

Revisiting The *Bell Curve* Debate Regarding the Effects of
Cognitive Ability on Wages

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Abstract

In *The Bell Curve*, Herrnstein and Murray (1994) claim, based on evidence from cross-sectional regressions, that differences in wages in the U.S. labor market are predominantly explained by general intelligence. Cawley, Heckman, and Vytlačil (1999), using evidence from random effects panel regressions, reject this claim, in part because they find returns to general intelligence vary by race and gender. We examine the regression methods used by both sides of the debate and conclude that neither is appropriate for analyzing the NLSY data that both use. We use the Hausman-Taylor estimator to obtain consistent estimated coefficients on the time-invariant general intelligence-related variables and also extend the analysis up through 2002. The effect of general intelligence on wages is larger in the Hausman-Taylor specification for the 1979-1994 panel than in either the cross-sectional or random effects models, though it becomes statistically insignificant for the 1994-2002 panel. Our analysis also indicates no significantly different returns to intelligence by race or gender.

Keywords: wages; cognitive ability; education

JEL Codes: J24; J31

Table 1: Independent variable is Log of Hourly Wage Rate (Cross-sectional Analysis)

	1A	1B	1C	1D
Time Period	1989	2002	2002	2002
Number of Observations	7799	6156	3352	3352
AFQT_n	0.178** (0.011)	0.238** (0.012)	0.027 (0.026)	
General Intelligence				0.040 (0.035)
Age_n	0.031** (0.009)	-0.015 (0.010)		
SES_n	0.083** (0.014)	0.145** (0.016)		
Family Income_n			0.063* (0.017)	0.062** (0.017)
Mother's Edu_n			-0.035 (0.019)	-0.039 (0.019)
Father's Edu_n			0.057** (0.020)	0.056** (0.020)
Parents' SEI_n			0.024 (0.016)	0.024 (0.015)
Siblings_n			0.011 (0.015)	0.014 (0.015)
Northeast Region			0.100* (0.044)	0.107* (0.049)
Northcentral Region			0.020 (0.040)	0.024 (0.044)
South Region			0.041 (0.043)	0.049 (0.046)
Black			-0.016 (0.038)	0.014 (0.040)
Black*test			0.126** (0.035)	0.123** (0.040)
Hispanic			0.084* (0.042)	0.094* (0.042)
Hispanic*test			0.051 (0.036)	0.047 (0.037)
Male			0.292** (0.026)	0.270** (0.026)
Male*test			0.055 (0.029)	0.069* (0.031)
Two-Parent Family			-0.048 (0.029)	-0.048 (0.029)
Education (2002)			0.069** (0.010)	0.065** (0.010)
Job Tenure (2002)			0.021** (0.002)	0.021** (0.002)
Labor Market Exp (2002)			-0.010 (0.006)	-0.013* (0.006)
Married (2002)			0.152** (0.031)	0.151** (0.031)
Children (2002)			0.002 (0.013)	0.001 (0.013)
Urban (2002)			0.125** (0.029)	0.127** (0.029)
Local Unemployment (2002)			-0.001 (0.006)	-0.001 (0.006)
constant	2.047** (0.008)	2.630** (0.009)	1.369** (0.235)	1.554** (0.242)
R-Squared	0.213	0.185	0.279	0.282

standard errors in parentheses; *significant at 5 percent level ** significant at 1 percent level

Table 2: Independent variable is Log of Hourly Wage Rate (Panel Analysis)

	2A	2B	2C	2D
Regression Model	Random	Fixed	Random	Fixed
Time Period	1979-1994	1979-1994	1994-2002	1994-2002
Number of Observations	96300	96300	32067	32067
General Intelligence	0.042** (0.003)		0.050** (0.005)	
Black	-0.012 (0.010)		-0.034* (0.016)	
Black*test	0.014** (0.004)		0.015** (0.006)	
Hispanic	0.063** (0.010)		0.056** (0.016)	
Hispanic*test	-0.015** (0.004)		-0.008 (0.006)	
Male	0.224** (0.007)		0.228** (0.011)	
Male*test	-0.013** (0.003)		-0.001 (0.004)	
Education	0.105** (0.002)	0.091** (0.003)	0.100** (0.003)	0.048** (0.009)
Job Tenure	0.060** (0.001)	0.049** (0.002)	0.034** (0.002)	0.022** (0.002)
Job Tenure ²	-0.003** (1.2E-04)	-0.002** (1.3E-04)	-0.001** (1.0E-04)	-0.001** (1.1E-04)
Labor Market Exp	0.086** (0.001)	0.095** (0.001)	0.046** (0.004)	0.073** (0.005)
Labor Market Exp ²	-0.002** (6.9E-05)	-0.002** (7.1E-05)	-4.5E-04** (1.2E-04)	-0.001** (1.3E-04)
Married	0.040** (0.004)	0.029** (0.005)	0.051** (0.008)	0.012 (0.011)
Children	-0.018** (0.002)	-0.015** (0.003)	0.003 (0.004)	4.8E-04 (0.005)
Urban	0.087** (0.006)	0.059** (0.007)	0.030** (0.007)	0.006 (0.008)
Local Unemployment	-0.010** (0.001)	-0.005** (0.001)	-0.007** (0.001)	-0.003* (0.001)
Constant	-0.182** (0.023)	0.083* (0.042)	0.239** (0.058)	0.803** (0.114)
R-Squared	0.355	0.284	0.280	0.067

standard errors in parentheses; *significant at 5 percent level ** significant at 1 percent level

Table 3: Independent variable is Log of Hourly Wage Rate (Hausman-Taylor Analysis)

	3A	3B	3C	3D	3E
Regression Model	HT	HT	HT	HT	HT
Time Period	1979-1994	1994-2002	1979-1994	1994-2002	1979-1994
Number of Observations	96300	32067	96300	32067	81544
Time-Invariant Endogenous					
General Intelligence	0.277** (0.094)	0.275** (0.133)	0.243** (0.088)	0.243 (0.134)	0.265* (0.109)
Black*test	-0.247 (0.291)	0.153 (0.236)	-0.181 (0.271)	0.197 (0.236)	-0.163 (0.233)
Hispanic*test	-0.137 (0.081)	-0.125 (0.101)	-0.057 (0.076)	-0.101 (0.105)	-0.108 (0.105)
Male*test	-0.073 (0.059)	0.065 (0.108)	-0.068 (0.055)	0.093 (0.108)	-0.051 (0.068)
Time-Invariant Exogenous					
Black	0.077 (0.337)	0.921** (0.200)	0.499 (0.332)	1.398** (0.336)	0.636** (0.241)
Hispanic	0.343** (0.106)	0.429** (0.125)	0.921** (0.140)	0.588* (0.279)	0.952** (0.141)
Male	0.153** (0.036)	0.106** (0.044)	0.096 (0.085)	0.470* (0.218)	0.074 (0.094)
Time-Variant Endogenous					
Education	0.091** (0.003)	0.053** (0.007)	0.105** (0.005)	0.077** (0.013)	0.106** (0.005)
Black*edu			-0.031** (0.008)	-0.034 (0.019)	-0.032** (0.008)
Hispanic*edu			-0.046** (0.008)	-0.013 (0.020)	-0.047** (0.008)
Male*edu			0.005 (0.006)	-0.027 (0.016)	0.005 (0.007)
Time-Variant Exogenous					
Job Tenure	0.050** (0.001)	0.023** (0.002)	0.050** (0.001)	0.023** (0.002)	0.050** (0.002)
Job Tenure ²	-0.002** (1.21E-04)	-0.001** (9.96E-05)	-0.002** (-1.21E-04)	-0.001** (-9.99E-05)	-0.002** (-1.27E-04)
Labor Market Exp	0.095** (0.001)	0.073** (0.004)	0.095** (0.001)	0.073** (0.004)	0.093** (0.001)
Labor Market Exp ²	-0.002** (6.81E-05)	-0.001** (1.24E-04)	-0.002** (-6.82E-05)	-0.001** (-1.24E-04)	-0.002** (-7.27E-05)
Married	0.028** (0.004)	0.005 (0.010)	0.027** (0.004)	0.005 (0.010)	0.030** (0.005)
Children	-0.014** (0.002)	-0.001 (0.005)	-0.014** (0.002)	-0.001 (0.005)	-0.013** (0.003)
Urban	0.060** (0.007)	0.005 (0.008)	0.060** (0.007)	0.005 (0.008)	0.066** (0.008)
Local Unemployment	-0.005** (0.001)	-0.003** (0.001)	-0.005** (0.001)	-0.003** (0.001)	-0.005** (0.001)
Constant	-0.203** (0.066)	0.406** (0.114)	-0.351** (0.079)	0.094 (0.181)	-0.389** (0.093)

standard errors in parentheses; *significant at 5 percent level ** significant at 1 percent level