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Human Capital and Trends in the Transmission of Economic Status Across Generations in the U.S.

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Abstract

Using data from the 1979 and 1997 National Longitudinal Survey of Youth, we investigate the changing roles of ability and education in the transmission of economic status across generations. Potential changes are identified using a decomposition method based on the OLS omitted variable bias formula. We find that ability plays a substantially diminished role for the most recent cohort while education plays a substantially larger role. The first finding results from a smaller effect of children's ability on status and a reduced correlation between parental status and children's ability. The second finding results mainly from increased returns to higher education.

JEL Classification: J62, I24

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1 Introduction

The relationship between parental and child economic status has long been an area of interest to policy makers and social scientists. In response, a large body of literature has estimated the transmission of economic status in the U.S. (Solon, 1999; Mazumder, 2005). Recently, attention has focused on two areas: (1) possible changes in this transmission over time (Mayer and Lopoo, 2005; Aaronson and Mazumder, 2008; Lee and Solon, 2009; Chetty et al., 2014) and (2) the factors responsible for this transmission (Shea, 2000; Mayer and Lopoo, 2008; Liu and Zeng, 2009; Cardak, Johnston and Martin, 2013).[3] Given large changes in education policy and labor markets over the last 30 years, an interesting correlate is how have the factors responsible for the transmission of economic status in the U.S. changed over time? To our knowledge, this is the first paper to evaluate this question.[4] Specifically, we consider the changing roles of ability and education in the transmission of economic status in the U.S.

In general, recent research has found high correlation between parents' and children's economic status in the U.S., and as a result, a low degree of economic mobility (Mazumder, 2005). Early studies on the changes in the transmission of economic status have mixed findings with some finding a decline in mobility (Aaronson and Mazumder, 2008), others finding no trend (Lee and Solon, 2009), and some finding nonlinear trends (Mayer and Lopoo, 2005). The most recent of these papers is by Chetty et al (2014) who, similar to Lee and Solon (2009), find no trend in the correlation of status. Of the papers that have studied the factors responsible for the transmission, some have estimated the genetic component at about 50% (Liu and Zeng, 2009). Others, measuring the investment/monetary aspect of the transmission of status, have found that parents' money has no causal effect on children's earnings (Shea, 2000) or that parental investment accounts for about one-third of the transmission (Cardak, Johnston and Martin, 2013).

Based on a model by Becker and Tomes (1979), Solon (2004) formalizes the use of the log-linear

[3] All of these papers refer to the U.S. A larger body of literature considers the transmission of economic status, its change over time, and the underlying factors in other countries. The works cited here are only a subset of the literature on intergenerational transmission of economic status.

[4] Blanden, Gregg and Macmillan (2007) investigate a similar question but for the U.K.

regression to estimate the transmission of status. The premise of this model is that parental investment in a child's human capital is a determinant of the child's future wages. The model has two key predictions: (1) an increase in the returns to human capital should increase the parental-child correlation of status and (2) an increase in the progressivity of government investment in human capital should decrease the correlation of status. Given returns to human capital have increased (Goldin and Katz, 2007) and U.S. investment in human capital has become more progressive over time (e.g., standardization), it is not surprising that empirical estimates have found no change in the transmission of status over time. However, while 'aggregate' estimates of the transmission of status are unchanged, the available empirical estimates do not answer whether the underlying factors responsible for transmission of status (e.g., ability, education) have changed over time; such changes may have occurred in response to policy changes.

Therefore, the question we seek to answer in this paper is whether the proportion of the transmission of status acting through ability and education have changed over time. We evaluate this question using two cohorts separated by about 20 years - the 1979 and 1997 cohorts of the National Longitudinal Survey of Youth (NLSY). Importantly, the NLSY has measures of cognitive ability that are comparable across cohorts - constructed Arms Force Qualifying Tests (AFQT). Education is measured as degree attainment. For economic status, we consider two potential measures: a within cohort percentile ranking of earnings and log earnings. The latter is the more traditional measure of economic status and, empirically, provides an estimate of the intergenerational elasticity of income (IGE). To identify the individual roles of ability and education and how these roles may have changed over time, we apply a decomposition method based on the OLS omitted variable bias formula (Gelbach, 2014).

When using percentile ranking as our measure of status, the transmission of economic status is unchanged between the two cohorts; this finding is consistent with previous empirical estimates. However, we find that ability plays a significantly smaller role in the more recent cohort while education plays a significantly larger role. The diminished role of ability is due to a decrease in the effect of ability on economic status and a decrease in the relationship between parental status and children's ability. The increased role of education is driven mainly by an increase in the relationship between educational attainment and children's economic status. However, conditional on ability, parental status plays a larger role on education attainment in the 1997 cohort. Similar patterns, at varying degrees of statistical significance, appear when using log earnings as a measure of status.

The rest of the paper proceeds as follows. Section 2 discusses measures of economic mobility, the decomposition method, and the data. Section 3 presents our main results, discusses key findings, and presents auxiliary results based on the main findings. Section 4 concludes.

2 Methodology and Data

2.1 Measuring Economic Transmission: IGE vs. Percentile Transition

Identifying the transmission of economic status across generations is analogous to characterizing the joint distribution of parental-child earnings. A joint distribution can be decomposed into its copula (the joint distribution where each marginal has been converted to a uniform distribution, e.g. earnings ranking) and its component marginal distributions (Sklar, 1959). The traditional method for investigating intergenerational economic mobility is through a measure of intergenerational income elasticity (IGE). Empirically, the log earnings of a child ($ln(Y_i^c)$) is regressed onto log parental earnings ($ln(Y_i^p)$), or:

$$ln(Y_i^c) = \alpha + \beta ln(Y_i^p) + \epsilon_i. \tag{1}$$

Measures of IGE (β) inherently combine characteristics of the copula and the shapes of the two marginal distributions of incomes. In other words, the IGE is a mix of the transmission of ranking and changes in the marginal distribution of earnings between parents and children. We provide estimates of the IGE mainly for comparison purposes.

Similar to Chetty et al (2014), our main results focus on changes in the correlation between child and parent income ranks. Empirically, the correlation of ranks (ρ) is estimated from a regression of the child's percentile rank (R_i^c) on his/her parents' rank (R_i^p), or:

$$R_i^c = \gamma + \rho R_i^p + \upsilon_i. \tag{2}$$

We focus on the rank-rank correlation because we are interested in how the factors explaining the transmission of status have changed over time rather than what the transmission of status implies for eventual earnings (a matter of intragenerational distribution). As was noted above, changes in the marginals can affect measures of the IGE. In an attempt to purge away such changes in the marginals, some (e.g., Blanden, Gregg and Macmillan, 2007) have reported intergenerational correlation of earnings ($r = \beta \cdot \frac{SD_{ln(Y^p)}}{SD_{ln(Y^c)}}$). This post-estimation scaling, however, does not allow for a decomposition based on potential explaining factors. As a result, our preferred specification is earnings ranking which provides a framework through which we can decompose the roles of potential explaining factors (e.g., ability, education).

2.2 Accounting Method

Our goal is to separately identify the portion of the transmission of economic status explained by ability and education. We begin, however, by deriving the portion explained jointly by ability and education. Consider the following two regressions:

$$R_i^c = \gamma + \rho_b R_i^p + \beta Z_i + \epsilon_i \tag{3}$$

$$R_i^c = \gamma_f + \rho_f R_i^p + \beta_f Z_i + \theta_A A_i + \theta_E E_i + \epsilon_i \tag{4}$$

where A_i and E_i represent child i's ability and education, respectively, and Z_i is a vector of control variables. Equation (3) will be referred to as the 'base specification,' while Equation (4) will be referred to as the 'full specification' (i.e., includes controls for ability and education). The portion of the transmission of economic status explained jointly by ability and education can be derived as the percentage change in the coefficient on parental status between the full and base specifications or $(\rho_b - \rho_f)/\rho_b$.[5]

To separately identify the portion of $(\rho_b - \rho_f)$ attributable to ability and education, we use a decomposition presented by Gelbach (2014). The decomposition is based on the well-known omitted variable bias formula for least squares regression analysis. Specifically, letting $X_1 = [R^p \;\; Z]$, $X_2 = [A \;\; E]$, and $\theta = [\theta_A \;\; \theta_E]'$, then:

$$\hat{\rho}_b - \hat{\rho}_f = (X_1'X_1)^{-1}X_1'X_2\hat{\theta}$$

Furthermore, if we let X_{2k} be the k^{th} covariate in X_2, $\hat{\Gamma}_k = (X_1'X_1)^{-1}X_1'X_{2k}$ be the OLS coefficients on X_1 from a regression of X_{2k} on X_1, and $\hat{\theta}_{2k}$ be the coefficient on X_{2k} in the full specification, then the portion of the change between the base and full specification due to the k^{th} covariate is $\hat{\Gamma}_k\hat{\theta}_{2k}$. This decomposition method can also be extended to 'groups' of covariates, such as education measures (Gelbach, 2014).

This type of decomposition is needed because of order dependence in 'sequential accounting.' If instead, we first account for the change in the correlation explained by ability and then add education our results would differ from if we first account for education and then add ability. Gelbach (2014) provides a detailed example of how order dependence can lead to different outcomes in the case of explaining the black-white wage gap with ability and education controls.

To investigate how the roles of ability and education have changed between cohorts, we apply the decomposition method to a model that includes both cohorts (i.e., a cohort-covariate interacted model). Specially, we estimate:

$$R_i^c = \gamma + \alpha Cohort + \rho_b R_i^p + \rho_b^c R_i^p \cdot Cohort + \beta Z_i + \epsilon_i$$

$$R_i^c = \gamma_f + \alpha_f Cohort + \rho_f R_i^p + \rho_f^c R_i^p \cdot Cohort + \beta_f Z_i + \theta_A A_i + \theta_A^c A_i \cdot Cohort + \theta_E E_i + \theta_E^c E_i \cdot Cohort + \epsilon_i.$$

where *Cohort* is an indicator variable that takes the value of 1 if individual i is in the 1997 cohort. The focus for the 1979 cohort is the decomposition on p_b while the focus for the 1997 cohort is the

[5] Such 'accounting' methods are common in decomposing effects in the economics literature, e.g. Krueger (1993), Blanden, Gregg and Macmillan (2007) or Hellerstein and Neumark (2008) among many. Gelbach (2014) provides an extensive list in motivating his decomposition method.

sum of the decompositions on p_b and p_b^c.

2.3 Data

The data used in this analysis comes from the 1979 and 1997 National Longitudinal Survey of Youth (NLSY). The 1979 NLSY is a panel survey of youths aged 14-22 in 1979. It includes a cross-sectional representative survey (n = 6,111), an over sample of minorities and poor whites (n = 5,295), and a sample of military respondents (n = 1,280). The 1997 NLSY is a survey of youths aged 12-18 in 1997. It includes a cross-sectional representative survey (n = 6,748) and an over sample of minorities (n = 2,236). The data used for this study is the cross-sectional representative survey and over sample of minorities for both the 1979 and 1997 cohorts; we exclude the over sample of the military and poor whites from the 1979 cohort which were discontinued in 1984 and 1990, respectively.

The sample is limited to individuals who reported living with parents for the first three years of the survey and with reported parental income for those years.[6,7] The outcome of interest is the individual's average reported income between 1987 and 1989 for the 1979 cohort and between 2008 and 2010 for the 1997 cohort.[8] These years were selected since the 2011 data is the latest available wave for the 1997 cohort and 1987-1989 are the years of the 1979 cohort which most closely align in age with the 2008-2010 wave of the 1997 cohort (the mean age is 26.5 for the 1979 cohort and 26.8 for the 1997 cohort). The sample is further limited to individuals not enrolled in school over the period of interest, aged 25-30[9] and with available Arms Force Qualifying Test (AFQT) scores. With these restrictions, the final 1979 cohort sample includes individuals born between 1960 and

[6]These assumptions are in line with previous literature, such as Bhashkar (2014), that use NLSY data to evaluate intergenerational mobility. For the 1979 survey, parental income is identified through a comparison of household income and respondent's income. For the 1997 survey, parental income is identified using parental reported earnings. We also exclude individuals who lived with a spouse or child.

[7]It is well known that parental transitory income shocks can lead to significant downward bias in measurements of intergenerational mobility (Mazumder, 2005). However, as long as this bias is relatively stable over the cohorts, this should not cause significant distortions in the changes in mobility over time. Moreover, related studies on changes in mobility have settled on three year averages as a compromise between better measurement of parental earnings and sample size (e.g., Lee and Solon, 2009; Mayer and Lopoo, 2008).

[8]If only one or two years of income are available then this average is used. All incomes are deflated to 1982-1984 dollars using the CPI.

[9]The oldest individuals in the 1997 cohort were 30 in for the last year of reported income.

1965 with a median birth year of 1963. The final 1997 cohort sample includes birth years 1980 to 1983 with a median birth year of 1983. Summary statistics for the two cohorts are reported in Table 1.

[Table 1 about here]

The measure of ability used in our analysis is test scores from the AFQT. An important issue when selecting an ability measure is comparability across cohorts. The Armed Services Vocational Aptitude Battery (ASVAB) was administered to both the 1979 and 1997 cohorts of the NLSY and the AFQT scores were constructed from the ASVAB. However, the two cohorts took different versions of the ASVAB and therefore the AFQT scores are not directly comparable. The 1997 cohort took a computer administered test (CAT) while the 1979 cohort took a paper and pencil (P&P) version. Additionally, the test was administered at different ages for the two cohorts. We use a two-step process detailed in Altonji, Bharadway and Lange (2009) to make the two scores directly comparable. First, a mapping from the P&P version to the CAT version is used to make the raw scores equivalent. This mapping is constructed by Segal (1997) and based on a sample of individuals randomly assigned the P&P or CAT version between 1988 and 1992. Second, an equi-percentile mapping is used across age groups to create age-consistent scores (Altonji, Bharadwaj and Lange, 2009). The equi-percentile mapping puts both cohorts into cohort-specific 16 year old score distributions (age 16 is the age group with the greatest overlap between the two cohorts).[10] While the constructed AFQT scores provide a comparable measure of ability across cohorts, we do not interpret these scores as a pure measure of innate ability. Rather we interpret this measure as a combination of innate ability and accumulated human capital as a youth.

Education attainment is measured using a set of indicator variables: less than a high school diploma (including GED) as our omitted indicator variable, high school diploma, associates degree, or college degree or higher. Other control variables include a cohort indicator (equal to one for the 1997 cohort) and its interaction with the measure of parental economic status, sex (equal to one

[10]We are grateful to Altonji, Bharadwaj and Lange for making the constructed scores publicly available on Fabian Lange's website http://www.econ.yale.edu/ fl88/.

for male), race (equal to one for white), age of parents[11] and its square, respondent's age and age squared, and age-cohort interaction terms to catch any possible differences in earnings profiles between cohorts.[12] The main variables of interest are parental economic status, parental economic status interacted with the cohort variable, ability and education measures, and interactions between ability and education and the cohort variable. These are the variables that determine how the role of ability and education have changed between cohorts (i.e., decomposition estimates).

3 Results

3.1 Measures of Economic Mobility

The first and third columns of Table 2 present measures of the transmission of economic status based on percentile ranking and IGE, respectively, using our base specification. When using the percentile ranking measure, the results for the base specification align with previous research. The correlation between parental ranking and children's ranking is around 0.30. Chetty et al. (2014) finds a similar value. We find no statistically significant change in the relation between parents' and children's ranking over time (i.e., *Cohort*Parental Ranking* variables are not statistically significant). From the IGE results, the estimated effect is 0.35 while the interaction term is estimated at -0.06 (also not statistically significant). Our IGE estimate is somewhat lower than previous literature; for example, Lee and Solon (2009) estimate it at 0.44.

[Table 2 about here]

[11] Calculated as the average age of parents in the household in the first three years of the survey.

[12] Main results are nearly identical when experience, measured as (age - years of schooling - 5), is included instead of age.

3.2 The Roles of Ability and Education on Children's Status

The second and fourth columns of Table 2 present results based on percentile ranking and IGE, respectively, using our full specification (i.e. includes education measures, AFQT score, and cohort interaction terms[13]). As expected, ability and education are highly correlated with status and reduce the coefficient on parental status substantially from 0.29 to 0.18 when using the ranking measure and from 0.35 to 0.23 when using log earnings.

The AFQT score has a strong positive effect on percentile ranking while the interaction of cohort and AFQT score is negative and statistically significant. The drop in the AFQT effect across cohorts is large and statistically significant - the effect in the 1997 cohort is about half of that for the 1979 cohort. For the 1979 cohort, conditional on parental status and education, scoring one standard deviation higher on the AFQT corresponds to an average increase in earnings ranking of about 7 percentage points. However for the 1997 cohort, a similar improvement corresponds to an average increase in earnings ranking of about 3 percentage points. In other words, we find evidence of a decrease in the role of ability on percentile ranking over time.[14] This change, however, is not statistically significant when log earnings are used as the measure of status (Table 2, column 4).

Education measures also appear to have different effects across cohorts. High school diploma and a college degree have larger effects in the 1997 cohort for both measures of status, though the statistical significance is strongest in the change of the effect of a college degree using our ranking maesure. However, these estimates should not be interpreted as causal effects of education. The estimated effects are a combination of possible changes in the returns to education and changes in the selection mechanism driving students into higher levels of education. We are not attempting to assign causality to these estimates but rather use them to account for their role (whatever that may be) in the transmission of economic status.

[13]Results are presented using a re-scaled AFQT score. We do this by subtracting the mean and dividing by the standard deviation.

[14]Castex and Dechter (2014), in independent and simultaneous research, find similar results regarding the effect of ability on earnings over time.

3.3 The Roles of Ability and Education in the Transmission of Status

The top and bottom portions of Table 3 report the decomposition of the roles played by education alone, ability alone, and ability and education together for the percentile ranking and log earnings measures, respectively. Bootstrapped 95% percentile confidence intervals are reported in parentheses.[15] The first column reports the decomposition for the 1979 cohort, the second column reports the decomposition for the 1997 cohort, and the final column reports the difference in decomposition between the two cohorts (1997 - 1979).

[Table 3 about here]

When using the rank-rank measure of transmission, ability accounts for about 26% of the intergenerational transmission for the 1979 cohort and 6% for the 1997; this decrease in the role of ability is statistically significant. Conversely, education plays a (statistically significant) larger role in the 1997 cohort explaining 27% compared to 14% for the 1979 cohort. However, the aggregate or combined effects of ability and education have not changed significantly between cohorts. In the 1979 cohort, the combination of ability and education explain about 40% of the transmission while in the 1997 cohort they explain about 33%; the 7% difference between cohorts is not statistically significant.

Similar patterns emerge when log earnings (i.e., IGE) is the measure of interest, but the cohort differences do not have the same statistical significance. The portion explained by ability is about 11% for the 1997 cohort verses 22% for the 1979 cohort (a significant difference at the 10% level). The portion explained by education is 22% for the 1997 cohort versus 14% for the 1979 cohort (a difference just bordering the 10% significance level). As with the results from the rank-rank measure, the portion explained jointly by ability and education is similar across cohorts (36% and 34%).

[15] Theoretically, potential issues may arise when confidence intervals are unbounded. In the current setting, however, the denominator is significantly different from zero at a high enough significance level to mitigate such concerns. As a result, standard percentile bootstrap confidence interval should be appropriate.

3.4 Changing Role of Ability and Education

The estimated change in the percentage of the transmission explained by test scores (education) has two components: the change in the effect of test scores (education) on children's ranking/earnings and the change in the relation between parental ranking/earnings and children's test scores (education). Based on the decomposition method used, the portion explained by covariate k is $(X_1'X_1)^{-1}X_1'X_{2k}\hat{\theta}_k$. The significant cohort interaction terms in Table 2 provide evidence of a change in the relationship between ability (education) and earnings (θ_k). This evidence alone, however, does not provide a complete picture of the changing relationship. To explore the changing relationship between parental status and ability (education), we regress our measure of ability (education) onto parental status and a cohort-status interaction term (along with controls for cohort, parental age, sex and race).[16] Results for these auxiliary regressions are provided in Table 4.

[**Table 4 about here**]

Columns 1 and 4 estimate the changing relationship between parental status and ability using percentile rank and log earnings, respectively, as the measure of parental economic status. Both measures of parental economic status show a substantially diminished effect on the AFQT test score for the 1997 cohort. The decrease is about a third with the percentile rank measure and more than a third with the log earnings measure. This significantly lower correlation, coupled with the smaller effect of ability on status, provides a potential explanation for our finding that ability explains a smaller portion of transmission for the 1997 cohort.

Columns 2 and 5 provide results for the link between parental status and education. For ease of interpretation, we only report results from a regression on a single measure of education (a count variable from 0 to 3). These results show no significant changes between cohorts; however, when using percentile rank as the measure of economic status, the effect for the 1997 cohort is marginally significant (around 10% level). Thus, from a decomposition standpoint, the change in the portion explained by education is due primarily to the changed in the relationship between education and

[16]While the results are similar, this is not the same regression used in the decomposition.

earnings for children. To analyze this relationship further, we rerun the regression for education but control for AFQT score (columns 3 and 6 in Table 4). Conditional on AFQT score, parental ranking has a much larger effect on children's education levels in the 1997 cohort. Children of wealthier parents have higher levels of education in both cohorts and somewhat more in the 1997 cohort. However, after controlling for ability, the effect of parental wealth on education levels is more than double in the 1997 cohort. In other words, while the overall correlation between parental status and education has not changed significantly, the role of ability as a mitigating factor appears to have changed over time.

4 Conclusion

Using a data set of two cohorts separated by 20 years, we investigated the changing roles of ability and education in the transmission of economic status across generations in the U.S. Two measures of economic status were considered - a percentile earnings ranking and the more traditional log earnings. To identify the individual roles of ability and education and how these may have roles changed over time, we applied a decomposition method based on the OLS omitted variable bias formula.

Consistent with recent literature, we find that the correlation between parent and child economic status has not changed over time. We do, however, find that the roles of ability and education in this transmission have changed. Ability plays a substantially diminished role while education plays a substantially larger role in the transmission of status for the most recent cohort. Further analysis suggests that the diminished role of ability can be attributed to both a reduced effect of ability on status and a reduced correlation between parental status and ability. The increased role of education can be attributed to an increased effect of education on children's economic status.

A large body of existing literature has evaluated the correlation of status between generations, and in general, found no change in the transmission of status over time. Our results confirm this general finding but also provide a more detailed picture of what underlies this point estimate. While the ‘aggregate’ estimate of the transmission of status has not changed over time, we find that *how* status is transmitted has changed. For example, for children born in 1960, we find that 25% of the correlation between parental and children’s earnings ranking is explained by measured ability. For children born in 1980, only about 6% of the correlation can be explained by ability. We speculate that the vast changes in education policies over the last 30 years and higher demand for higher skilled workers have both played a role in the changes documented here.

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Table 1: Summary Statistics

Variable	1979 Cohort	1997 Cohort
Parental income	29,427	36,109
	(17,588)	(25,612)
Child's income	14,824	16,040
	(9,188)	(10,977)
H.S. diploma	0.59	0.42
Two year degree	0.08	0.09
Four year degree	0.25	0.41
AFQT Score	168.60	163.40
	(30.15)	(31.07)
Age	26.48	26.83
	(1.28)	(1.04)
Parental age	45.24	41.69
	(6.55)	(5.24)
White	0.57	0.68
Male	0.56	0.54
N	1,697	1,022

Notes: Standard errors are in parenthesis. Incomes measured in 1982-1984 dollars.

Table 2: Regression results

	Percentile Ranking		Log Earnings	
	Base	Full	Base	Full
Parental economic status	0.2920	0.1756	0.3540	0.2286
	(0.0241)	(0.0247)	(0.0308)	(0.0320)
Cohort * Parental economic status	-0.0276	0.0020	-0.0615	-0.0325
	(0.0364)	(0.0375)	(0.0439)	(0.0459)
AFQT score		0.0659		0.1744
		(0.0081)		(0.0243)
Cohort * AFQT score		-0.0322		-0.0397
		(0.0120)		(0.0359)
H.S. diploma		0.0467		0.0988
		(0.0236)		(0.0706)
Cohort * H.S. diploma		0.0692		0.2054
		(0.0379)		(0.1133)
Some college		0.1152		0.3079
		(0.0315)		(0.0943)
Cohort * Some college		0.0692		0.2140
		(0.0496)		(0.1485)
College degree		0.1567		0.3590
		(0.0283)		(0.0847)
Cohort * College degree		0.0844		0.2344
		(0.0430)		(0.1285)

Note: Dependent variable is child's economic status (percentile ranking or log earnings). Robust standard errors for OLS estimates are in parenthesis. All regressions control for cohort, race, sex, parental age, parental age squared, age, age squared, and interactions between child age variables and cohort.

Table 3: Decomposition Results

	Ind. Variable	1979 Cohort	1997 Cohort	Difference
Earnings Ranking	Education	0.1407	0.2656	0.1249
		(0.0862, 0.1989)	(0.1807, 0.3654)	(0.0180, 0.2468)
	AFQT Score	0.2580	0.0627	-0.1953
		(0.1810, 0.3538)	(-0.0013, 0.1243)	(-0.3212, -0.0814)
	Total	0.3986	0.3283	-0.0703
		(0.3177, 0.5107)	(0.2413, 0.4396)	(-0.2191, 0.0739)
Log Earnings	Education	0.1143	0.2152	0.1009
		(0.0620, 0.1813)	(0.1347, 0.3559)	(-0.0102, 0.2559)
	AFQT Score	0.2401	0.1145	-0.1256
		(0.1613, 0.3385)	(0.0223, 0.2108)	(-0.2739, 0.0194)
	Total	0.3544	0.3297	-0.0246
		(0.2663, 0.4739)	(0.2258, 0.4866)	(-0.1844, 0.1533)

Note: The effect of education represents the effect from all measures of education. Bootstrapped 95% confidence intervals (based on 1,000 replications) are reported in parentheses.

Table 4: Auxilary Results - Predicting Characteristics

	Percentile Ranking			Log Earnings		
	Outcome of Interest					
Dep. Variable	AFQT	Educ	Educ	AFQT	Educ	Educ
Parental Status	1.0644 (0.0795)	0.8767 (0.0929)	0.3635 (0.0908)	0.4737 (0.0343)	0.3745 (0.0403)	0.1461 (0.0395)
Cohort * Parental Status	-0.3809 (0.1198)	0.2232 (0.1401)	0.3906 (0.1366)	-0.2011 (0.0488)	0.0289 (0.0574)	0.1175 (0.0562)
AFQT Score	- -	- -	1.5866 (0.0862)	- -	- -	1.5891 (0.0868)
Cohort * AFQT Score	- -	- -	0.0517 (0.1283)	- -	- -	0.0669 (0.1290)

Notes: Robust standard errors are in parenthesis. All regressions control for parental age, parental age squared, sex and race.