Cohort Trends in the Relationship between
Non-Cognitive Skills and Educational Attainment

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1. Introduction

Although non-cognitive skills are difficult to define and measure precisely, it is clear that they play an important role in stratification processes. Bowles and Gintis (1976, 2000) have argued that employers value traits such as motivation and tenacity perhaps even more than cognitive skills. Heckman (2000) has similarly argued that non-cognitive skills are important determinants of success in life because non-cognitive skills serve as a catalyst for acquiring many other important skills, including cognitive skills. This vein of research also has a long tradition in sociology, including the work of Jencks and colleagues (Jencks et al. 1979) and Farkas and colleagues (see Farkas 2003 for a review).

Although the existing literature shows extensive evidence for the important role that non-cognitive skills play in predicting more schooling and higher wages, there is no study that examines whether these patterns have changed across birth cohorts. Such a change may occur because the skills valued in school or the labor market may change over time, or because families may change the emphasis they place on the amount and type of skills their children acquire. Moreover, families may invest in these skills differentially, or differentially so across cohorts. Just as families at the top of the social hierarchy invest their social and economic resources to maximize their children's educational attainment and life chances, they may change how much they invest in nurturing their children's non-cognitive skills if they come to believe that these skills are important to success in life. Our study examines whether the relationship between social origins, non-cognitive skills, and educational attainment has been changing across cohorts of American adolescents.

2. Research design & Data

Our study aims to answer the following four research questions:

1. Has the distribution of non-cognitive skills by family background changed across birth cohorts?

2. Do trends in the relationship between family origins and non-cognitive skills differ from the trends in the relationship between family origins and cognitive skills?

3. Has the role of non-cognitive skills in mediating the relationship between family background and educational outcomes such as college entry and college completion changed across birth cohorts?

4. Do these cohort patterns differ by gender and or race?

In contrast to cognitive skills, which can be measured using standardized tests, non-cognitive skills are difficult to measure in standard or comparable ways. Non-cognitive skills may describe many different attributes, including motivation, persistence, optimism, time preference, personality traits such as self-control and self-efficacy, and effective communication skills. Thus, a first and basic step is to develop a taxonomy of the facets of non-cognitive skills and then, as a second step, to piece together comparable data across cohorts to measure whether the distribution of these non-cognitive skills has changed across cohorts.

In order to answer these questions, we need data on the characteristics and family resources of children as well as measures of children's non-cognitive and cognitive skills so that we can disentangle the former skills from the latter ones. Moreover, we need all these measures early in life, ideally in adolescence and measured contemporaneously rather than retrospectively. We need follow up data on later educational attainment, and most importantly, reasonable comparability in these measures across birth cohorts. We are able to meet these data requirements by using survey data on four cohorts of children: the Project Talent 1960 cohort, High School and Beyond 1980, the National Education Longitudinal Study 1988, and the Education Longitudinal Study of 2000. These data allow us to compare four cohorts of 14-16 year olds youth interviewed in 1960, 1980, 1990, and 2002. The data sets are selected with an eye towards meeting the following conditions: (1) covering a wide span of birth cohorts of American youth; (2) including information on family background and standardized measures of cognitive skills; (3) including comparable measures of non-cognitive skills for a minimum of two cohorts; and (4) including detailed measures of educational outcomes. We describe each of these surveys in more detail below.

The first cohort comes from Project Talent, a longitudinal survey designed to investigate the educational contexts and outcomes of youth. A national sample of 400,000 students enrolled in grades 9 to 12 were first interviewed in 1960 and then again one, five, and 11 years after graduation. The data include information on family background, educational experiences, interests, plans and activities, and standardized tests of cognitive skill. Project Talent has an exceptionally rich set of measure of non-cognitive skills, including dispositional trait data, measures of effort, self-confidence, sociability, and educational aspirations.

The second cohort comes from the sophomore class survey of High School and Beyond (HS&B), a nationally representative sample of high school sophomore students when first surveyed in 1980. The sample includes information on family background, standardized test scores, non-cognitive traits, and educational outcomes for 30,030 sophomore students from 988 schools across the US.

The third cohort comes from the National Education Longitudinal Study of 1988 (NELS88). NELS88 started with the survey of a nationally representative sample of 8th graders (aged 14), who were surveyed again in the first follow-up study two years later in 1990, when respondents were in 10th grade. The follow-up data offers the same variables as the base-year survey (1988) including standardized test scores, non-cognitive skills, and family characteristics. The later waves describe educational outcomes. The first follow-up study covers 17,753 high school sophomore students as in 1990.

The fourth cohort comes from the Education Longitudinal Study of 2000 (ELS 2002), a nationally representative sample of 10th graders in 2002. The study provides information on

cognitive skills as well as non-cognitive and behavioral traits. The sample includes about 15,000 students from 750 schools across the US.

These four cohorts allow us to describe trends in nine types of non-cognitive skills, which we list in Table 1. Table 1 also shows which surveys include these measures.

Table 1. Different dimensions of non-cognitive skills and surveys that include them

	Project Talent (1960)	HS&B (1980)	NELS88: 1FS (1990)	ELS2002 (2002)
Academic self-confidence	X	X	X	X
Working hard at school (perseverance)	X	X	X	X
Work orientation (importance in life)		X	X	X
Behavioral problems		X	X	X
Self-efficacy / locus of control	X	X	X	
Self-esteem	X	X	X	
Time management	X	X	X	X
Educational expectations	X	X	X	X
Sociability	X	X	X	

References

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