

CYCLES OF WAGE DISCRIMINATION

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I. The Problem and Its Antecedents in the Literature

Ashenfelter, Orley, "Changes in Labor Market Discrimination Over Time," *Journal of Human Resources*, 5 (Fall 1970): 403-30.

Freeman, Richard, "Changes in the Labor Market for Black Americans, 1948-72," *Brookings Papers on Economic Activity*, (1973): 67-131.

O'Neill, June, "The Trend in the Male-Female Wage Gap in the United States," *Journal of Labor Economics*, 3 (Jan. 1985): S91-116.

Blau, Francine, and Lawrence Kahn, "The U.S. Gender Pay Gap in the 1990s: Slowing Convergence," *Industrial and Labor Relations Review*, 60 (July 2006): 45-66.

Cain, Glen, "The Economic Analysis of Labor Market Discrimination: A Survey," in O. Ashenfelter and P.R.G. Layard, *Handbook of Labor Economics, Volume 2*. Amsterdam: North-Holland, 1986.

Altonji, Joseph, and Rebecca Blank, "Race and Gender in the Labor Market," in O. Ashenfelter and D. Card, *Handbook of Labor Economics, Volume 3C*. Amsterdam: Elsevier, 1999.

II. Basic Estimates

$$W_{ist} = \alpha_1 M_{ist} + \alpha_2 U_{st} + \alpha_3 M_{ist} U_{st} + \beta X_{ist} + v_s + \tau_t + \epsilon_{ist}, \quad (1)$$

Table 1. Coefficient Estimates Describing ln(Usual Weekly Earnings), CPS-MORG, 1979-2009, All Workers*

Coefficient (std error)	Female	Hispanic	Hispanic Male	Hispanic Female	Black	Black Male	Black Female
M	-0.0653 (0.0016)	-0.1648 (0.0032)	-0.1772 (0.0044)	-0.1444 (0.0047)	-0.1246 (0.0026)	-0.158 (0.0040)	-0.1002 (0.0034)
U**	0.2526 (0.0263)	-0.0776 (0.0235)	-0.2406 (0.0333)	0.0814 (0.0325)	-0.1894 (0.0238)	-0.3751 (0.0337)	-0.0302 (0.0330)
MxU	-0.8839 (0.0237)	-0.1378 (0.0510)	-0.3902 (0.0688)	0.1183 (0.0753)	0.2814 (0.0396)	0.1613 (0.0603)	0.5411 (0.0514)
Adj. R ²	0.6811	0.6839	0.6368	0.7012	0.6824	0.635	0.7001
N	5220568	5220568	2697981	2522587	5220568	2697981	2522587
Average effect of M (log points)	-0.1183	-0.1731	-0.2006	-0.1433	-0.1221	-0.1566	-0.0953

*Each equation includes a vector of indicators of educational attainment, quadratics in usual hours and potential experience, and indicators of marital status, metropolitan location, veteran status and private/public. The equations in Columns 1,2 and 5 also include an interaction of gender and marital status, and those in Columns 2 and 5 include a main effect of gender. Each equation also includes state and year fixed effects.

**Measured as a fraction here and in subsequent tables.

III. Robustness checks—getting toward pure wage discrimination

- A. Inexperienced less-educated workers
- B. Sub-periods
- C. Removing unobservable changes in composition—the longitudinal CPS

**Table 2. Coefficient Estimates Describing ln(Usual Weekly Earnings), CPS-MORG, 1979-2009,
Workers with <= 5 Years of Experience and <16 Years of Schooling***

Coefficient (std error)	Female	Hispanic	Hispanic Male	Hispanic Female	Black	Black Male	Black Female
M	-0.0528 (0.0033)	-0.0652 (0.0068)	-0.0682 (0.0095)	-0.0608 (0.0097)	-0.0551 (0.0607)	-0.0610 (0.0089)	-0.0450 (0.0082)
U	-0.8412 (0.0538)	-1.0001 (0.0481)	-1.1176 (0.0688)	-0.7974 (0.0668)	-1.0603 (0.0486)	-1.2371 (0.0693)	-0.859 (0.0674)
MxU	-0.4274 (0.0493)	0.0387 (0.1064)	-0.0975 (0.1479)	0.1855 (0.1516)	0.0304 (0.0912)	-0.2161 (0.1345)	0.2879 (0.1230)
Adj. R ²	0.7720	0.7724	0.7633	0.7763	0.7724	0.7632	0.7762
N	753727	753727	378624	375103	753727	378624	375103

*Same variables as in Table 1. State and year fixed effects in each equation.

Table 3. Coefficient Estimates Describing ln(Usual Weekly Earnings), CPS-MORG, Sub-periods 1980-1992, 1993-2009, All Workers*

Coefficient (std error)	Female	Hispanic	Hispanic Male	Hispanic Female	Black	Black Male	Black Female
1980-1992							
M	-0.0935 (0.0024)	-0.1581 (0.0063)	-0.1940 (0.0085)	-0.1123 (0.0091)	-0.1165 (0.0038)	-0.1474 (0.0057)	-0.0931 (0.0049)
U	1.3084 (0.0255)	1.0601 (0.0304)	0.9148 (0.0290)	1.2562 (0.0280)	1.0322 (0.0208)	0.8990 (0.0294)	1.2006 (0.0288)
MxU	-0.5639 (0.0302)	-0.3261 (0.0874)	-0.4059 (0.1181)	-0.2323 (0.1271)	0.0945 (0.0502)	-0.093 (0.0757)	0.3744 (0.0653)
Adj. R ²	0.6864	0.6889	0.6278	0.7011	0.6879	0.6263	0.7005
N	2514889	2514889	1331140	1183749	2514889	1331140	1183749
1993-2009							
M	-0.1391 (0.0026)	-0.1211 (0.0040)	-0.1406 (0.0054)	-0.0999 (0.0059)	-0.1108 (0.0011)	-0.1571 (0.0067)	-0.0755 (0.0054)
U	-0.0628 (0.0351)	-0.3563 (0.0276)	-0.4569 (0.0398)	-0.2531 (0.0381)	-0.4472 (0.0273)	-0.5651 (0.0386)	-0.3185 (0.0385)
MxU	0.4325 (0.0452)	-0.4624 (0.0690)	-0.5050 (0.0938)	-0.3575 (0.1013)	0.1949 (0.0764)	0.1406 (0.1212)	0.1831 (0.0964)
Adj. R ²	0.6189	0.6216	0.5833	0.6263	0.6204	0.5823	0.6253
N	2705679	2705679	1366841	1338838	2705679	1366841	1338838

*Same variables as in Table 1. State and year fixed effects in each equation.

Table 4. Coefficient Estimates Describing $\Delta \ln(\text{Usual Weekly Earnings})$, CPS-MORG, 1980-2009 and Sub-periods 1980-1992, 1993-2009, All Workers, Based on Longitudinal Data*

Coefficient (std error)	Female	Hispanic	Hispanic Male	Hispanic Female	Black	Black Male	Black Female
1980-2009							
U	0.2208 (0.0558)	0.0840 (0.0417)	0.1251 (0.0584)	0.0514 (0.0594)	0.0270 (0.0420)	0.0645 (0.0582)	-0.0214 (0.0604)
MxU	-0.4044 (0.0799)	-0.5567 (0.1449)	-0.6829 (0.1948)	-0.4979 (0.2153)	0.0370 (0.1375)	-0.1307 (0.2059)	0.2615 (0.1854)
Adj. R ²	0.2989	0.2989	0.2460	0.3523	0.2989	0.2460	0.3523
N	1824705	1824705	948100	876605	1824705	948100	876605
1980-1992							
U	0.4196 (0.0581)	0.3469 (0.0432)	0.3381 (0.0599)	0.3504 (0.0618)	0.2934 (0.0441)	0.2808 (0.0605)	0.2937 (0.0640)
MxU	-0.2593 (0.0834)	-0.8511 (0.1979)	-0.8824 (0.2624)	-0.8550 (0.2990)	0.1068 (0.1473)	0.1010 (0.2210)	0.1625 (0.1951)
Adj. R ²	0.3896	0.3896	0.3173	0.4651	0.3896	0.3173	0.4651
N	839707	839707	451279	388428	839707	451279	388428
1993-2009							
U	0.4642 (0.0590)	0.4125 (0.0437)	0.4064 (0.0606)	0.4044 (0.0627)	0.3685 (0.0448)	0.3575 (0.0614)	0.3624 (0.0650)
MxU	-0.1693 (0.0849)	-0.4925 (0.2070)	-0.4810 (0.2742)	-0.5190 (0.3132)	0.2062 (0.1495)	0.2699 (0.2238)	0.1778 (0.1982)
Adj. R ²	0.3898	0.3898	0.3163	0.4671	0.3898	0.3163	0.4671
N	767463	767463	414055	353408	767463	414055	353408

*Also includes potential experience and current and past year's usual weekly hours, and year fixed effects.

IV. Job-specific shocks—**are the effects similar??**

$$W_{ist} = \alpha_1 M_{ist} + \alpha_2 U_{st} + \alpha_3 M_{ist} U_{st} + \alpha_4 \Delta H_{it} + \alpha_5 \Delta H_{it} M_{ist} + \alpha_6 \Delta H_{it} U_{st} + \\ + \alpha_7 \Delta H_{it} M_{ist} U_{st} + \beta X_{ist} + v_s + \tau_t + \varepsilon_{ist}, \quad (2)$$

Table 5. CPS MORG 1979-2009, All Workers, Accounting for Industry Cyclicity (Trimmed Estimates)*

Coefficient (std error)	Female	Hispanic	Hispanic Male	Hispanic Female	Black	Black Male	Black Female
M	-0.0681 (0.0017)	-0.1768 (0.0033)	-0.1893 (0.0044)	-0.1550 (0.0048)	-0.1239 (0.0027)	-0.1597 (0.0040)	-0.0970 (0.0035)
U	0.2941 (0.0259)	-0.0070 (0.0232)	-0.1769 (0.0325)	0.1387 (0.0328)	-0.1067 (0.0235)	-0.2957 (0.0329)	0.0373 (0.0333)
MxU	-0.8036 (0.0236)	0.0264 (0.0513)	-0.2140 (0.0691)	0.2362 (0.0760)	0.2904 (0.0400)	0.2009 (0.0601)	0.5069 (0.0520)
ΔH	0.0877 (0.0112)	.0671 (0.0091)	0.0415 (0.0118)	0.0751 (0.0142)	0.1261 (0.0090)	0.1005 (0.0119)	0.1390 (0.0147)
$\Delta H*U$	-2.421 (0.149)	-2.112 (0.120)	-2.494 (0.154)	-0.880 (0.190)	-2.548 (0.123)	-2.993 (0.157)	-1.250 (0.097)
$\Delta H*M$	0.0223 (0.0167)	0.4455 (0.0355)	0.5434 (0.0454)	0.3760 (0.0563)	-0.0943 (0.0284)	-0.0944 (0.0398)	-0.1197 (0.0405)
$\Delta H*M*U$	0.751 (0.229)	-3.684 (0.516)	-5.708 (0.652)	-2.276 (0.823)	1.139 (0.382)	1.141 (0.525)	0.750 (0.550)
Adj. R ²	0.6816	0.6845	0.6418	0.6968	0.6829	0.6398	0.6956
	5044318	5044318	2599255	2445063	5044318	2599255	2445063
$\partial^2 W / \partial M \partial \Delta H$	0.0674	0.2243	0.2007	0.2394	-0.0259	-0.0259	-0.0747

*Includes state and year fixed effects, and the same variables as in Table 1. Trimmed to exclude observations with an absolute annual change in industry employment >50 percent.

V. Another type of discrimination--looks

Table 6. Estimates of the Effect of a One-Standard-Deviation Increase in Beauty on Male Attorneys' ln(Earnings), Graduates 1972-77 and 1982-87*

Cohort	Earnings Effect	
	Year 1	Year 5
1972-77 Graduates (N = 778)	0.0167 (0.0099)	0.0431 (0.0114)
1982-87 Graduates (N = 789)	0.0053 (0.0116)	0.0068 (0.0104)

*Based on Biddle and Hamermesh (1998, Table 3). The estimates are adjusted for a wide variety of control variables.

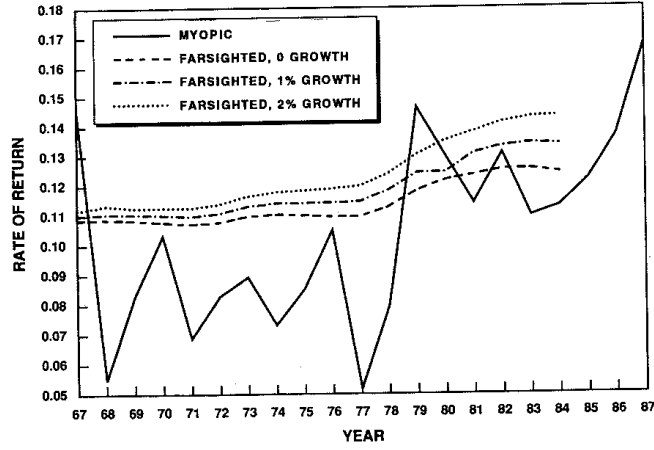


Figure 1. Rate of Return on Law School, 1967-87, from Rosen (1992, Figure 6).

VI. Rationalizing the results—and testing a theory

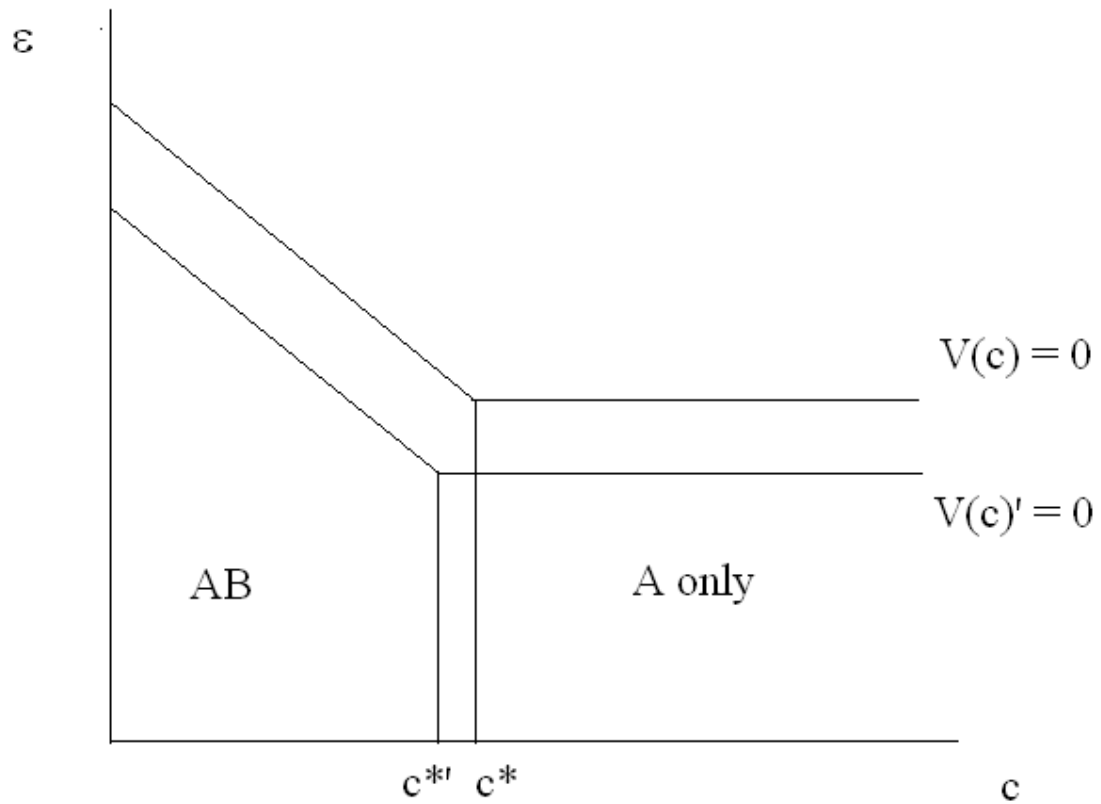


Figure 2. Job Openings and Employers' Tastes for Discrimination

Table 7. Coefficient Estimates Describing $\Delta \ln(\text{Usual Weekly Earnings})$, CPS-MORG, 1980-2009, Distinguishing Job-Movers from Job-Stayers*

$\partial^2 \Delta W / \partial M \partial U$ (std error)	Female	Hispanic	Hispanic Male	Hispanic Female	Black	Black Male	Black Female
Movers	-0.7436 (0.1453)	-0.6266 (0.2419)	-0.8729 (0.3272)	-0.0474 (0.3510)	0.2560 (0.2382)	0.0163 (0.3543)	0.6588 (0.3200)
Stayers	-0.1206 (0.0888)	-0.4782 (0.1699)	-0.5484 (0.2229)	-0.4192 (0.2632)	-0.1145 (0.1592)	-0.2753 (0.2291)	0.0296 (0.2205)
Movers -Stayers	-0.6230 (0.1703)	-0.1484 (0.2956)	-0.3245 (0.3959)	0.3718 (0.4387)	0.3704 (0.2865)	0.2916 (0.4219)	0.6292 (0.3886)

*Same variables as in Table 4.

I wish that "old-fashioned" labor economics like this made it into our best journals these days, but I fear those days are gone. Better would be a study of whether the effect of your team's losing an NFL game on beating up your wife varies with the cycle—now that is a paper that will go somewhere!

Distinguished very senior labor economist (not me!), August 10, 2011, commenting on this study. (Private communication)