Noncognitive Skills and the Racial Wage Gap

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Background

Noncognitive skills, or "soft skills," describe a person's self-perception, work ethic, ethical orientation, and overall outlook on life. These skills have been linked to a variety of economic outcomes such as educational attainment, earnings, and work habits in the general population (Heckman et al 2006). They are important to the design of early childhood policies and adult work training programs. Less well understood is the impact of these skills on subgroups of the general population, specifically racial groups.

This paper adds two measures of noncognitive skills, locus of control and self-esteem, to a simple wage specification to determine the effect of noncognitive skills by gender on the racial wage gap (white, black, and Hispanic) and the return to noncognitive skills across the wage distribution.

Data and Skills Measures

Data

The analysis data come from the National Longitudinal Survey of Youth 1979 (NLSY79). Collected by the Bureau of Labor Statistics (BLS) the NLSY79 is a panel survey that contains 12,686 individuals between the ages of 14 and 21 at the time of first interview in 1979. The NLSY79 collects information on labor market outcomes, cognitive skills, and noncognitive skills. Additional wage data come from the Current Population Survey (CPS). This analysis uses NLSY79 and CPS observations for 1991-2006.

Cognitive Skills Measure

Armed Forces Qualifying Test (AFQT) measured in 1979

Noncognitive Skills Measures

- Rotter Internal-External Locus of Control measures the degree to which a person has control over their life in 1979.
- Rosenberg Self-Esteem measures an individual's self-esteem in 1980.

Empirical Methods

Empirical Specification

 $\ln wage_{i,t} = \beta_0 + \beta_1 Black_i + \beta_2 Hispanic_i + \beta_3 Age_{i,t} + \beta_4 AFQT_{i,1980} + \beta_4 AFQT_{i,1980$ $\beta_5 AFQT_{i,1980}^2 + \beta_6 Noncog_{i,1979/1980} + \beta_7 Noncog_{i,1979/1980}^2 + \varepsilon_i$

• Key Idea: AFQT_{i.1980} and Noncog_{i.1979/1980} are measured **before** labor market entry (Neal and Johnson 1996)

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Cognitive and Noncognitive Measures





Source: NLSY. Further information about the source and accuracy of the NLSY can be found at http://www.nlsinfo.org/nlsy79/docs/79html/NLSY79%20Tech%20Samp%20Rpt.pdf

Median Hourly Wages by Race, 1991-2006



Each graph displays the median hourly wage for each gender race combination for the NLSY and the CPS covering 1991-2006. Further information about the source and accuracy of the CPS and NLSY can be found at http://www.bls.census.gov/cps/bsrcacc.htm and http://www.nlsinfo.org/nlsy79/docs/79html/NLSY79%20Tech%20Samp%20Rpt.pdf, respectively

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Each graph shows the quantile coefficient estimates from the empirical specification controlling for cognitive and noncognitive skills. Quantile regressions I on the pooled sample and include annual time dummy variables. Standard errors for confidence intervals are based on the nonparametric bootstrap with 100 replications. Source: NLSY. Further information about the source and accuracy of the NLSY can be found at http://www.nlsinfo.org/nlsy79/docs/79html/NLSY79%20Tech%20Samp%20Rpt.pdf

Change in Racial Wage Gap Due to Noncognitive Skills



Each araph shows the change in the quantile coefficient estimates for black and Hispanic by gender. Each bar represents the change in the wage gap after cognitive measures to the empirical specification and not controlling for the cognitive measure. Quantile regressions are estimated on the pooled include annual time dummy variables. Source: NLSY. Further information about the source and accuracy of the NLSY can be found at http://www.nlsinfo.org/nlsy79/docs/79html/NLSY79%20Tech%20Samp%20Rpt.pdf>.

Quantile Regression Controlling for Cognitive and Noncognitive Skills

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Results and Implications

Quantile Regression Results

After controlling for locus of control, the

- wage gap for black and Hispanic men **shrinks** by 1-2 percentage points
- wage gap for black and Hispanic women **shrinks** by 1-5 percentage points

After controlling for self-esteem, the

- wage gap for black men and women mostly **widens** by 1-5 percentage points
- wage gap for Hispanic men and women mostly shrinks by 1-4 percentage points

After controlling for cognitive and noncognitive skills,

- the male black-white wage gap persists across the wage distribution
- the female black-white wage gap exists at higher quantiles of wage distribution
- Hispanic men earn less than white men at lower quantiles but earn more at higher quantiles
- Hispanic women earn more than white women across the entire wage distribution
- the return to cognitive skills still remains greater than the return to noncognitive skills across the wage distribution

Implications

Noncognitive skills have generally been found to determine wage levels in the general population and across both genders (Heckman et al 2006). In this context, the finding in this paper that noncognitive skills cannot affect or close some racial wage gaps presents a puzzle to the noncognitive literature. On one hand, these skills are important for wage levels; on the other hand, they do not seem to be important for wage gaps. This result has implications for education policy designed to close racial gaps.

Bibliography

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