the GSS series. The largest intergenerational shift, just under 10 points on MSEI2, corresponds to a

[5] The 1962 OCG survey included 20,700 U.S. men in the civilian noninstitutional population, plus those living in family quarters in military installations (Featherman and Hauser 1978:Appendix B).

[6] The 1973 OCG survey covered 33,613 U.S. men in the civilian, noninstitutional population, including over-samples of Black and Hispanic men drawn from previously retired CPS rotation groups.

bit less than half a standard deviation in the status of sons and a bit more than half a standard deviation in the status of fathers.[7]

There has been a steady decline in the aggregate intergenerational status mobility of cohorts born after the end of World War II. At least at young ages, there appears to have been no net upward mobility among white men born after 1950. Even in the absence of expanding opportunities in high status occupations, a finding of declining intergenerational mobility is by no means a necessity, for continuing upward mobility could also be fed by status differentials in fertility. Our finding echos recent claims, offered by scholars as well as politicians, that "Today's high school graduates make less than their fathers did" (Murnane and Levy 1993). However, it locates declining intergenerational mobility chances in earlier cohorts, and it has a stronger conceptual basis. Murnane and Levy's pronouncement was based on intercohort comparisons, not on an intergenerational comparison. It also fails to acknowledge intergenerational educational mobility. That is, many of today's high school graduates are not the sons of high school graduates, and *vice versa*.

One should not jump from the data of Figure 1 to the conclusion that net immobility will last throughout the lives of recent cohorts of U.S. men, for the status of men's jobs typically grows from career entry to midlife. Table 1 shows the means and standard deviations of the SEI and MSEI2 for Nonblack men in the two OCG surveys and the 1986-88 SIPP.[8] Both the 1962

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[7] In all of the surveys except the GSS, the term "father's occupation" actually refers to the head of the household in the respondent's family of orientation. Thus, the referent is a step-father or a mother in an increasing share of cases among younger cohorts, especially among Blacks.

[8] Appendix A gives approximate sample sizes for the 1962 OCG survey, the 1973 OCG survey, and the 1986-88 SIPP. In the case of the two OCG surveys, the reported counts have been adjusted downward, by factors of 0.62 and 0.75 respectively, in light of the Census Bureau's reports of sampling variability (Featherman and Hauser 1978:507-14).

and 1973 surveys asked men about their first, full-time civilian job held after leaving school for the last time, and the 1973 survey also asked about men's jobs in 1962.[9] Thus, both of the OCG surveys provide intragenerational as well as intergenerational measures of net status mobility. Across all age groups, there is little net mobility from father's occupations to son's first jobs, and most of the net upward mobility occurs between son's first jobs and those held at ages 35 to 44.

Table 2 gives means and standard deviations of occupational status among Black men in the OCG and SIPP surveys. The 1962 OCG data provide striking evidence of the low occupational status of black men and of their low net intergenerational mobility in the pre-Civil Rights era. There was substantial growth in occupational standing, even among relatively old black men, between 1962 and 1973, and the miserable stasis of the pre-Civil Rights era was replaced by a predominant pattern of net upward mobility. There was continued improvement in the status of current jobs between 1973 and 1986-88 among Black men at ages 35 and above, but strikingly little change in the youngest age group.[10]

Trends in Intergenerational Status Persistence

Throughout the period for which data are available, intergenerational correlations of occupational status have declined among White men, and they have increased irregularly among Black men. There is a great deal of evidence to support the first of these assertions. It is supported by the evidence of linear and canonical correlations and loglinear models of early, small

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[9] The first job questions were not comparable between the 1962 and 1973 OCG surveys. The 1962 instrument failed to anchor school-leaving in time, and it often elicited responses that must have pertained to jobs held well before respondents had completed their schooling (Duncan, et al. 1972:210-224). In 1973, Featherman and Hauser anchored the first job item with questions about the highest grade of school completed and the data of school-leaving.

[10] We are somewhat mistrustful of comparisons of net intergenerational mobility between the 1973 OCG and SIPP among Blacks. Levels of parental status in SIPP appear unreasonably high relative to those in the 1973 OCG, and we suspect some lack of comparability in the identification of non-paternal household heads.

mobility surveys and of the 1962 and 1973 OCG data (Hauser, et al. 1975b; Hauser, et al. 1975a; Featherman and Hauser 1978:Chs. 2-3), and by canonical and loglinear models of the 1972 to 1990 GSS data (Hout 1988; Hauser and Logan 1992). As Featherman and Hauser (1978: 135) concluded, "If there is a trend in the volume of occupational mobility, it is toward greater movement."[11]

Table 3 assembles regressions of men's or women's occupational status on father's occupational status from the two OCG surveys and from the 1986-88 SIPP, thus extending the existing trend data. Because of the change in scales, it is possible to compare lines pertaining to the 1962 and 1973 OCG surveys in the SEI metric and lines pertaining to the 1973 and the 1986-88 SIPP in the MSEI2 metric, but not to make direct comparisons between the 1962 OCG and the 1986-88 SIPP. Among Nonblack men, each of the paired, age-specific comparisons shows a decline in the regression of a man's current occupational status on that of his father, by about 8 percent between 1962 and 1973 and by about 13 percent between 1973 and 1986. For example, at age 25 to 34, the slope declined from 0.45 to 0.37 between 1962 and 1973 (in the SEI metric), and it declined from 0.42 to 0.35 between 1973 and 1986 (in the MSEI2 metric). At the same time, there has been no monotonic change across age groups in the regression of the status of a man's first occupation on that of his father. For example, within the 1973 OCG survey, the regressions were slightly larger at ages 35 to 54 than at younger or older ages. This suggests that the reduction in intergenerational stratification has occurred by way of increasing mobility after career entry.

[11] The senior author raised this observation in a conversation with Charles Murray, shortly before publication of *The Bell Curve*, suggesting that it was inconsistent with the books thesis that social stratification was increasing as a consequence of cognitive stratification. Murray responded that he did not expect such rigidification to occur until after the beginning of the 21st century. *The Bell Curve* does not refer to any evidence about trends in social mobility in the U.S.

The story is quite different in the Black population, where the 1962 OCG survey provided meager evidence of intergenerational stratification. O.D. Duncan (1969) characterized this as a perverse form of equality of opportunity, in which Black families could not pass advantage—or disadvantage—from one generation to the next. Instead, regardless of stratum of origin, low status jobs were the rule. As occupational opportunities expanded in the Black population, social stratification increased. The intergenerational status regression increased at every age between the 1962 and 1973 OCG surveys, and it increased at ages 25 to 34 between the 1973 OCG survey and the 1986-88 SIPP.[12] Among Black men, the regressions of the status of first jobs on father's occupations in the two OCG surveys also suggest increasing stratification in more recent cohorts. One might suspect that the mixed findings of trend among Black men reflect the combination of the entry of Blacks into the economic mainstream, along with the secular decline in occupational stratification that is more easily observed among Whites.

The last two panels of Table 3 show the observed intergenerational regressions for women in the 1986-88 SIPP. These, of course, provide no evidence about trend. The estimates suggest that intergenerational stratification among White women is slightly less than among White men (relative to the status of mostly male family heads). There is no clear pattern to the gender differences in stratification among Blacks, nor are there consistent differences in the regressions between Black and White women.

Intergenerational Regressions and the Effects of Family Origins

In focusing on intergenerational status regressions, we do not claim that they are the best indicators of the social stratification of opportunity. On the contrary, we think that they are not and that it would be far preferable to create time series in resemblance among siblings. Such

[12] We have no explanation, other than sampling variability, for the negative regression among Black men aged 55 to 64 in the 1986-88 SIPP.

indicators would reflect the global correlation between the family of orientation and socioeconomic outcomes, and they would not depend either on a specific choice of variables pertaining to the family of orientation or to the problems of measuring such variables retrospectively or by proxy, along with adult outcomes (Jencks, et al. 1972; Hauser and Featherman 1976; Olneck 1977; Griliches 1979; Hauser and Mossel 1985; Hauser and Sewell 1986; Kuo and Hauser 1995). For example, using the 1973 OCG data Hauser and Featherman (1976:117) estimated correlations between the educational attainments of American brothers in nine cohorts. These estimates range from 0.62 to 0.70 after correction for response error, thus suggesting a very powerful role for the family in educational stratification. That is, between 62 and 70 percent of the variance in educational attainment lies between families. Analyses of WLS data suggest that family resemblance in occupational status is substantially less than that in educational attainment (Hauser and Sewell 1986:S109). After correcting for response error, Hauser and Sewell estimated between-family variance components of 49 percent of the variance in mental ability, 46 percent of the variance in educational attainment, 41 percent of the variance in the status of first jobs, and 38 percent of the variance in current occupations.

Sibling pair data can be drawn from national samples in the original National Longitudinal Surveys of Labor Market Experience (Altonji and Dunn 1990), the Panel Study of Income Dynamics (Solon, et al. 1991), and—most important—the 1979 National Longitudinal Study of Youth (NLSY) (Korenman and Winship 1996). There are also good data on siblings in the Wisconsin Longitudinal Study, a large regional sample. Thus, it is no longer necessary to say that sibling studies are small, local, and nonrepresentative. However, but with one exception (the 1994 GSS), there are no large surveys of socioeconomic resemblance among siblings that cover the full adult population across all ages, nor do repeated cross-section surveys of siblings provide a base for trend comparisons.

Hauser and Featherman's analyses of the 1973 OCG data on the education of brothers in different age cohorts were recently elaborated by Kuo and Hauser (1995:155-56), who estimated trends in family stratification of education among Black and among White men. The main trend in both populations was declining inequality of educational attainment. There were reductions in all sources of variance in schooling: Measured between-family effects, unmeasured between-family effects, and within-family effects. As educational inequality declined, the share of within-family variance increased over time among White men, while it decreased over time among Black men (after correction for response variability). Unfortunately, there is no comparable time series for occupational status (or earnings), but the planned 1997 NLSY should eventually make it possible to compare the early 1990s with the early 21st century in two cohorts of American youth.[13]

In the 1994 GSS, Robert D. Mare and Robert M. Hauser designed a supplementary module on families and social stratification. It had two major components. First, the GSS module asked some 3000 respondents about the education and occupational standing of several relatives, including siblings, children, parents, spouses, and in-laws. Second, a supplementary Survey of American Families (SAF) interviewed a randomly selected brother or sister of 1155 of the GSS respondents.[14] Both the GSS and the SAF ask about early career jobs as well as about current occupations (and earnings), so it may be possible to measure trends in the status resemblance of siblings within the GSS-SAF. Several questions were asked both directly and by

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[13] Efforts by the senior author, among others, to include questions about the educational attainment and occupational status of siblings in the 1986-88 SIPP family background module were rejected by the U.S. Bureau of the Census and the Office of Management and Budget on the grounds that they had no immediate policy relevance. For the same reason, the family background module was dropped from SIPP after 1988, and it was not included in the redesign of SIPP for 1996 and beyond. In our opinion this is a tragic loss of an important social indicator series.

[14] The Survey of American Families completed its field operations late in 1995, and no data from it are yet available.

proxy in the GSS and SAF, and it thus will eventually be possible to correct for random and some forms of nonrandom response error.

Table 4 gives preliminary estimates of sibling correlations, based on data reported by the 1994 GSS respondents.[15] To our knowledge, these are the first such correlations observed for even a moderately large random sample of the adult population of the U.S. The correlations between educational attainments and occupational statuses of siblings are shown in boldface. Among the four combinations of brothers and sisters, the correlations range from 0.40 to 0.49 in the case of educational attainment and from 0.24 to 0.29 in the case of occupational status. Even though the estimated correlations will increase when they have been corrected for response error, we think the estimates suggest surprisingly low levels of correlation. For example, among the OCG brothers surveyed in 1973, Hauser and Featherman (1976:117) observed education correlations ranging from 0.515 to 0.590. Moreover, in the WLS sample, which has sometimes been dismissed as "too homogeneous," the uncorrected correlation between brothers' occupational statuses in the mid-1970s was 0.29 (Hauser and Sewell 1986). Our preliminary finding is that the 1994 GSS sibling data provide no stronger evidence of family stratification in occupational status than we see in recent intergenerational status correlations and regressions. Indeed, in the GSS the intergenerational occupational correlations—of father's status with respondent's or sibling's status—are as large or larger than the corresponding sibling correlations.

Measured Social Background and Occupational Status

Father's or head's occupational status is a convenient proxy measure of social background, and by looking at its relationship with men's or women's occupational status, we maintain the metaphor of social mobility. However, social background consists of a much larger

[15] These correlations are based upon our recodes of the 1994 GSS occupation and industry reports, so they cannot be reproduced from the public use version of the GSS data.

array of conditions of upbringing, each of which may affect adult outcomes directly or indirectly and whose effects are usually considered antithetical to notions of meritocratic achievement or selection. We have already considered some effects of race and sex, but a reasonable array of social background variables would also include maternal and paternal education and income, family structure and size, and regional and urban origin. Unfortunately, the OCG and SIPP surveys do not include a good measure of income in the family of orientation,[16] but we think that its exclusion from our analyses is not critically important, in light of the available evidence of its overlap with other socioeconomic measures (Sewell and Hauser 1975; Hauser and Sweeney 1995).

Using the 1962 and 1973 OCG surveys, we have regressed occupational status (SEI) on father's educational attainment, father's occupational status, number of siblings, intact family, farm origin, and Southern origin. Using the 1973 OCG survey and the 1986-88 SIPP, we have regressed occupational status (MSEI2) on those variables, plus mother's educational attainment and—among Nonblack men or women—Hispanic origin. None of the findings of these analyses is new or surprising, and the details have been presented elsewhere (Featherman and Hauser 1978). With minor exceptions, men and women are advantaged in the occupational structure if they have highly educated, high status parents, if their families are small and intact, and if they were born outside the South, not raised on a farm, and are not of Spanish origin or descent.

In the present context, we think the most important questions are whether there has been any change in the degree to which family background influences occupational success through schooling and how the effects of schooling have changed across time. There is a long tradition of

[16] The 1973 OCG survey did include a retrospective item about income in the family of orientation, which was highly reliable (r = 0.91). However, in a validation search of Wisconsin Census records, Featherman (1980) found a correlation of only 0.28 between that item and the income of the respondent's family at the Census nearest his 16th birthday.

studies of omitted variable bias in estimates of the economic returns to schooling, and in this respect sociological studies of occupational attainment parallel economic studies of earnings. The prevailing wisdom is that socioeconomic origins affect adult attainments primarily through schooling. This implies that the direct effects of origins, say, the effect of parent's income on child's income, are interesting, but relatively minor (Sewell and Hauser 1975). Absent lagged effects of social background, there is also less concern about omitted variable bias in the returns to schooling, though the effect of ability, motivation, or other intermediate variables, as well as those of social background could lead to bias in estimated returns to schooling.[17] There have been occasional proposals that errors in the measurement of social background lead to underestimates of its influence and over-estimates of the effects of schooling (Bowles 1972; Bowles and Gintis 1976; Rytina 1992), but in our judgment these proposals have not been supported by the evidence (Bielby, et al. 1977; Bielby and Hauser 1977; Hauser and Logan 1992). For example, when Bielby, Hauser, and Featherman adjusted the 1973 OCG data for response errors in socioeconomic variables, they found even stronger evidence for a mediating role of schooling in the stratification process. Thus, we have no reluctance to look for evidence of change in a series of ordinary regression analyses.

Table 5 gives summary measures of fit (adjusted R^2) and dispersion (standard error of estimate) in regressions of current occupational status on social background, on schooling, and on the combination of social background and schooling. (In the next section, we will look closely at the effects of schooling on occupational status.) With minor exceptions, regardless of the survey and year or population group, the findings in Table 5 are consistent.

[17] Hauser and Sewell (1986) find little evidence that effects of measured or unmeasured family effects or academic ability reduce naive estimates of the return to post-secondary schooling among men in the WLS sample.

- While social background accounts for about 15 to 20 percent of the variance in occupational status—equivalent to an intergenerational correlation between 0.39 and 0.45—schooling alone accounts for a far larger, but more variable share of the variance in occupational standing. Among white men, these shares range from 0.31 to 0.53; among white women, from 0.29 to 0.36; among black men, from 0.19 to 0.60; among black women, from 0.36 to 0.53.
- Whatever the explanatory power of schooling, social background adds little to it. With few exceptions, the vectors of social background variables add no more than one or two percentage points to the explained variance in occupational status. Indeed, in some cases, the adjusted R^2 declines when the vector of social background variables is added to the equation; their contribution is worth less than the cost in degrees of freedom.
- Finally, both among Nonblack men and Black men, dispersion in occupational outcomes has increased, net of the effects of social background and schooling. That is, in comparisons between the 1962 and 1973 OCG surveys (in the SEI metric), and between the 1973 OCG and the 1986-88 SIPP (in the MSEI2 metric), standard errors of estimate increase over time for men of the same age in successive surveys. If occupational inequality has increased from the 1960s to the 1980s, some components of the increase are independent of changes in the distribution and effects of social background and schooling.

Effects of Schooling on Occupational Status

The analyses in Table 5 are based on a simple, piecewise linear specification of the regression of occupational status on schooling:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 \ldots \qquad \textbf{(1)}$$

where Y = occupational status, X_1 = years of graded schooling (with a maximum of 12), X_2 = years of post-secondary schooling (with a minimum of 0 for completion of 12 or fewer grades), and $X_3 = 0$ for 11 or fewer years of schooling and $X_3 = 1$ for 12 or more years of schooling. This specification provides a convenient summary of the relationship between schooling and occupational status. For example, Figure 2 and Figure 3 show the relationship between fitted and observed mean levels of occupational status (MSEI2), net of measured social background, among Nonblack and Black men at ages 35 to 44 in the 1973 OCG survey. The approximation is close, excepting a tendency to overestimate the occupational status of persons who completed some college. We think that the specification is both close enough and simple enough to facilitate comparisons among groups of the effects of schooling on occupational status.

The most salient feature of the fit in Figure 2 and Figure 3 is that the effect of post-secondary schooling on occupational status is far larger than that of graded schooling. Indeed, the effect of graded schooling is slight, both among Black men and among Nonblack men. It is our strong suspicion that some estimates of lower returns to schooling among Blacks than among Whites rest on comparisons of (mis-specified) simple linear regressions. Lower slopes will be estimated among Blacks merely because they complete fewer years of schooling. That is, observations for Blacks are concentrated in the region of graded schooling where returns are low.

Table 6 gives estimates of the effects of schooling on occupational status by race, sex, and year in the OCG surveys and SIPP. All of the reported estimates are net of measured social background. In general, the findings are similar to those in Figure 2 and Figure 3; that is, the

effects of high school graduation and post-secondary schooling are large, while those of graded schooling are small. There are also important changes and differentials.

- The effects of graded schooling on occupational status have been negligible among Blacks from the 1960s through the 1980s. Among Nonblacks, those effects were small in the 1960s, and by the 1980s there was no longer any effect of graded schooling on occupational status. Of course, given the growth of schooling, those non-effects are now of little importance in the population at large.
- Nonblack men have enjoyed substantial effects of high school graduation and of post-secondary schooling. In the one series we can observe for Nonblack women, the effect of high school graduation is larger at every age than that of post-secondary schooling. White women appear to have a higher payoff than White men for high school completion, but a lower payoff for post-secondary schooling. There is a similar differential in the effects of schooling between Black women and men in the late 1980s.
- Black and Nonblack women have similar returns to high school graduation in the 1980s, but the effect of post-secondary schooling is consistently larger among Black than among Nonblack women. This may be due to the more continuous employment histories of Black women.
- At younger ages, Black men have experienced increasing returns to high school graduation, both between the 1960s and 1970s and between the 1970s and the 1980s. By the 1980s, those effects were similar to the effects of high school graduation among Nonblack men. Effects of high school graduation have remained low among Black workers at older ages.

- In the 1960s and 1970s, effects of post-secondary schooling on the occupational status of Black men were consistently larger than among Nonblack men; this differential is no longer clear in the 1980s.

In our opinion, the main story here is that there has been relatively little change in the effects of schooling on occupational status. Occupational effects of graded schooling have been low, and they have remained low or disappeared. Returns to post-secondary schooling have been high, and they have remained high. The most conspicuous change is the increasing value of high school graduation among young black men. Public perception of the growing importance of schooling in social and economic success has played an important part in discussions of "the meritocracy." What accounts for that perception if the effects of schooling on occupational standing have not changed very much?

First, since the early 1970s there have been major changes in the effects of schooling on earnings, and these have increased the relative value of high school graduation and college attendance (Murphy and Welch 1989). Second, and—we think—equally important, schooling has become more important because levels of educational attainment have increased. More of the population has completed levels of schooling where the expected returns to schooling are high. For example, Figure 4 and Figure 5 show the distribution by age in 1992 of educational credentials among Blacks and among Non-Hispanic Whites.[18] The age differences in education reflect intercohort changes in educational attainment. While the trends are damped by the tendency of adults to complete higher degrees at older ages, the cross-sectional age comparisons amply demonstrate the expansion of post-secondary schooling among Blacks and Whites and the rapid decline of the share of the Black population with no high school credential. Similar

[18] These data are based on the Census Bureau's post-1990 classification of educational credentials.

observations might be offered with respect to growth in post-secondary schooling among women, relative to men. Moreover, the general population has moved into levels of the educational distribution where returns are high at the same time that previously non-competing groups—women and Blacks—have moved into the same segments of the labor market.

Mental Ability, Merit, and Occupational Status

In this section, we first offer a few observations about relationships among measured mental ability, schooling, and occupational status, and we then turn to a more intensive analysis of the effects of ability and of other social and psychological variables on occupational status in a large, long-term study of the life course. It is not clear to us why the term merit should be identified so closely with mental ability, as distinct from many other conditions and traits that improve the chances of social and economic success. Among these, for example, one might list ambition or drive, perseverance, responsibility, personal attractiveness, and physical or artistic skills or talents, along with access to favorable social and economic networks and resources.[19] To be sure, cognitive functioning plays an important role in the occupational structure of complex societies, but it is surely not the only identifiable factor in achievement beyond the initial conditions of race, sex, and socioeconomic origin. One factor contributing to the conflation of merit with mental ability is surely the preoccupation with intelligence and its consequences in a long tradition of psychology, whose latest unfortunate manifestation is the Herrnstein and Murray (1994) book, *The Bell Curve*. In our opinion, some economic thought has catered to this unidimensional notion of merit by treating ability as an unmeasured residual. To be sure, the theoretical content of the economic concept of ability is potentially broader, but gradually it has

[19] See, for example, the work of Clausen (1993), *American Lives*, which follows the careers of a small California sample from youth to old age.

become identified with the psychologist's measurements of the same name, rather than with an array of variables beyond those that are easily quantifiable in economic research.

Early in *The Bell Curve*, there is a wonderfully written, but purely speculative passage, which argues that occupations have become more and more segregated by intelligence throughout the course of the 20th century (Herrnstein and Murray 1994:51-61). Over the course of this century, Herrnstein and Murray argue, ability has increased in its importance with respect to occupational and economic success. That in turn has tended to segregate people in the higher reaches of the occupational distribution, and this leads through social isolation to mutual sociation to elitism, and, finally, by dint of genetic inheritance, to persistence of membership across generations in the cognitive elite. They also suggest that the isolation of the elite from the everyday lives of the non-elite could eventually lead to social disaster. We suspect that, to the extent cognitive elitism and isolation has grown, it has far more to do with growth in education, growth of complex, high status occupations, and growth in complex organizations than with selection on ability *per se*. Herrnstein and Murray conclude, "Even as recently as midcentury, America was still a society in which most bright people were scattered throughout a wide range of jobs. As the century draws to a close, a very high proportion of that same group is now concentrated within a few occupations that are highly screened for IQ."

Herrnstein and Murray's text offers no data about trends in the joint distribution of IQ and occupation: It rests entirely on the growth of occupations whose incumbents have high levels of schooling. See, especially, their graph at p. 56, "The top IQ decile becomes rapidly more concentrated in high-IQ professions from 1940 onward," which displays time-series in three different scalar transformations of the number of workers in selected professional and technical occupations. The evidence that Herrnstein and Murray present about occupations and the cognitive elite combines real data about the growth of key, knowledge-based occupations with

unfettered speculation about constancy in the measured ability of the incumbents of those elite occupations (and in the population at large). "Increasing cognitive isolation" is no more than a speculative extrapolation from the growth of knowledge-based occupations.

To test the original proposition, we looked at data for 13,000 persons in the GSS in the eleven years from 1974 to 1993 in which a 10-item verbal ability test had been administered. We looked at the share of employed persons, aged 25 to 64, who answered all 10 questions correctly, relative to the share of such persons who gave fewer correct answers; about 6 percent of the population met this standard of cognitive ability. Then, we classified occupations into those that represented the cognitive elite, as defined by Herrnstein and Murray, versus all other occupations.[20] Figure 6 shows trends in the chances that persons in elite and in non-elite occupations answered 10 questions correctly and trends in the chances that persons in elite occupations answered 10 questions correctly relative to the chances that persons in non-elite occupations answered 10 questions correctly. (Each series has two components because the GSS used 1970-basis occupation codes from 1974 to 1990, and it used 1980-basis occupation codes from 1988 to 1993.) The first two measures are expressed in the natural log of the odds of answering the questions correctly, while the third measure is the difference between the first two.

Over the 20 years covered by the GSS, the story is very simple. Cognitive performance has been essentially stable in non-elite occupations. It is higher in elite than in non-elite occupations, but appears to have declined slightly in elite occupations. Consequently, there has been a slight decline in the difference in verbal ability between persons in elite and in non-elite occupations. The finding is unchanged if we restrict the sample to non-minorities, and it is

[20] The elite occupations are accountants, architects, chemists, college teachers, computer scientists, dentists, engineers, lawyers, mathematicians, natural scientists, physicians, and social scientists (Herrnstein and Murray 1994:56).

unchanged if we choose a less stringent criterion of cognitive performance—getting 9 of the 10 words right. The time-series based on the GSS data not only fails to support Herrnstein and Murray, but tends to contradict their thesis.[21]

The Bell Curve offers other strong statements and speculations about the relationship between mental ability and occupational status, but it offers little evidence to back them up. To be sure, there are only a few sets of national data that include measures of mental ability as well as socioeconomic variables, and most of those are limited to samples of youth, either in the general population, or in school-based samples. Few studies provide the extended window of observation that one would like in order to measure long term effects of mental ability on occupational outcomes. One of the best available resources of this kind is probably the National Longitudinal Survey of Youth (NLSY), from which a variety of data through 1990 were used in *The Bell Curve*. However, there is very little analysis of occupational attainment in the book, either based on the NLSY or other readily available data resources.

For example, in a summary passage, Herrnstein and Murray write, "Whatever the reason for the link between IQ and occupation, it goes deep. If you want to guess an adult male's job status, the results of his childhood IQ test help you as much as knowing how many years he went to school" (p. 51). Surprisingly, the supporting text (p.53) makes no reference to the NLSY. This is curious, since the only research discussed in the text is McCall's study of 46 to 90 children of each sex in the Fels Longitudinal Study, for whom educational attainment and occupation had been ascertained at ages 26 or later. Herrnstein and Murray report, "The IQ scores they got when they were 7 or 8 years old were about as correlated with the status level of their adult jobs as their

[21] Weakliem, McQuillan, and Schauer (1995) have carried out additional analyses of the GSS data and reached similar conclusions. One of the present authors, Min-Hsiung Huang, is now undertaking an exhaustive analysis of changes in the relationship between verbal ability and socioeconomic achievement in the GSS.

adult IQS would have been. Inasmuch as childhood IQ is more correlated with status than completed education, as it is in some studies, the thesis that IQ scores really just measure educational level is weakened." The Fels sample, born between 1930 and 1943, is reported to contain "families from the top 85 percent of the socioeconomic scale and is somewhat skewed to the right in educational attainment" (McCall 1977:482). That is surely the case, for McCall reports that 34 percent of the women and 56 percent of the men in the sample had graduated from college. These percentages are exceptionally high for the relevant cohorts, and they lead us to doubt whether the samples could possibly yield estimates of correlations that would be valid for the general population.[22] None of these qualifications is mentioned by Herrnstein and Murray.

Among youth in the contemporary United States, there are substantial correlations between mental ability, measured in adolescence, both with educational attainment and occupational status, but the correlation between ability and occupation is not larger than that between educational attainment and occupation. Table 7 shows correlations among years of schooling, Armed Forces Qualification Test scores (1989 revision), and occupational status in four subgroups of the NLSY sample. The data pertain to youth in the cross-section sample in the four youngest birth cohorts, born in 1961 to 1964, who were very likely to have taken the Armed Services Vocational Aptitude Battery (ASVAB) before school-leaving.[23] Thus, the observation of completed schooling, from the 1988 NLSY survey, pertains to the sample at ages 24 to 28, and the observations of occupational status cover ages from 25 to 32. The data permit 20

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[22] It is a bit off the subject, but worth noting McCall's report—ignored by Herrnstein and Murray—that "to predict child's attained education ... for sheer predictive purposes father's education level was more accurate than the child's own IQ, which contributed no substantial additional predictive power" (McCall 1977:483).

[23] Because of the narrow age-range of this sample, we have not adjusted AFQT scores for age or grade in school at administration of the test.

comparisons of the correlation between AFQT and occupational status with that between educational attainment and occupational status. In just two of those, both in the rather small black samples, the correlation of status with the AFQT is larger than with educational attainment. In the remaining cases, and especially among Nonblack youth, the correlations between schooling and occupational status are often much larger than those between the AFQT and occupational status.

Ability and Occupational Status in the Life Course

The senior author of this paper, among others, has followed a cohort of 10,000 Wisconsin high school students since their graduation in 1957 (Sewell and Hauser 1992b). The most recent follow-up of the Wisconsin Longitudinal Study (WLS) was in 1992-93, when the sample was 53 to 54 years old (Hauser, et al. 1992). It thus provides a valuable opportunity for us to look at the evolution of socioeconomic achievements over much of the life course.

A survey of background, school experiences, and aspirations among all high school seniors in Wisconsin public, private, and parochial schools was conducted in the spring of 1957. From this survey, a one-third random sample of 4,994 men and 5,323 women was drawn. Information on parental income, student's measured intelligence, and high school rank were taken from school and public records with proper precautions to protect the confidentiality of individual information. In 1975 a follow-up study was conducted in which almost 90 percent of the original sample members were located and interviewed by telephone (Clarridge, et al. 1977). These data provide a full record of social background, youthful aspirations, schooling, military service, family formation, labor market experiences, and social participation of the original respondents. During 1992 and 1993, we followed up the sample for the first time since 1975, and we interviewed 91 percent of surviving 1975 respondents.

The WLS sample is broadly representative of middle-aged white American men and women who have completed at least a high school education. Among American women and men aged 50 to 54 in 1990 and 1991, approximately 66 percent are whites of non-Hispanic background who completed at least 12 years of schooling (Kominski and Adams 1992). In light of the essential stability of occupational returns to post-secondary schooling over the past 30 years, we think that the experience of the Wisconsin cohort is highly relevant to the contemporary discussion of meritocracy and inequality. Some strata of American society are not represented in the WLS. Everyone in the original sample graduated from high school. Sewell and Hauser (1975) estimated that about 75 percent of Wisconsin youth graduated from high schools in the late 1950s. Minorities are not well represented; there are only a handful of African American, Hispanic, or Asian persons in the sample. About 19 percent of the WLS sample is of farm origin, and that is consistent with national estimates of persons of farm origin in cohorts born in the late 1930s. At each reinterview, roughly 70 percent of the sample lived in Wisconsin, and 30 percent lived elsewhere in the U.S. or abroad.

Despite its limitations, the WLS provides a long-term look at the development of the life course from adolescence to midlife in a cohort of men and women who resemble a large segment of the U.S. population. The sample is large, and sample retention is very high; compare Jencks et al. (1979:6-7) and Center for Human Resource Research (1992). Measurements are of high (and often of known) quality. Moreover, the WLS has fared well in comparisons of findings with national studies of comparable populations (Sewell and Hauser 1975; Jencks, et al. 1983; Corcoran, et al. 1992).

Our analysis of the WLS data is based upon the well known social psychological model of attainment that was originally developed using data for the same cohort from the senior year of high school, 1957, through the seven years that usually encompass college attendance and entry

into careers and marriage (Sewell, et al. 1969; Sewell, et al. 1970; Sewell 1971; Sewell and Hauser 1975). In the present analysis, we seek to learn whether, and in what ways, the conditions of early career success continue to influence socioeconomic outcomes later in life.

To anticipate some findings, we note that adolescent IQ and educational attainment are both moderately correlated with occupational status from youth to maturity, but the educational correlations are much larger, at least early in the career. Among WLS men, the correlation between years of schooling and the status of first, full-time civilian jobs is 0.77, and among WLS women, the correlation is 0.50. By age 53-54, these correlations fall to 0.54 and 0.37, respectively. The correlation between Henmon-Nelson IQ score and status of the first job is 0.44 among men and 0.33 among women. At ages 53-54, the correlations are 0.39 and 0.37. Thus, the correlations of occupation with educational attainment decline across the life course, while those with IQ are relatively stable. This suggests that there is something more to ability than its validation through schooling, but the correlation of IQ with occupational status is also not impressively large.

In this section, we first briefly review our social psychological model of achievement. Second, we report regression analyses of the occupational status of WLS men and women, which follows the influence of social background, ability, and aspiration from adolescence through maturity. Last, we report a parallel, canonical analysis of occupational status across the life course; this identifies patterns of constancy and change in the influence of earlier life conditions and experiences.

A Social Psychological Model of Attainment

Our analysis is based upon a social psychological model of attainment, which is shown schematically in Figure 7. Briefly, it elaborates the well-known Blau-Duncan model of occupational achievement by introducing social psychological variables related to school

experience and aspiration, as well as a more extensive set of social background characteristics.[24] The model is block-recursive, and all save two of the blocks shown in Figure 7 represent more than one variable. The idea of the model is that social background affects school performance, while background and performance affect social support for post-high school education. All three prior constructs affect levels of aspiration, which in turn affect the ultimate level of post-high school educational attainment. Finally, educational attainment, along with all of the previous variables, affects occupational status. While the diagram and our description of it suggest that each variable in turn can directly affect all of the variables in the blocks that follow it, we expect to find that the major affects approximate a modified causal chain (Sewell, et al. 1969; Sewell, et al. 1970; Hauser, et al. 1983). The most important paths in the model, noted with asterisks in the diagram, are those from social background to school performance, from social background and school performance to the social influences, from the social influences to aspiration, from aspiration to schooling and socioeconomic attainment, and from schooling to attainment. Thus, the model purports to account for the influence of social background and school performance on attainment by way of social support and aspiration.

Variables

Table 8 shows the means and standard deviations of the variables used in the present analysis for men and women and for two sample definitions. Throughout, we limit the analysis to men and women who responded both in 1975 and 1992-93 and for whom all of the variables in the model up through educational attainment had been ascertained. In the first column of Table 8, conditional on that selection of cases, we show means and standard deviations for all individuals

[24] Our work with the model is reviewed by Sewell and Hauser (1992a) and (1992b). It has been used previously in three comparative analyses of the attainment of women and men in young adulthood (Sewell 1971; Hauser, et al. 1976; Sewell, et al. 1980). We have modified the content of some of the blocks of variables in the model, relative to earlier versions of it.

who reported the variable in question. In the second column, the descriptive statistics are limited to the individuals who reported each of five jobs covered in the analysis.

Social background variables include parents' income, father's occupation, mother's and father's educational attainments, farm origin, family structure (intact or non-intact), and number of siblings. Parent's income was obtained from Wisconsin state tax records for 1957 to 1960, the years during which respondents were most likely to have attended college. It is expressed here as the natural log of the four year average. Father's occupation and the educational attainment of each parent were reported in the 1975 survey; in a small number of cases missing data were filled in with information from tax records or from the 1957 survey. Father's occupation was coded into categories of the classification of occupations and industries for the U.S. Census of 1970 and, for the regression analysis, this was mapped into the Duncan SEI.

School performance includes mental ability, high school program, and rank in high school class. Mental ability is based on the Henmon-Nelson test, normed on the population of Wisconsin high school juniors to which it was routinely administered during the 1950s. The scores were obtained from records of the Wisconsin State Testing Service at the University of Wisconsin-Madison. High school program is a dummy variable, obtained by comparing student's 1957 report of the number of courses taken in several subject matter areas to the contemporary requirements for entrance to the University of Wisconsin. Students were coded as in a college preparatory program if they reported completing the University of Wisconsin entrance requirements. Rank in high school class was reported by the schools, transformed to percentile rank and, then, to a normal deviate with a mean of 100 and a standard deviation of 15. It is thus expressed in the same metric and has nominally the same distribution as the Henmon-Nelson IQ scores.

Social influences are represented by the respondent's perception of encouragement from parents and from teachers to attend college and by perception of whether most friends planned to attend college. Aspirations include educational plans in the year after high school graduation and the occupation that the respondent eventually hoped to enter. For this analysis, we used the student's reports from the 1957 survey. The 1957 reports of occupational aspiration were recently recoded to 1970 Census standards and mapped into the Duncan scale.

Educational attainment is the number of years of regular (academic) schooling completed by the respondent, as reported in the 1975 survey. Occupational status is based on reports of occupation, industry, and class of worker from the 1975 and 1992 surveys: first full time job after leaving school for the last time, job in 1970, current or last job in 1975 (as reported in 1975), job in 1975 (as reported in 1992/93), and current or last job in 1992-93.[25]

We have used both the 1975 and 1992-93 reports of 1975 occupations in order to assess the comparability of the data collected in the two widely separated follow-up surveys. In the 1992-93 survey, we asked about jobs in 1975 for two reasons. First, we wanted to establish an anchor in the telephone interview for the respondent to use in giving us an occupational history since 1975. Thus, early in the occupation section, we said, "When we last talked to you in (month) 1975, you told us that you were working at (name of firm). What kind of work were you doing?" Second, we wanted to ascertain the reliability of occupational reports across the 18 year period between the two surveys. While the two measurements were in some sense dependent, by

[25] We collected an occupational history from 1975 to 1992-93 of up to four employers or businesses and the first and last jobs with each employer/business, and we plan to include other occupations held from 1975 to 1992-93 in future analyses. This data collection scheme does not in principle give us a continuous or complete job history. It leaves out the middle employment spells for persons who were employed in more than four establishments. However, for this cohort, employment patterns were sufficiently stable by 1975, so it gives us complete and continuous histories for more than 90 percent of respondents.

virtue of the deliberate linkage in time and place, the occupation and industry reports were otherwise ascertained and coded independently. In both surveys, the several possible occupation reports were also coded independently within interviews, and no information from the 1975 surveys was used in coding the 1992-93 data. Note that many fewer women had complete occupational histories than men. Of course, women were less likely than men to have had continuous employment histories. However, this loss of data occurred in part because of the seemingly large discrepancy between the number of women for whom there were contemporaneous occupation reports in 1975 (2523) and for whom there were retrospective reports (1987); there was only a small difference in the corresponding counts among men. This occurred because the contemporaneous 1975 reports referred to a current or last job held within the past five years, while the retrospective reports covered only current employment in the month of the 1975 interview. All of the occupations held by respondents were mapped into the Duncan SEI.

There were essentially no differences in the characteristics of the samples generated by our two population definitions. However, regardless of the method used to define the sample, there were significant differences between women and men in late adolescence (compare the entries for men and women in Table 8). There were no sex differences in social background or mental ability, but 66 percent of men and only 55 percent of women completed a college preparatory program in high school. At the same time, women's high school ranks were substantially higher than those of men (by 7 points or nearly half a standard deviation). Despite the higher grades of women, men were slightly more likely than women to report that their teachers had encouraged them to attend college (46 percent vs. 43 percent), but men were much more likely than women to report that their parents had encouraged college attendance (60 percent vs. 48 percent). Consequently, it was somewhat surprising to find that women were more likely than men to

report that their friends were planning to attend college, and that women were more likely than men to plan to attend college in the year following high school graduation.[26] However, women aspired to lower status occupations than men.

Ultimately, men of the WLS obtained almost a year more of schooling than women. Men gained about 10 points in status from their first to 1970 occupations, but little growth occurred after that. Among all women, there was virtually no change in occupational status from first jobs to 1970 jobs. Status decreased from 1970 to 1975, but it increased by 1992-93 to a higher level than in the early career. However, among fully employed women, there was slow growth in occupational status after 1970. At every stage of the career after the first job, and regardless of continuity of employment, women's jobs were lower in status than men's jobs.

In Tables 9 and 10, we have arrayed selected coefficients of successive reduced form regressions of occupational status on prior variables in the social psychological model of Figure 7. By entering variables in succession, from least to most proximate to the outcome variables, we estimate the total effects of each block of variables in turn, as well as a decomposition of the influence of each variable through subsequent intervening variables (Alwin and Hauser 1975). While this analysis tells us about the effects of the variables in the model, it provides no information about the relationships among the occupational status measures. That is, in the present analysis, we have not attempted to model the occupational career. We think that the successive reduced form regressions are of interest in their own right.

After examining the regressions for occupational status in 1992-93, we focus our attention on comparisons among the several reduced form regressions of the occupational outcomes. In the former analysis, we use all of the observations from the 1992-93 survey; in the latter, we

[26] However, a substantial minority of men, but not of women, planned to enter military service soon after completing high school.

restrict our attention to men and women with complete occupation histories. In the second stage of the analysis, we ask how different are the reduced form regressions across the several measures of occupational status. We specify MIMIC (multiple-indicator, multiple-cause) models of occupational status, and these permit us to test for differences among the five possible occupational status regressions (Hauser and Goldberger 1971; Joreskog and Goldberger 1975). For example, at one extreme, the regression of occupational status in 1992-93 on the several variables in our model might be indistinguishable from the regressions of the other four status measures on the same variables. At the other extreme, the relative weights of the explanatory variables in the five regressions might vary so widely across the life course that each equation requires separate examination. Between the extremes, we might find regular, scalar gradations in the effects of the explanatory variables on occupational status, for example, that effects on occupational status decline regularly across the life course, as suggested by Sewell, Hauser, and Wolf (1980). Or we might find such regular gradations combined with a few significant departures from them. In the case of occupational status, the MIMIC models also permit us to test some ideas about the structure of the career. For example, if a single latent factor could account for the correlations among occupational status variables across the life course, one might ask whether there were a career at all, or whether the jobs held over time were merely sampled at random from those initially accessible to a person.

Table 9 shows the reduced form regressions of occupational status in 1992-93 on the variables in our social psychological model. Reading the columns from left to right, the total effect of each variable is given by its coefficient in the first equation in which it appears.[27] The

[27] Throughout this discussion, our rule of thumb for statistical significance is that a coefficient, or a gender difference in coefficients, should exceed twice its standard error. Standard errors are shown below the regression coefficients in each table. In samples this large, one might reasonably demand a higher standard (Raftery 1995).

mediation of effects through intervening blocks of variables in the model can be observed by seeing how the coefficient of a variable changes from column to column. For example, looking at the total effect of father's education among men (0.53), about half is explained by the influence of father's education on the school performance of young men, for the coefficient falls to 0.25 when the three school performance variables are added to the equation.

Occupational Status in 1992-93

As expected, the four socioeconomic background variables (parents' income, father's occupational status, and mother's and father's educational attainment) have significant total effects of the expected sign on occupational status in 1992-93. In one case, the coefficients differ significantly between men and women. The effect of father's occupational status on son's occupational status exceeds that of father's occupational status on daughter's status.[28] Among all four socioeconomic variables, a substantial share of the effect is mediated by differences in school performance. Only two of the socioeconomic variables have significant effects on occupational status after schooling enters the equation: parents' income and father's occupational status. The latter effect occurs only among men. In the final equation, none of the effects of the socioeconomic background variables differs between men and women.

The total effect of having a father who farmed is large and negative among men.[29] It leads to more than a 5-point loss in status. There is no corresponding effect among women. Indeed,

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[28] There is an interesting asymmetry in the effects of maternal and paternal educational attainment on occupational status. The effect of mother's education on daughter's status appears larger than that of father's education.

[29] The effects of farm origin differ from those reported in previous analyses of the WLS data. Farm origin is based strictly on whether the respondent's father was a farmer in 1957; it does not confound farm occupation with rural residence. It should be kept in mind that the effect of farm origin in these equations depends on the placement of farm occupations in the Duncan scale.

the total effect of farm background on daughter's status is positive, and the gender difference in the effect of farming is significant in every reduced form equation. Perhaps, the effect of farm origin is explained by the small number of WLS men who entered farming themselves, for less than half of the effect is mediated by later variables in the model.

There is no effect of growing up in a non-intact family in the Wisconsin sample. Recall that only about 8 percent of WLS respondents lived in non-intact families in 1957 (Table 8), and in about half of those cases, widowhood was the source of that family structure. Thus, non-intact families have neither the prevalence nor the same sources as in younger cohorts.

The other family structure variable, number of siblings, plays a less ambiguous role in occupational attainment in 1992-93. Its total effects on occupational status in 1992-93 are large, statistically significant, and negligibly different between men and women. An additional child in the family of orientation leads to a loss of about 0.4 points in occupational status at ages 53-54. However, the model accounts fully for the effect of size of sibship. Most of the effect is explained by differences in school performance in larger and smaller sibships, and the remainder is explained by differences in social influences on post-secondary schooling. There are no significant effects of size of sibship in the last three reduced form equations.

Each of the three school performance variables has a large and statistically significant effect on occupational status at ages 53-54. Roughly speaking, an increase of 4 points of mental ability or (on the same scale) high school rank leads to a one point increment in status on the Duncan scale. Among men and women, the effect of mental ability persists; it remains significant in the final reduced form equation. The effect of high school rank among men is fully explained by the model; it has no effect once educational attainment is controlled. While high school rank remains significant in the final equation for women, its coefficient is about forty percent lower

than the total effect. The differential persistence of the effects of IQ and of high school rank suggests that there is more to school performance than the sanctioned approval of teachers.

Completion of an academic high school program increases men's occupational status by about 6 points, and it increases women's occupational status by more than 3 points. The total effect is significantly larger among men than women, but there are no significant gender differences in the effects of an academic program, once social influences have entered the model. The intermediate variable account for almost three-quarters of the effect of an academic program among men and for about half the effect among women. In the final model, completion of a college preparatory program is worth about 1.5 points in occupation status among men and women, but this remaining effect is of borderline statistical significance. Thus, among men and among women, there appears to be greater persistence across the career in the influence of IQ than in that of high school rank or academic program.

Despite their specific reference to post-secondary schooling, rather than to careers, the social influence variables (teacher's and parent's encouragement to attend college and friends' college plans) have substantial positive effects on occupational status at age 53-54. The total effects are substantially larger among men than among women, and even among women, each positive social influence is worth about 2 points in occupational status. Among men, each of the three positive effects is about as large as the negative effect of farm background. Among women and men, the effects of the social influence variables are largely explained by aspirations and post-secondary schooling. In the final model, there remains a significant effect of teacher's encouragement among men, but there are no significant gender differences in the effects of any of the social influence variables.

Among women, having planned to attend college is worth about 1.3 points in occupational status, but this effect is not statistically significant. For men the effect is significantly larger, 4.5

points. However, among both men and women, the effect of planning to attend college is completely explained by post-high school education. That is, educational plans affect occupational status at midlife only if they have been realized in completed schooling.

The effect of occupational aspiration is similar and highly significant for both men and women. A 10 point increase in occupational aspiration in high school is worth 1.5 points in occupational status at ages 53-54. Only part of these effects is mediated by educational attainment. When all other variables in the model have been controlled, a 10 point increase in occupational aspiration is still worth about 1 point in occupational status at midlife.

Finally, after all earlier variables have entered the model, there is a large effect of educational attainment on occupational status in 1992-93 among men and women. Each year of post-high school educational attainment leads to a 2.5 point increase in status on the Duncan scale among women and to a 3.5 point increase in status among men. This gender difference in the effect of educational attainment is statistically significant.

Overall, the model is moderately powerful in predicting occupational status. It accounts for 35 percent of the variance among men and 20 percent of the variance among women. However, the model actually leaves less to be explained among women than among men; note that the standard errors of estimate in each equation are smaller among women than among men. We believe that the models are more powerful than they appear thus far in the analyses. First , we have not corrected for measurement error in occupational status or other variables. Second, because occupations in 1992-93 are so far removed from high school, we though it likely that intervening career experiences could attenuate the influence of social and psychological conditions in young adulthood. For these reasons, we have elaborated the reduced form equations of Table 9 by incorporating five reports of occupational standing across the career: first full-time job after

leaving school; 1970 job; 1975 job (both contemporaneous and retrospective reports); and 1992-93 job.

A MIMIC Model of Occupational Status

In order to discipline our interpretations of the changing effects of the variables in our model on occupational status across the life course, we specified and estimated a series of MIMIC (multiple-indicator, multiple-cause) models of occupational status (Hauser and Goldberger 1971; Joreskog and Goldberger 1975). The structure of the social psychological model remains unchanged, while we impose a series of restrictions on the effects of the variables in the model. All of these models have in common the specification that prior variables affect occupational status through a single common factor, so the effects of those variables on each status outcome must be proportional, if not identical to one another.

For example, the final reduced form equation of the model may be written as follows:

$$\begin{aligned} \eta_1 &= \sum_{16}^{1} \gamma_{1j} x_j \\ \eta_i &= \beta_{i1} \eta_1 + \zeta_i \\ y_i &= \eta_i \,, \; i = 2 \ldots 6 \end{aligned} \qquad \textbf{(2)}$$

where η_1 is a linear composite of the 16 explanatory variables (x_j); the γ_{1j} are regression coefficients; the η_i are nominally true values of successive occupational status scores, from η_2 = status of first job to η_6 = status of current or last job in 1992-93; the β_{i1} are slopes of the occupational status scores on the linear composite; the ζ_i are disturbances in occupational status scores; and the y_i are observed occupational status variables. The distinction between the y_i and the η_i is empirically empty here, but will become useful below. In this model, 60 overidentifying restrictions are generated by the specification that the x_j affect the y_i only by way of the linear

composite, η_i. However, the model places no restrictions on the variances or covariances of the disturbances in the η_i, var[ζ_i, $\zeta_{i'}$] = $\psi_{ii'}$.[30]

First, we consider a model in which the effects of all variables on each of the five occupational status outcomes is exactly the same, while the relationships among those outcomes are completely unconstrained. Thus, we add the restriction $\beta_i = 1$ for all i to the model in equations 2. This model would be rejected at conventional significance levels for men ($L^2 = 454.4$ with 64 df) and for women ($L^2 = 119.0$ with 64 df). Second, we specify a model in which the effects of prior variables on occupational status are not necessarily equal, but must be proportional to one another. That is, we release the previous constraint on the β_i. Again, there is no constraint on the relationships among the status outcomes. The fit improves among men ($L^2 = 168.6$ with 60 df) and among women ($L^2 = 104.5$ with 60 df).[31] Third, we accept the second model, but add the constraint that a single common factor explains the covariance structure of the occupational status outcomes. In this model, $\psi_{ii'} = 0$ for $i \neq i'$. This model also fits badly ($L^2 = 317.2$ with 65 df among men and $L^2 = 199.4$ with 65 df among women), which is to say that a full model of status outcomes would need to specify a structure for the occupational career.

Given our findings from the second model, we specified a modified version of it, which fits about as well ($L^2 = 180.8$ with 62 df among men and $L^2 = 110.3$ with 62 df among women). Since two of the five occupational status reports pertain to the same (1975) job, we have treated those two reports as indicators of a single latent variable. The reliability of the two reports across

[30] Note that a somewhat different setup is required to estimate the other reduced-form equations, subject to the same constraints.

[31] These and all other fit statistics reported herein would nominally lead to model rejection at conventional levels of statistical significance because of the relatively large sample sizes. However, the values of Raftery's (1995) Bayesian Information Criterion (BIC) fall into an acceptable range for all models.

the 18-year span, incidentally, is 0.83 for men and 0.75 for women. Also, we have "borrowed" the error variance estimates for the contemporaneous and retrospective reports of occupation in 1975 and imposed them, correspondingly, on the other reports, depending on whether they were obtained contemporaneously or retrospectively. Formally, the equation for the linear composite in explanatory variables is unchanged:

$$\eta_1 = \sum_{16}^{1} \gamma_{1j} x_j. \qquad \textbf{(3)}$$

The linear composite, η_1, affects four occupational status outcomes, η_2 ... η_6, one for each of first job, 1970 job, 1975 job, and 1992-93 job, in that order:

$$\begin{aligned} \eta_2 &= \eta_1 + \zeta_2 \\ \eta_3 &= \beta_{31}\eta_1 + \zeta_3 \\ \eta_4 &= \beta_{41}\eta_1 + \zeta_4 \\ \eta_5 &= \beta_{51}\eta_1 + \zeta_5. \end{aligned} \qquad \textbf{(4)}$$

Again, we place no restrictions on the variances or covariances of the disturbances, $\text{var}[\zeta_i, \zeta_{i'}] = \psi_{ii'}$. Finally, unlike the models of equations 2, there is a non-trivial measurement model:

$$\begin{aligned} y_1 &= \eta_2 + \epsilon_1 \\ y_2 &= \eta_3 + \epsilon_2 \\ y_3 &= \eta_4 + \epsilon_3 \\ y_4 &= \eta_4 + \epsilon_4 \\ y_5 &= \eta_5 + \epsilon_5, \end{aligned} \qquad \textbf{(5)}$$

where y_3, contemporaneous report of 1975 job, and y_4, retrospective report of 1975 job, each depend on the same latent factor, η_4. Also, we specify that, for $\text{var}[\epsilon_i] = \theta_i$, $\theta_1 = \theta_2 = \theta_4$, and $\theta_3 = \theta_5$, and we specify two free covariances between errors in report of occupational status, $\text{cov}[\epsilon_i \epsilon_{i'}]$

= $\theta_{ii'}$, θ_{23} and θ_{45}. That is, we allow correlation between errors in reports about jobs that were ascertained in the same section of an interview on the same occasion.

After examining residuals from the fit of this model, we added one more parameter each to the models for men and for women. In the case of men, we added a direct effect of educational attainment on the status of the first job ($\gamma_{2,13}$), and this improved the fit markedly ($L^2 = 80.2$ with 61 *df*). For women, we added a direct effect of IQ on the status of the job in 1992-93 (γ_{58}), and we also equated the metrics of status of first and 1970 job, yielding $L^2 = 76.5$ with 62 *df*. Neither of these models would be rejected at even the $p = 0.05$ probability level.

Excepting the two parameters just mentioned, the model imposes proportionality constraints on effects of earlier variables on the status of first job, job in 1970, job in 1975, and job in 1992-93. If we take the occupational status of the first job as the standard, the constants of proportionality are 1.00, 1.44, 1.39, and 1.29 among men, and they are 1.00, 1.00, 0.94, and 0.69 among women. Thus, among women, the main change that occurs across the life course in the effects of the variables in our model on occupational status is that they decline. Among men, most effects (except that of education) increase from the first to later occupations, and there is some indication that the effects decline by midlife. Again, the only exceptions to this general pattern are that the effect of education on the status of men's first jobs is unusually large, and the effect of IQ on the status of women's 1992-93 jobs is unusually large.

The final equations account for 71, 52, 49, and 42 percent of the variance in status of men's jobs, and among women, they account for 48, 40, 34, and 27 percent of the variance. Change in the predicted variance of successive occupational status scores accounts in part for the declining power of the model to account for the variance in occupational standing across the career. In addition, the disturbance variances in occupational status increase across the career. For example, among men, the standard error of estimate for first jobs is 13.4, while it is 17.2 for

jobs in 1992-93, and among women, the standard error of estimate for first jobs is 11.3, while it is 15.5 for jobs in 1992-93. As in our regression analysis of jobs in 1992-93, the social psychological model explains a smaller share of the variance for women than for men, but it also leaves a smaller component of variance unexplained for women than for men.

Table 10 gives estimates from the MIMIC model of the regressions of each occupational status on all prior variables in the model for men and women. For example, the fourth column of estimates in each panel of Table 10 is a constrained version of the fifth column of estimates in each panel of Table 9. By reading from left to right within each panel, we can see the evolution of effects across the life course. Thus, among men, all effects, except that of schooling, increase slightly between the first job and the job in 1970, and the effects on later jobs decrease slightly. The effect of schooling is uniquely high at men's labor force entry, and it drops to about half the entry value at any later point in the career. Men's occupational status at career entry is modestly affected by IQ, net of other variables, and this effect increases by about a third for occupations later in the career. Among women, the model specifies no differences between effects on the status of first and 1970 jobs, but the effects of all variables except IQ decline later in the career. The direct effect of IQ on women's occupational status is unique in almost tripling between career entry and midlife.

Thus, there are persistent and, indeed, growing effects of IQ on occupational status throughout the careers of the Wisconsin high school graduates. However, relative growth does not indicate absolute importance; there may be less here than meets the eye. In the reduced-form equation for occupational status in 1992-93, subject to the MIMIC constraints, the total effects of ability are 0.236 among men and 0.303 among women. That is, a 10 point shift in IQ yields 2 to 3 points in occupational status. The standardized coefficient of ability is 0.157 among men and 0.245 among women. In the final equations, the effects of ability are 0.116 among men and 0.279

among women. The corresponding standardized coefficients are 0.077 and 0.226. Such effects would seem unlikely to dominate the process of social stratification in the United States.

As we might have expected from our national findings, if there is a key variable in the occupational attainment of men and women, it is educational attainment. Even after social background, ability, and other social psychological variables are controlled, there is a large and persistent effect of post-high school education on occupational success across the life course. Furthermore, adolescent occupational aspirations have strong and persistent effects on the occupational success of men and of women. In addition, there are gender-specific influences on occupational success. Farm background is a persistent handicap to men, while good high school grades continue to improve women's occupational chances. Finally, relative to ability, there are weaker, but still substantial and persistent effects of parents' income, father's occupational status, academic program, teachers' encouragement, parents' encouragement, and friends' college plans on men's occupational standing. In short, while mental ability plays a significant role in the process of occupational stratification, the Wisconsin findings also strongly support the conclusion that education and other social psychological variables are even more important. There are elements of "merit" in the schooling and psychological variables, so the Wisconsin findings lend weight to our earlier observation that it is inappropriate to identify merit too strongly with mental ability.

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Table 1. Means and Standard Deviations of Occupational Status: Nonblack men, 1962 and 1973 Occupational Changes in a Generation Surveys (OCG) and 1986-88 Surveys of Income and Program Participation (SIPP)

	Age 25 to 34		Age 35 to 44		Age 45 to 54		Age 55 to 64	
Variable	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
1962 OCG (1960-basis Duncan SEI)								
Current job	40.4	25.0	40.7	24.7	38.1	23.6	36.9	24.2
First job	30.0	22.8	27.2	21.1	25.3	20.1	25.9	20.4
Father's job	30.4	21.7	28.7	21.8	26.6	20.5	25.9	20.4
1973 OCG (1960-basis Duncan SEI)								
Current job	42.6	25.0	44.4	25.5	43.0	25.3	38.5	24.9
First job	36.7	25.4	36.4	25.9	33.2	24.6	28.9	22.7
Father's job	33.8	23.9	30.0	22.4	28.0	21.4	26.5	20.9
1973 OCG (1970-basis MSEI2)								
Current job	37.6	20.8	38.9	20.9	37.2	20.0	34.5	19.3
Job in 1962	--	--	36.1	20.2	36.0	19.6	34.3	19.0
First job	33.6	21.1	33.4	21.5	30.9	20.0	28.0	18.3
Father's job	31.8	17.7	29.6	16.5	28.4	15.5	27.8	15.1
1986-88 SIPP (1980-basis MSEI2)								
Current job	37.8	20.6	40.9	21.0	41.9	21.1	41.1	21.3
Father's job	37.9	19.6	35.0	18.0	32.2	16.7	31.0	15.8

Table 2. Means and Standard Deviations of Occupational Status: Black men, 1962 and 1973 Occupational Changes in a Generation Surveys (OCG) and 1986-88 Surveys of Income and Program Participation (SIPP)

	Age 25 to 34		Age 35 to 44		Age 45 to 54		Age 55 to 64	
Variable	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
1962 OCG (1960-basis Duncan SEI)								
Current job	18.3	16.3	19.2	16.1	17.2	13.9	14.9	12.7
First job	16.6	14.2	15.8	13.3	13.0	10.1	13.8	12.7
Father's job	17.4	15.3	14.8	11.3	16.2	11.6	16.2	12.5
1973 OCG (1960-basis Duncan SEI)								
Current job	29.1	21.7	27.8	21.2	23.4	18.8	18.9	16.2
First job	24.2	20.0	20.7	19.1	18.4	16.3	15.4	15.1
Father's job	17.5	15.5	16.3	14.3	14.3	11.8	14.0	10.4
1973 OCG (1970-basis MSEI2)								
Current job	27.3	16.6	27.1	17.0	24.0	14.0	21.0	10.7
Job in 1962	--	--	24.3	15.0	23.0	13.1	21.1	10.7
First job	23.9	14.6	22.9	15.2	21.0	12.1	19.7	10.6
Father's job	21.5	11.2	21.0	10.4	20.4	9.1	20.3	7.4
1986-88 SIPP (1980-basis MSEI2)								
Current job	29.6	17.7	35.9	17.0	30.2	18.4	27.6	16.1
Father's job	28.4	13.5	27.3	13.0	24.6	10.2	26.7	12.5

Table 3. Intergenerational Regressions of Occupational Status: 1962 and 1973 Occupational Changes in a Generation Surveys (OCG) and 1986-88 Surveys of Income and Program Participation (SIPP)

Group and variables	Age 25 to 34	Age 35 to 44	Age 45 to 54	Age 55 to 64
Nonblack men				
Father's occupation and current occupation				
1962 OCG (1960-basis Duncan SEI)	0.45	0.47	0.47	0.44
1973 OCG (1960-basis Duncan SEI)	0.37	0.42	0.44	0.46
1973 OCG (1970-basis MSEI2)	0.42	0.46	0.47	0.47
1986-88 SIPP (1980-basis MSEI2)	0.35	0.37	0.42	0.44
Father's occupation and first occupation				
1962 OCG (1960-basis Duncan SEI)	0.42	0.39	0.42	0.42
1973 OCG (1960-basis Duncan SEI)	0.43	0.48	0.48	0.44
1973 OCG (1970-basis MSEI2)	0.45	0.51	0.50	0.47
Black men				
Father's occupation and current occupation				
1962 OCG (1960-basis Duncan SEI)	0.18	0.25	0.10	0.17
1973 OCG (1960-basis Duncan SEI)	0.44	0.32	0.32	0.24
1973 OCG (1970-basis MSEI2)	0.41	0.33	0.29	0.20
1986-88 SIPP (1980-basis MSEI2)	0.51	0.28	0.30	-0.04
Father's occupation and first occupation				
1962 OCG (1960-basis Duncan SEI)	0.24	0.13	0.03	0.15
1973 OCG (1960-basis Duncan SEI)	0.50	0.30	0.32	0.40
1973 OCG (1970-basis MSEI2)	0.47	0.30	0.30	0.24
Nonblack women: Father's occupation and current occupation				
1986-88 SIPP (1980-basis MSEI2)	0.25	0.23	0.26	0.29
Black women: Father's occupation and current occupation				
1986-88 SIPP (1980-basis MSEI2)	0.23	0.39	0.17	0.20

Table 4. Correlations among Selected Socioeconomic Variables: 1994 General Social Survey

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Male Respondent, Male Sibling (N = 351)							
(1) Father's occupational status	1.00						
(2) Father's educational attainment	0.66	1.00					
(3) Mother's educational attainment	0.50	0.69	1.00				
(4) Respondent's educational attainment	0.41	0.42	0.35	1.00			
(5) Respondent's occupational status	0.34	0.27	0.19	0.60	1.00		
(6) Sibling's educational attainment	0.41	0.48	0.49	**0.47**	0.27	1.00	
(7) Sibling's occupational status	0.28	0.28	0.25	0.34	**0.29**	0.62	1.00
Mean	36.7	11.3	11.4	14.1	37.6	13.6	38.6
Standard deviation	14.5	4.2	3.4	2.7	14.4	3.0	15.9
Male Respondent, Female Sibling (N = 338)							
(1) Father's occupational status	1.00						
(2) Father's educational attainment	0.62	1.00					
(3) Mother's educational attainment	0.39	0.57	1.00				
(4) Respondent's educational attainment	0.40	0.47	0.32	1.00			
(5) Respondent's occupational status	0.34	0.33	0.13	0.60	1.00		
(6) Sibling's educational attainment	0.32	0.42	0.42	**0.44**	0.28	1.00	
(7) Sibling's occupational status	0.28	0.25	0.17	0.32	**0.27**	0.58	1.00
Mean	37.4	11.3	11.4	13.9	39.3	13.6	37.7
Standard deviation	14.3	4.0	3.1	2.9	14.4	2.7	15.3
Female Respondent, Male Sibling (N = 414)							
(1) Father's occupational status	1.00						
(2) Father's educational attainment	0.65	1.00					
(3) Mother's educational attainment	0.37	0.62	1.00				
(4) Respondent's educational attainment	0.39	0.41	0.38	1.00			
(5) Respondent's occupational status	0.32	0.26	0.22	0.58	1.00		
(6) Sibling's educational attainment	0.34	0.44	0.39	**0.40**	0.29	1.00	
(7) Sibling's occupational status	0.27	0.31	0.21	0.31	**0.25**	0.65	1.00
Mean	35.4	11.1	11.2	13.7	37.1	13.5	39.0
Standard deviation	13.3	4.0	3.2	2.5	14.3	2.8	15.0
Female Respondent, Female Sibling (N = 429)							
(1) Father's occupational status	1.00						
(2) Father's educational attainment	0.65	1.00					
(3) Mother's educational attainment	0.44	0.68	1.00				
(4) Respondent's educational attainment	0.40	0.47	0.40	1.00			
(5) Respondent's occupational status	0.29	0.26	0.25	0.62	1.00		
(6) Sibling's educational attainment	0.42	0.46	0.42	**0.49**	0.27	1.00	
(7) Sibling's occupational status	0.30	0.27	0.22	0.30	**0.24**	0.64	1.00
Mean	36.8	11.2	11.1	13.8	37.7	13.5	37.3
Standard deviation	14.3	4.2	3.4	2.7	14.8	2.5	14.9

Note: All occupations have been coded using the 1980 Census occupational classification and mapped into the Stevens-Cho MSEI2.

Table 5. Measures of Dispersion and Fit in Selection Regression Analyses of Occupational Status on Social Background and Schooling: 1962 and 1973 Occupational Changes in a Generation Surveys (OCG) and 1986-88 Surveys of Income and Program Participation (SIPP)

	Age 25 to 34		Age 35 to 44		Age 45 to 54		Age 55 to 64	
Population and Model	Err. of Est.	Adj. R-Sq.	Err. of Est.	Adj. R-Sq.	Err. of Est.	Adj. R-Sq.	Err. of Est.	Adj. R-Sq.
Nonblack men								
1962 OCG (1960-basis Duncan SEI)								
Background	22.2	0.21	21.8	0.22	21.2	0.19	22.0	0.18
Education	18.2	0.47	18.5	0.44	18.8	0.37	20.2	0.31
Background and education	17.9	0.49	18.2	0.46	18.4	0.39	19.6	0.34
1973 OCG (1960-basis Duncan SEI)								
Background	22.7	0.18	22.9	0.19	22.9	0.18	22.4	0.19
Education	19.2	0.41	19.1	0.44	19.7	0.39	19.8	0.37
Background and education	19.0	0.42	18.9	0.45	19.4	0.41	19.4	0.39
1973 OCG (1970-basis MSEI2)								
Background	18.6	0.20	18.5	0.21	17.9	0.20	17.4	0.19
Education	14.6	0.51	14.3	0.53	14.5	0.47	14.7	0.42
Background and education	14.5	0.51	14.2	0.54	14.4	0.48	14.5	0.44
1986-88 SIPP (1980-basis MSEI2)								
Background	18.8	0.16	19.3	0.15	19.3	0.16	19.4	0.17
Education	15.7	0.42	15.9	0.42	15.7	0.44	15.5	0.47
Background and education	15.5	0.43	15.8	0.43	15.7	0.45	15.3	0.48
Nonblack women								
1986-88 SIPP (1980-basis MSEI2)								
Background	16.6	0.13	16.8	0.12	16.6	0.14	15.8	0.13
Education	14.9	0.29	14.6	0.33	14.2	0.36	14.2	0.29
Background and education	14.8	0.31	14.6	0.34	14.1	0.38	14.1	0.31

(continued)

Table 5 (continued)

Population and Model	Age 25 to 34		Age 35 to 44		Age 45 to 54		Age 55 to 64	
	Err. of Est.	Adj. R-Sq.	Err. of Est.	Adj. R-Sq.	Err. of Est.	Adj. R-Sq.	Err. of Est.	Adj. R-Sq.
Black men								
1962 OCG (1960-basis Duncan SEI)								
Background	15.2	0.14	15.2	0.11	14.0	-0.02	12.6	0.01
Education	12.9	0.38	14.1	0.22	12.5	0.19	11.1	0.24
Background and education	12.8	0.39	13.9	0.25	12.6	0.17	11.4	0.19
1973 OCG (1960-basis Duncan SEI)								
Background	19.8	0.17	20.1	0.10	17.9	0.09	15.3	0.10
Education	16.9	0.39	15.7	0.45	15.4	0.33	13.1	0.35
Background and education	16.6	0.41	15.5	0.47	15.3	0.34	12.9	0.36
1973 OCG (1970-basis MSEI2)								
Background	15.3	0.15	16.3	0.08	13.1	0.12	10.3	0.08
Education	12.4	0.45	10.8	0.60	10.6	0.43	7.7	0.48
Background and education	12.3	0.46	10.7	0.60	10.4	0.45	7.7	0.48
1986-88 SIPP (1980-basis MSEI2)								
Background	16.2	0.16	17.3	0.12	17.2	0.13	13.9	0.25
Education	14.1	0.37	14.6	0.38	12.8	0.52	13.1	0.34
Background and education	13.9	0.39	14.3	0.40	12.9	0.51	12.7	0.38
Black women								
1986-88 SIPP (1980-basis MSEI2)								
Background	15.9	0.12	18.8	0.13	16.3	0.19	17.6	0.07
Education	13.6	0.36	15.2	0.43	12.5	0.53	13.5	0.45
Background and education	13.3	0.39	15.0	0.44	12.3	0.54	13.2	0.47

Table 6. Effects of Educational Attainment on Occupational Status net of Social Background: 1962 and 1973 Occupational Changes in a Generation Surveys (OCG) and 1986-88 Surveys of Income and Program Participation (SIPP)

	Age 25 to 34		Age 35 to 44		Age 45 to 54		Age 55 to 64	
Population and variables	Estimate	Std. Error	Estimate	Std. Error	Estimate	Std. Error	Estimate	Std. Error
Nonblack men								
1962 OCG (1960-basis Duncan SEI)								
Graded school	1.30	0.31	1.35	0.24	2.14	0.24	2.17	0.26
Post-secondary school	7.16	0.24	6.16	0.25	5.24	0.31	3.96	0.42
High school graduation	5.79	1.37	8.50	1.18	4.37	1.26	4.17	1.67
1973 OCG (1960-basis Duncan SEI)								
Graded school	0.88	0.29	1.49	0.25	1.53	0.23	1.52	0.25
Post-secondary school	6.74	0.16	6.52	0.18	6.17	0.20	5.93	0.28
High school graduation	7.06	1.17	6.46	1.15	7.16	1.09	6.39	1.24
1973 OCG (1970-basis MSEI2)								
Graded school	0.29	0.21	0.60	0.18	0.67	0.17	0.68	0.19
Post-secondary school	6.93	0.13	6.75	0.14	6.27	0.15	5.85	0.21
High school graduation	4.13	0.87	4.64	0.84	4.82	0.80	5.50	0.93
1986-88 SIPP (1980-basis MSEI2)								
Graded school	-0.14	0.25	-0.35	0.24	0.71	0.28	0.54	0.26
Post-secondary school	5.73	0.11	5.46	0.12	5.27	0.14	5.70	0.18
High school graduation	4.15	1.00	5.15	1.15	4.19	1.23	3.16	1.25
Nonblack women								
1986-88 SIPP (1980-basis MSEI2)								
Graded school	-0.70	0.30	0.16	0.29	0.72	0.31	0.42	0.32
Post-secondary school	3.95	0.12	4.17	0.12	4.38	0.17	3.73	0.22
High school graduation	8.45	1.19	7.91	1.25	8.12	1.25	6.78	1.34

(continued)

Table 6 (continued)

Population and variables	Age 25 to 34		Age 35 to 44		Age 45 to 54		Age 55 to 64	
	Estimate	Std. Error	Estimate	Std. Error	Estimate	Std. Error	Estimate	Std. Error
Black men								
1962 OCG (1960-basis Duncan SEI)								
Graded school	0.23	0.41	0.48	0.33	0.80	0.34	0.84	0.34
Post-secondary school	8.95	0.98	6.08	1.05	8.02	1.38	7.09	1.94
High school graduation	0.67	2.53	1.15	2.83	-2.62	3.14	-0.91	5.98
1973 OCG (1960-basis Duncan SEI)								
Graded school	0.64	0.53	0.67	0.41	1.20	0.32	0.54	0.32
Post-secondary school	7.72	0.57	9.04	0.60	7.34	0.76	9.59	1.09
High school graduation	6.17	2.14	4.65	2.14	1.20	2.32	0.52	2.82
1973 OCG (1970-basis MSEI2)								
Graded school	0.28	0.35	0.41	0.26	0.49	0.20	0.28	0.17
Post-secondary school	7.31	0.39	9.31	0.37	7.14	0.47	8.56	0.59
High school graduation	2.96	1.44	2.57	1.34	1.30	1.41	-0.94	1.51
1986-88 SIPP (1980-basis MSEI2)								
Graded school	0.50	1.16	-0.14	0.72	0.51	0.54	0.47	0.49
Post-secondary school	5.35	0.40	5.57	0.44	6.56	0.52	3.49	0.79
High school graduation	3.58	2.76	6.00	2.62	1.29	2.60	3.30	3.14
Black women								
1986-88 SIPP (1980-basis MSEI2)								
Graded school	0.39	1.10	-0.79	0.82	0.85	0.62	0.30	0.59
Post-secondary school	4.55	0.32	6.03	0.39	6.98	0.58	6.01	0.69
High school graduation	7.56	3.16	9.10	2.97	5.05	2.39	8.17	3.27

Table 7. Correlations between AFQT (1989 Revision), Educational Attainment (1988), and Occupational Status (MSEI2) in the National Longitudinal Study of Youth: Cohorts Born between 1961 and 1964

Subgroup	Schooling	1989 Job	1990 Job	1991 Job	1992 Job	1993 Job
Nonblack Men (N = 1202)						
Schooling	1.00	0.61	0.64	0.62	0.59	0.61
AFQT	0.66	0.51	0.54	0.51	0.51	0.55
Nonblack Women (N =1159)						
Schooling	1.00	0.52	0.56	0.51	0.48	0.50
AFQT	0.62	0.43	0.46	0.42	0.38	0.43
Black Men (N = 169)						
Schooling	1.00	0.64	0.56	0.53	0.57	0.54
AFQT	0.54	0.54	0.59	0.49	0.54	0.50
Black Women (N = 189)						
Schooling	1.00	0.55	0.55	0.53	0.43	0.47
AFQT	0.48	0.49	0.46	0.41	0.49	0.40

Table 8. Means and Standard Deviations of Social, Psychological, and Occupational Variables by Sex: Wisconsin Longitudinal Study

	All Men in Sample			Men Reporting Jobs at Each Observation (N = 3080)		All Women in Sample			Women Reporting Jobs at Each Observation (N = 1489)	
Variable	Mean	SD	N	Mean	SD	Mean	SD	N	Mean	SD
Parents' Income	8.65	0.58	3360	8.65	0.58	8.64	0.58	3747	8.61	0.54
Father's Occupation (SEI)	34.5	23.2	3360	34.3	23.2	34.7	23.2	3747	33.1	22.6
Father's Education	9.8	3.4	3360	9.7	3.4	9.6	3.3	3747	9.5	3.2
Mother's Education	10.6	2.8	3360	10.6	2.8	10.3	2.8	3747	10.3	2.7
Farm Background	0.20	0.40	3360	0.21	0.40	0.20	0.40	3747	0.22	0.42
Intact Family	0.92	0.28	3360	0.92	0.28	0.92	0.28	3747	0.92	0.27
Sibship Size	3.2	2.5	3360	3.2	2.5	3.3	2.5	3747	3.3	2.6
IQ (Henmon-Nelson)	101.9	15.1	3360	101.5	15.0	101.4	14.3	3747	101.8	14.7
Academic Program	0.66	0.48	3360	0.64	0.48	0.55	0.50	3747	0.55	0.50
High School Rank	98.1	14.5	3360	97.8	14.5	105.0	14.1	3747	105.1	14.7
Teacher's Encouragement	0.46	0.50	3360	0.45	0.50	0.43	0.50	3747	0.44	0.50
Parents' Encouragement	0.60	0.49	3360	0.59	0.49	0.48	0.50	3747	0.49	0.50
Friends' College Plans	0.37	0.48	3360	0.36	0.48	0.39	0.49	3747	0.39	0.49
College Plans	0.48	0.50	3360	0.47	0.50	0.50	0.50	3747	0.50	0.50
Occupational Aspiration (SEI)	54.3	23.5	3360	53.9	23.5	49.1	13.1	3747	48.7	13.1
Educational Attainment	13.9	2.5	3360	13.8	2.4	13.1	1.8	3747	13.1	1.9
First Occupation (SEI)	40.7	27.1	3192	40.4	27.0	46.8	18.5	3482	47.2	18.8
1970 Occupation (SEI)	50.2	24.7	3212	49.8	24.8	47.3	20.2	1660	46.9	20.1
1975 Occ. (SEI from 1975)	51.5	24.5	3334	50.8	24.7	45.1	20.4	2709	47.1	20.1
1975 Occ. (SEI from 1992)	51.0	24.7	3338	50.3	24.7	45.6	20.5	3464	47.6	20.2
1992 Occupation (SEI)	51.6	24.7	3339	50.8	24.7	48.6	20.9	3466	50.1	20.6

Table 9. Regression of Occupational Status (SEI) of 1992 Job on Social Psychological Variables and Schooling: Men and Women in the Wisconsin Longitudinal Study

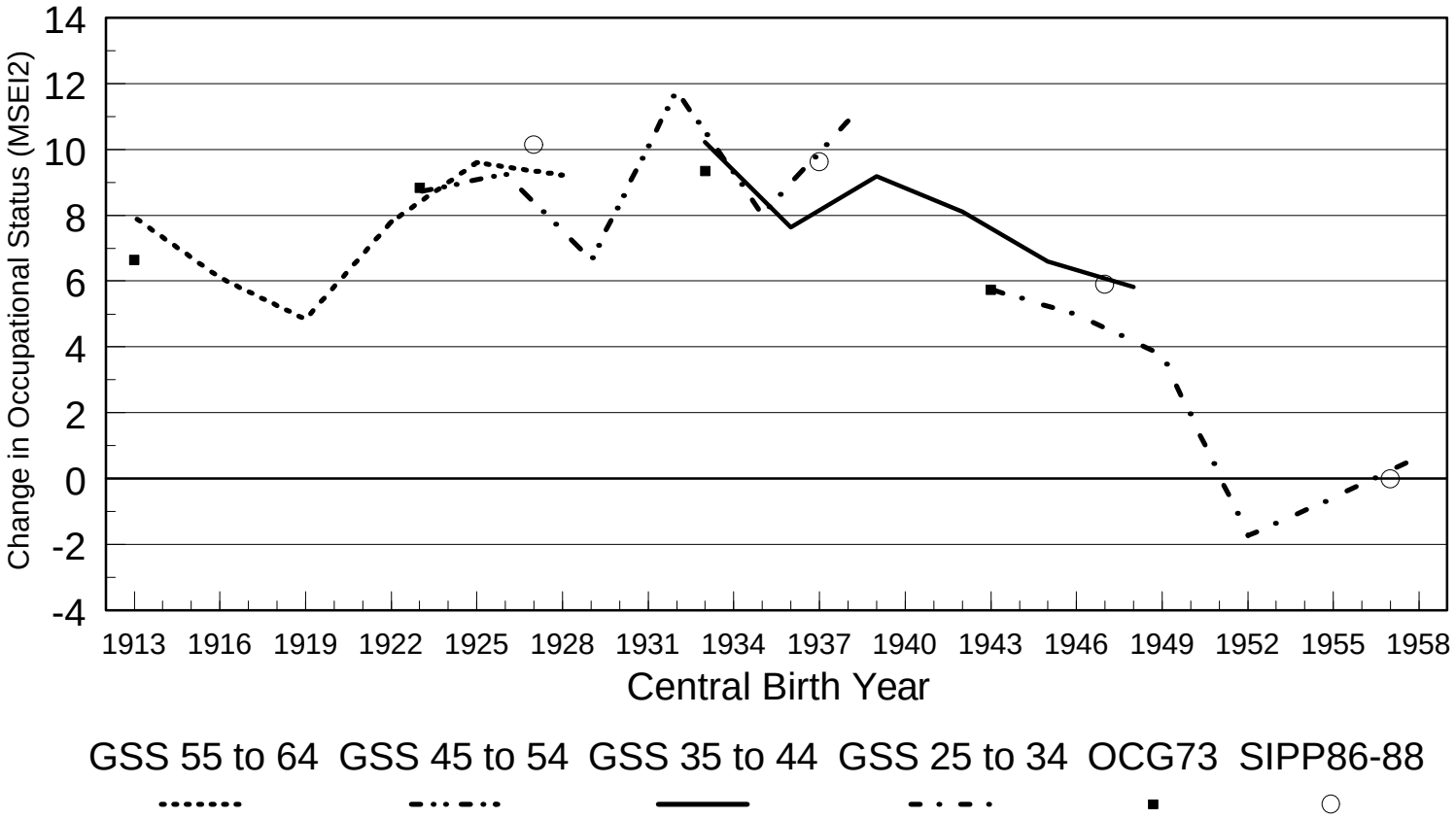
	Men (N = 3339)					Women (N = 3466)				
Variables Added to Model	Social Origins	School Perform.	Others' Influence	Aspira-tions	Schooling	Social Origins	School Perform.	Others' Influence	Aspira-tions	Schooling
Parents' Income	4.14	3.13	2.25	2.15	1.63	3.57	3.02	2.92	2.74	2.08
	(0.81)	(0.75)	(0.74)	(0.73)	(0.70)	(0.72)	(0.68)	(0.68)	(0.68)	(0.67)
Father's Occ. (SEI)	0.15	0.09	0.06	0.05	0.04	0.08	0.05	0.04	0.04	0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Father's Education	0.53	0.25	0.18	0.12	-0.10	0.25	0.00	-0.07	-0.09	-0.13
	(0.15)	(0.14)	(0.14)	(0.14)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.12)
Mother's Education	0.53	0.29	0.19	0.14	0.08	0.83	0.41	0.33	0.28	0.19
	(0.17)	(0.16)	(0.15)	(0.15)	(0.14)	(0.15)	(0.14)	(0.14)	(0.14)	(0.14)
Farm Background	-5.30	-5.57	-5.27	-4.29	-4.24	1.71	0.91	0.75	0.49	-0.39
	(1.15)	(1.07)	(1.06)	(1.06)	(1.01)	(1.01)	(0.96)	(0.96)	(0.95)	(0.94)
Intact Family	-1.56	-2.12	-2.14	-2.22	-2.08	-0.85	-1.27	-1.41	-1.42	-1.02
	(1.50)	(1.39)	(1.37)	(1.35)	(1.29)	(1.28)	(1.22)	(1.21)	(1.21)	(1.19)
Number of Siblings	-0.43	-0.07	0.10	0.15	0.18	-0.41	-0.14	-0.06	-0.04	-0.01
	(0.17)	(0.16)	(0.16)	(0.15)	(0.15)	(0.14)	(0.14)	(0.14)	(0.14)	(0.13)
IQ (Henmon-Nelson)		0.29	0.26	0.24	0.18		0.24	0.23	0.23	0.21
		(0.03)	(0.03)	(0.03)	(0.03)		(0.03)	(0.03)	(0.03)	(0.03)
Academic Program		6.17	3.42	2.37	1.67		3.35	2.04	1.75	1.51
		(0.90)	(0.92)	(0.91)	(0.87)		(0.76)	(0.79)	(0.80)	(0.78)
High School Rank		0.28	0.17	0.12	-0.01		0.22	0.19	0.17	0.13
		(0.03)	(0.03)	(0.03)	(0.03)		(0.03)	(0.03)	(0.03)	(0.03)
Teacher's Encouragement			3.95	3.00	2.08			2.02	1.51	1.31
			(0.87)	(0.87)	(0.83)			(0.78)	(0.78)	(0.77)
Parents' Encouragment			5.08	2.69	1.81			2.16	1.04	0.31
			(0.93)	(0.95)	(0.91)			(0.81)	(0.88)	(0.87)
Friends' College Plans			5.59	3.90	1.22			1.94	1.33	0.45
			(0.89)	(0.90)	(0.87)			(0.80)	(0.82)	(0.81)
College Plans				4.50	0.91				1.30	-0.67
				(0.97)	(0.95)				(0.87)	(0.88)
Occ. Aspirations (SEI)				0.14	0.10				0.16	0.08
				(0.02)	(0.02)				(0.03)	(0.03)
Education					3.52					2.53
					(0.20)					(0.24)
Constant	3.64	-42.33	-23.59	-20.52	-37.14	5.83	-32.39	-26.63	-29.12	-42.94
	(6.81)	(6.76)	(6.83)	(6.77)	(6.54)	(5.95)	(6.26)	(6.32)	(6.32)	(6.36)
R-Squared	0.116	0.241	0.270	0.292	0.353	0.065	0.159	0.167	0.176	0.202
SE of Estimate	23.26	21.56	21.14	20.84	19.92	20.27	19.23	19.15	19.06	18.75

Table 10. Canonical Regression of Occupational Status (SEI) on Social Psychological Variables and Schooling: Men and Women in the Wisconsin Longitudinal Study

	Men (N = 3080)				Women (N = 1489)			
Variables Added to Model	First Job	1970 Job	1975 Job	1992-93 Job	First Job	1970 Job	1975 Job	1992-93 Job
Parents' Income	1.13	1.62	1.57	1.45	0.93	0.93	0.88	0.65
	(0.41)	(0.58)	(0.56)	(0.52)	(0.74)	(0.74)	(0.70)	(0.51)
Father's Occ. (SEI)	0.04	0.05	0.05	0.05	0.02	0.02	0.02	0.01
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)
Father's Education	0.01	0.02	0.02	0.02	0.20	0.20	0.18	0.14
	(0.08)	(0.11)	(0.10)	(0.10)	(0.13)	(0.13)	(0.12)	(0.09)
Mother's Education	-0.01	-0.02	-0.02	-0.02	0.02	0.02	0.02	0.01
	(0.08)	(0.12)	(0.12)	(0.11)	(0.14)	(0.14)	(0.14)	(0.10)
Farm Background	-3.72	-5.36	-5.17	-4.79	-0.05	-0.05	-0.05	-0.04
	(0.61)	(0.84)	(0.81)	(0.75)	(0.94)	(0.94)	(0.88)	(0.65)
Intact Family	-0.99	-1.42	-1.37	-1.27	1.09	1.09	1.03	0.75
	(0.72)	(1.04)	(1.00)	(0.93)	(1.26)	(1.26)	(1.19)	(0.87)
Number of Siblings	-0.02	-0.03	-0.03	-0.02	-0.17	-0.17	-0.16	-0.12
	(0.08)	(0.12)	(0.12)	(0.11)	(0.14)	(0.14)	(0.13)	(0.09)
IQ (Henmon-Nelson)	0.09	0.13	0.13	0.12	0.11	0.11	0.11	**0.28**
	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)	(0.04)
Academic Program	1.34	1.93	1.86	1.73	-0.51	-0.51	-0.48	-0.35
	(0.50)	(0.71)	(0.68)	(0.64)	(0.80)	(0.80)	(0.75)	(0.55)
High School Rank	0.03	0.04	0.03	0.03	0.21	0.21	0.20	0.15
	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)
Teacher's Encouragement	1.30	1.88	1.81	1.68	-1.23	-1.23	-1.15	-0.85
	(0.48)	(0.69)	(0.66)	(0.61)	(0.80)	(0.80)	(0.75)	(0.56)
Parents' Encouragment	1.41	2.04	1.96	1.82	0.26	0.26	0.25	0.18
	(0.53)	(0.76)	(0.73)	(0.68)	(0.89)	(0.89)	(0.84)	(0.62)
Friends' College Plans	1.22	1.76	1.70	1.58	0.52	0.52	0.49	0.36
	(0.50)	(0.72)	(0.70)	(0.65)	(0.81)	(0.81)	(0.76)	(0.56)
College Plans	-0.42	-0.60	-0.58	-0.54	-2.90	-2.90	-2.73	-2.00
	(0.54)	(0.78)	(0.76)	(0.70)	(0.89)	(0.89)	(0.84)	(0.63)
Occ. Aspirations (SEI)	0.09	0.13	0.13	0.12	0.18	0.18	0.17	0.12
	(0.01)	(0.02)	(0.02)	(0.01)	(0.03)	(0.03)	(0.03)	(0.02)
Education	**7.11**	4.07	3.93	3.64	3.75	3.75	3.54	2.60
	(0.17)	(0.18)	(0.17)	(0.17)	(0.23)	(0.23)	(0.23)	(0.24)
R-Squared	0.714	0.520	0.487	0.418	0.475	0.397	0.336	0.272
SE of Estimate	13.40	15.66	16.13	17.21	11.28	13.21	14.18	15.51

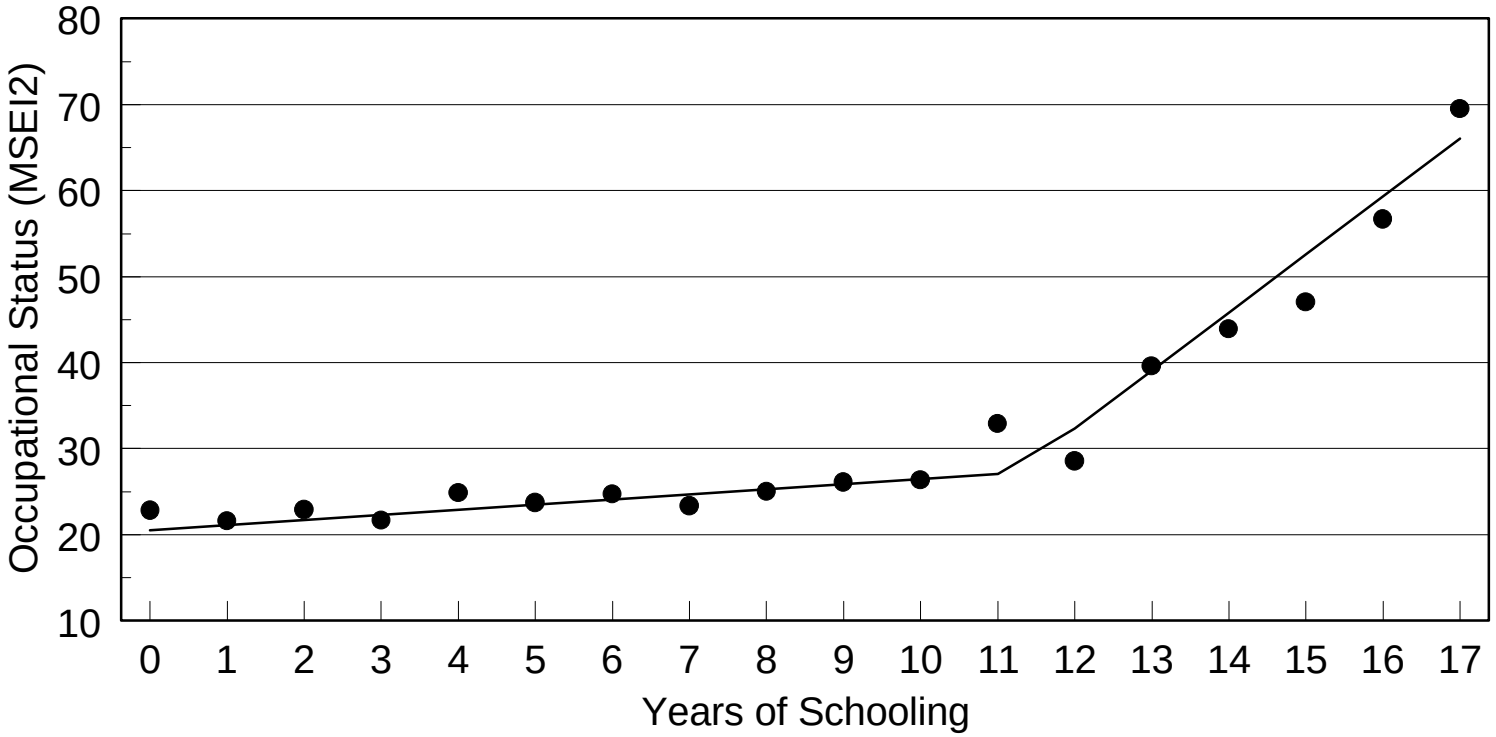
Note: Analysis is based on Duncan SEI of first full-time civilian occupation, 1970 occupation, 1975 occupation (as reported in 1975 and 1992-93), and 1992-93 occupation. Boldface entries violate canonical restrictions.

Figure 1. Trends in Mean Intergenerational Status Mobility among White U.S. Men by Age: General Social Survey, 1972 to 1990



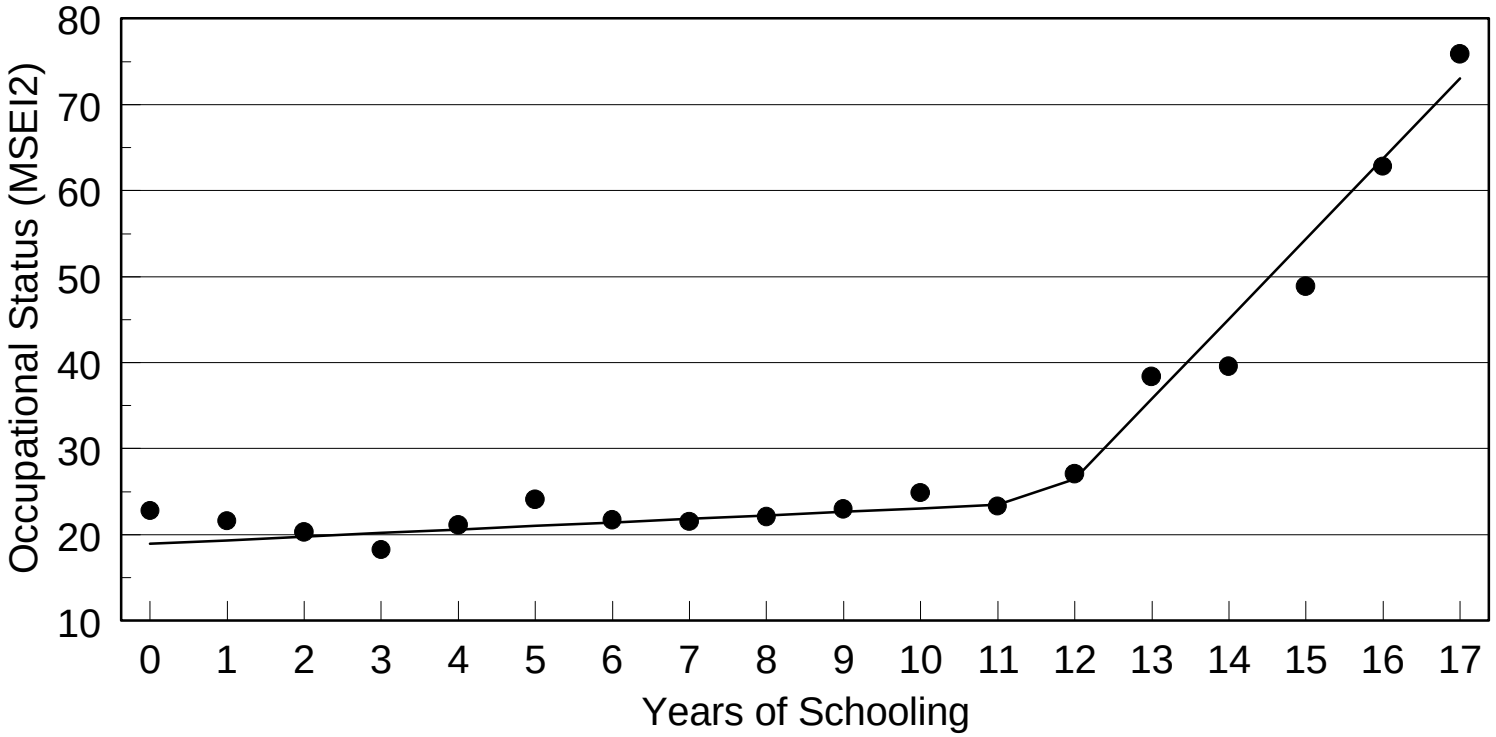
gssmob1.pre

Figure 2. Occupational Socioeconomic Status (MSEI2) by Education: Nonblack Men Aged 35 to 44 in 1973



Note: Effects of years of schooling are net of social background: Mother's education, father's education, head's occupational status, number of siblings, intact family, farm origin, Hispanic origin, and region of birth.

Figure 3. Occupational Socioeconomic Status (MSEI2) by Education: Black Men Aged 35 to 44 in 1973



Note: Effects of years of schooling are net of social background: Mother's education, father's education, head's occupational status, number of siblings, intact family, farm origin, and region of birth.

Figure 4. Educational Attainment: Non-Hispanic Whites
Aged 25 to 64, March 1992 Current Population Survey

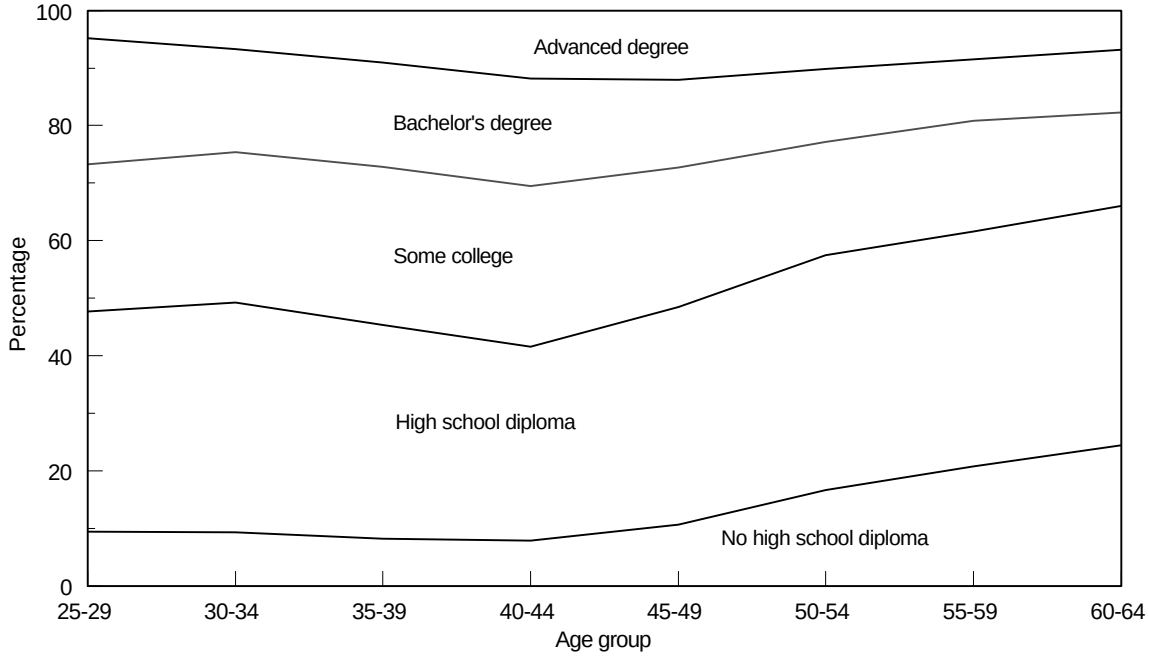


Figure 5. Educational Attainment: Blacks Aged 25 to 64,
March 1992 Current Population Survey

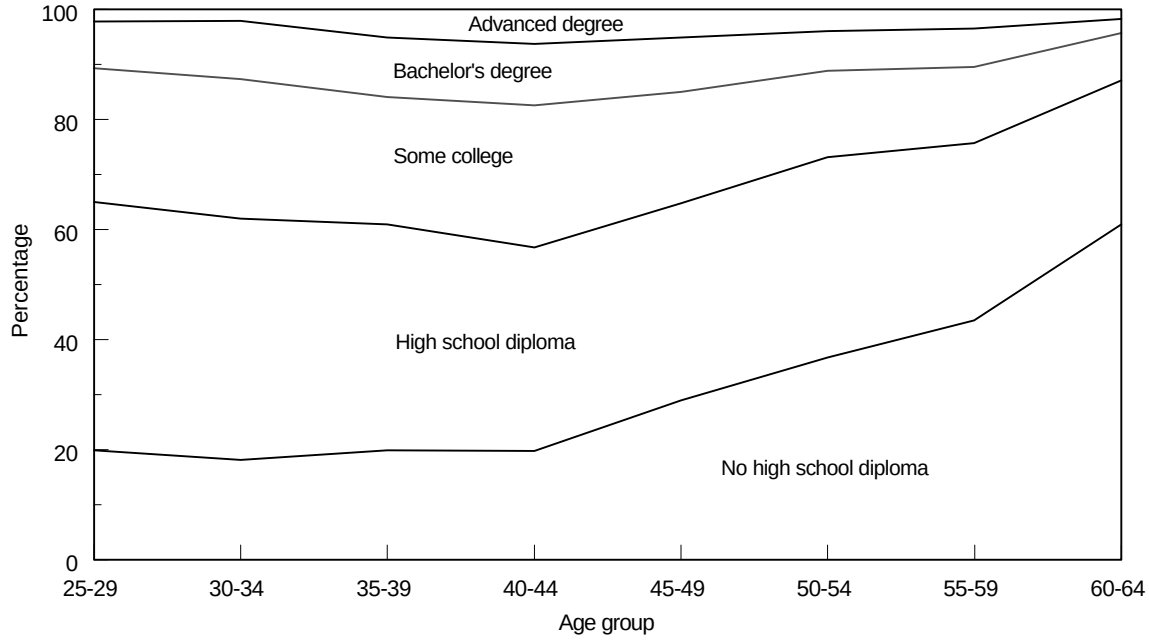
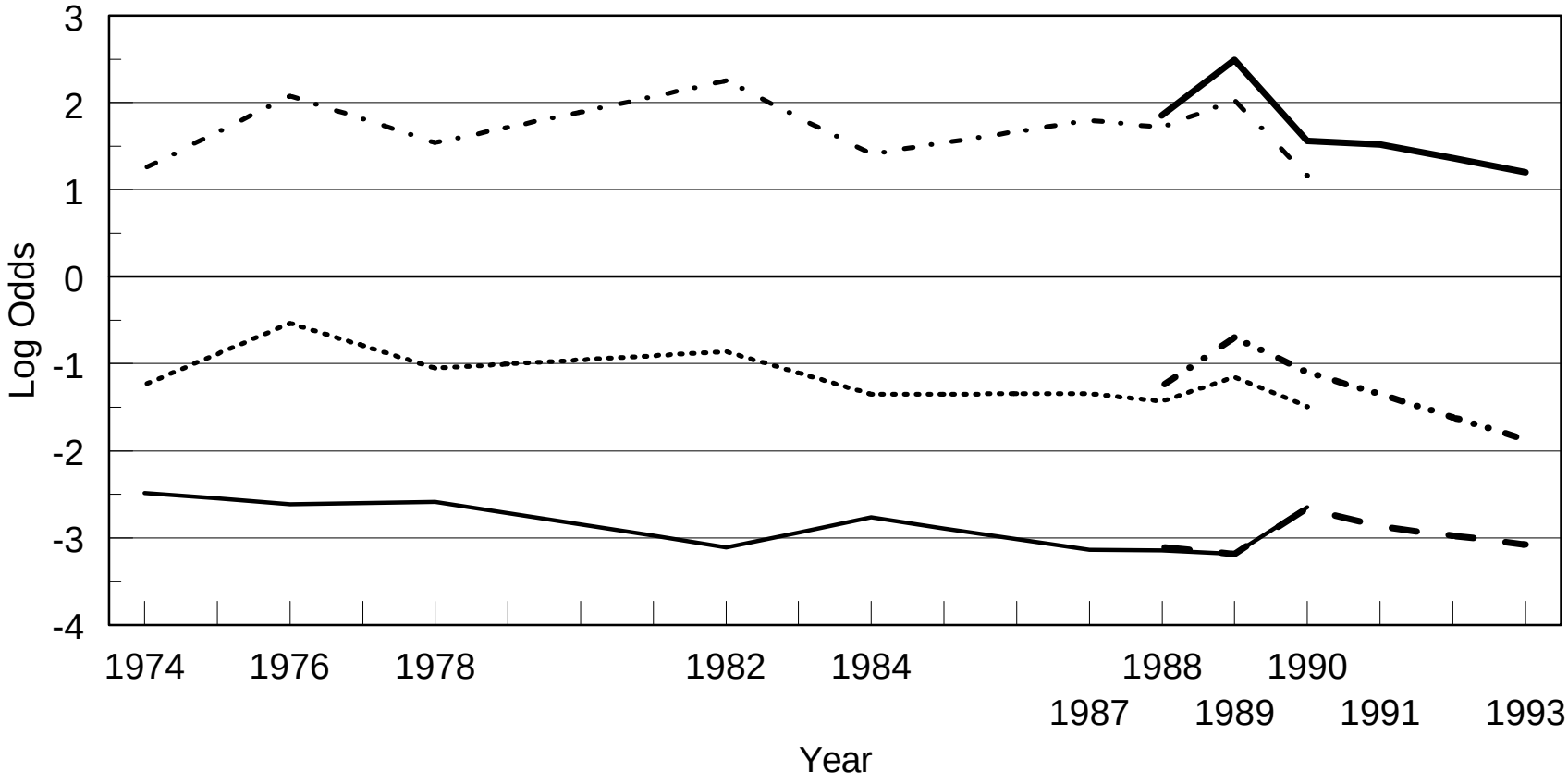


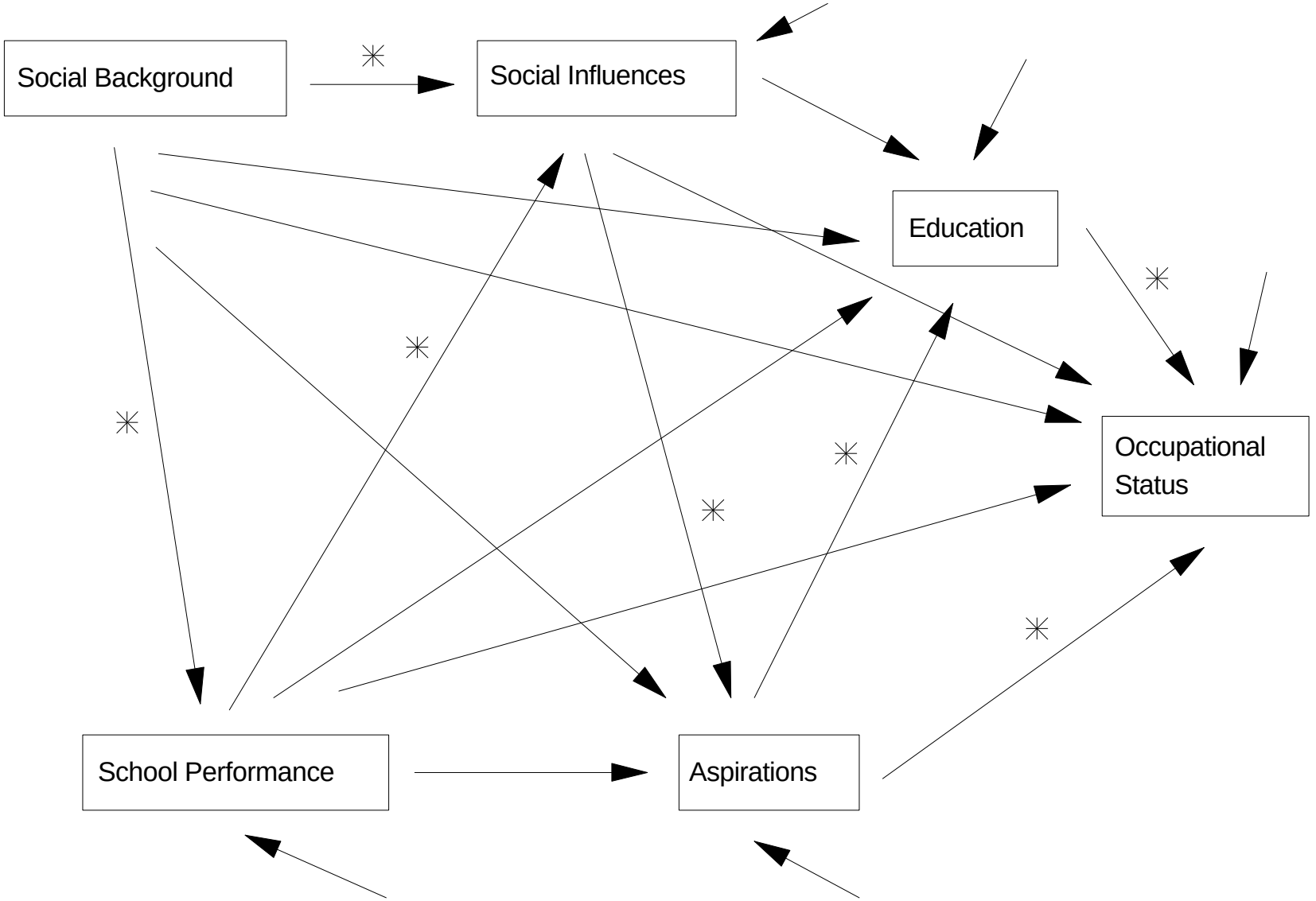
Figure 6. Odds of 10 Correct Words by Occupation and Year: 1970 and 1980-basis Occupational Classification Systems, General Social Survey, 1974 to 1993



Note: Data are shown for years in which GSS data are available and interpolated for intermediate years.

coglite3.pre

Figure 7. A Social Psychological Model of Socioeconomic Attainment



Appendix A. Effective Sample Counts: 1962 and 1973 Occupational Changes in a Generation Surveys (OCG) and 1986-88 Surveys of Income and Program Participation (SIPP)

Group and survey	Age 25 to 34	Age 35 to 44	Age 45 to 54	Age 55 to 64
Nonblack men				
1962 OCG (1960-basis Duncan SEI)	2552	2898	2521	1742
1973 OCG (1960-basis Duncan SEI)	5285	4315	4404	2997
1973 OCG (1970-basis MSEI2)	5366	4383	4441	3018
1986-88 SIPP (1980-basis MSEI2)	6109	4963	3275	2269
Black men				
1962 OCG (1960-basis Duncan SEI)	263	280	231	147
1973 OCG (1960-basis Duncan SEI)	659	520	482	286
1973 OCG (1970-basis MSEI2)	796	641	597	354
1986-88 SIPP (1980-basis MSEI2)	616	470	281	184
Nonblack women				
1986-88 SIPP (1980-basis MSEI2)	4856	4141	2628	1708
Black women				
1986-88 SIPP (1980-basis MSEI2)	639	526	308	195

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